UNIVERSITY OF OXFORD

MUSEUM of the HISTORY of SCIENCE

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ANNUAL REVIEW 2017/2018

MUSEUM of the HISTORY of SCIENCE

An Ark
for the History of Science

In 1683 the building which is now the Museum of the History of Science opened as the home of a completely new institution, the Ashmolean Museum. Created to house the collection of Elias Ashmole, it was much more than just a display of objects. It became the centre of Oxford science in the late 1600s, with teaching in the entrance gallery and a chemical laboratory and anatomical theatre in the basement.

In 1924 the Museum of the History of Science was founded in the same building. Like Noah's Ark, it was intended as a place of safety, preserving objects from the threat of destruction. Robert Gunther and Lewis Evans together were the driving force behind the new museum. Evans donated his collection of historic scientific instruments to the university in 1924. Gunther campaigned for them to be displayed in the building then known as the Old Ashmolean.

Lewis Evans's collection provided the nucleus around which the Museum grew. Subsequent acquisitions have come especially from Oxford colleges and departments as well as major donors such as J A Billmeir (1957), C F C Beeson (1966), the Royal Microscopical Society (1968) and the Marconi Corporation (2004). The Museum now holds an unrivalled collection of early astronomical and mathematical instruments from Europe and the Islamic world and an exceptionally rich set of microscopes. Complementing the wide range of objects are manuscripts and early printed works, early photographs, portraits of scientists and scientific prints.

This Annual Review provides a snapshot of our activities and achievements during the period from August 2017 to July 2018. More information can be found on our website: **www.mhs.ox.ac.uk**

"The collection of Middle Eastern and North African scientific instruments is unparalleled globally and provides a special opportunity to tell the story of the brilliant research and technology developments that stem from these regions and ancient cultures."

Professor Alex Halliday FRS

From the Pro-Vice-Chancellor

This annual review is testament to a thriving museum. The History of Science Museum is what we like to call our 'bijou museum' – bijou only in its physical presence and far greater in its inspiration and impact, opening minds to the tools of science, the crossing of cultural influences and of course continuing the historical presence of collections, teaching and research in the original Ashmolean Museum building.

Silke Ackermann, as Director, is leading the development of exhibitions and displays that bring human stories into the narrative of the physical artefacts and the special exhibitions this year are exemplars in that new tradition. As you read this annual review you will see the impact the Museum has had with its numbers of visitors, the diversity of its audiences, and through its public and University events.

But this year has also seen a huge shift behind the scenes. That shift is the actual movement of the Museum collections that are in storage. Scientific artefacts, great and small, not on display in the Museum have been stored in various Oxford locations over the Museum's history. Within the last 10 years they have all been gathered together at the "Old Power Station" in Osney. The team this year have identified, documented and packed thousands of items in preparation for the move off-site to a GLAM shared storage facility – a major project and just one example of the work of the Museum staff behind the scenes. So much more goes on in a museum than is visible to the public!

The staff of the Museum are to be congratulated on another successful year.

Professor Anne Trefethen FBCS FREng
Pro-Vice-Chancellor for People and for Gardens, Libraries and Museums (GLAM)

From the Chair of Visitors

I have been privileged to chair the Board of Visitors of the Museum of the History of Science for the past few years and it is with a mixture of sadness and satisfaction that I am finishing in this role. Professor Roger Davies is taking over. He is a very experienced academic leader and wonderful citizen of this university who has already demonstrated extraordinary commitment to the museum as a member of the Board over many years.

It has been really great to see the museum developments under the leadership of Dr Silke Ackermann. The museum and its archived and exhibited items have long been viewed as truly fantastic assets for Oxford; there is nothing else on such a scale quite like this in other U.K. universities. The collection of Middle Eastern and North African scientific instruments is unparalleled globally and provides a special opportunity to tell the story of the brilliant research and technology developments that stem from these regions and ancient cultures. Furthermore, the collection provides an enviable platform for explaining Oxford's pivotal role in the development of science from the 17th century to modern times. In terms of public engagement, its location is perfect, and historically fitting. It was in these streets of Oxford, indeed in some remaining buildings, that the world of science was revolutionised, thanks to individuals like Robert Hooke, Thomas Willis, Christopher Wren and Robert Boyle. This is where much of the revolution took place that led to the founding of the Royal Society in 1660.

Today, the museum is a thriving, award-winning hub of activity, pursuing novel means of engagement with academic peers, visitors and local communities. We are now attracting much needed philanthropic funding. We have a 'Director's Circle' of supporters who care greatly and are keen to help the museum move forward. The space has been evolving to open up the building for easier engagement with the exhibits and to establish opportunities for selling merchandise. The recent special exhibitions on Penicillin and "BioArt" have been highly imaginative, very effectively demonstrating interfaces between science, history and the arts and humanities more broadly. The museum is also taking advantage of its collections to establish completely new ways of engaging with local Muslim communities and forced migrants, especially from Syria and Iraq, through the externally funded Multaka Oxford, Young Producers and Co-Curate projects.

Based on these successes, we will soon be launching Vision 2024, the ambitious strategy for the first centenary of the museum. This is aiming to completely refurbish the space and, while retaining its charm, splendour and sense of history, turn it into a more welcoming, exciting and fully accessible environment that tells the story of the human endeavour to make discoveries. I look forward to seeing many great things happening here over the coming years.

Professor Alex Halliday FRS
Chair, Board of Visitors

From the Director

It is with great pleasure and a sense of pride that we look back on 2017/18, a packed year that brought to fruition a number of hugely exciting projects, saw the creation of new initiatives and witnessed the first steps towards the realisation of *Vision 2024*, the ambitious strategy for our first centenary. We are delighted to share some of the highlights of these very busy 12 months with you in the following pages.

The Museum's first ever Business Review, focussing on, but not limiting itself to, finances and structures was carried out by Katherine Murray, Associate Fellow of the Saïd Business School, in the summer and autumn of 2017. This in-depth and extremely thorough review is enabling us to move forward in leaps and bounds on the way to much greater resilience and I would like to record our grateful thanks to Katherine and colleagues from the SBS and from the wider University whose support has been invaluable.

We bid farewell to our Chair of Visitors, Professor Alex Halliday, who took on his new role as Director of the Columbia Earth Institute in New York in Spring 2018. Alex has been simply phenomenal as Chair and his support and encouragement was instrumental in us achieving a number of very ambitious goals. We are very fortunate that the Museum's long-term friend and supporter, Professor Roger Davies, has agreed to take over as Chair. Roger has been very closely involved with the Museum for many years and we are all much looking forward to him (re)joining the Board in Michaelmas 2018.

2017/18 saw the inauguration of the Museum's new supporters' group, *Director's Circle*. It is wonderful and very humbling to experience the generous advice and encouragement of its members and that of the many individuals who have supported us throughout the year. Thank you!

It has also been a great year for joint working within our Division, GLAM (Gardens, Libraries and Museums). Such partnerships have enabled us to carry out projects that as individual institutions we might not have had the resources or skills to take on. GLAM, under the energetic leadership of our Pro-Vice-Chancellor, Professor Anne Trefethen, is going from strength to strength and I would like to record my personal thanks to Anne and my directorial colleagues and their teams for the support of MHS during the past year. Together we are, indeed, stronger!

But none of those major achievements during the past year would have been possible without the excellent and dedicated team that I am proud to work with and whose names you will also find in this Review. And so the final big THANK YOU goes to them.

Dr Silke Ackermann FSA
Director

NEW IN 2017/2018

A distinctive new uniform and name badges were introduced for gallery staff this year, further professionalising our front-of-house offer and making team members easily identifiable by our visitors who require information or help. This initiative ties in with other institutions across GLAM.

A new postgraduate option was launched this year for Masters' students in the History of Science, Medicine and Technology. Astrology in the Medieval and Early Modern World, co-taught by Dr Silke Ackermann and Dr Stephen Johnston, makes extensive use of Museum artefacts from Europe and the Islamic world and has proved to be very popular with students.

The inauguration of our Director's Circle (see p.42) and a client's request for a prestigious dinner offered the perfect opportunity to introduce private, boutique dining at the Museum preceded by a drinks reception in the Entrance Gallery. The setting of the Old Chemistry Laboratory in the Basement Gallery and specially tailored catering by Oxford Fine Dining provided a unique, exclusive atmosphere for that very special event.

The Museum shop was relocated and completely reconfigured in the Entrance Gallery, giving visitors the opportunity to choose a souvenir or that special gift from an intriguing range of beautiful and fun items. The retail offer is an important part of the growth of the Museum's commercial operations, contributing to our long-term financial resilience.

TOTAL MUSEUM VISITORS
180,664

SCHOOL PUPIL PARTICIPANTS
4,234

BIOART EXHIBITION VISITORS
35,480

WEBSITE UNIQUE USERS
122,180

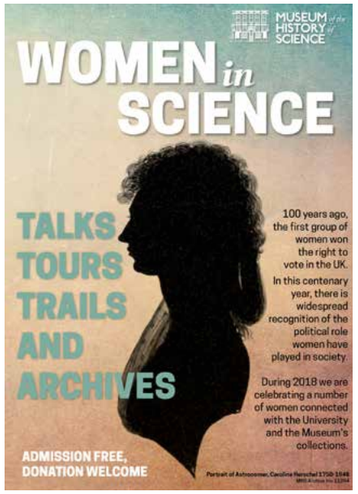
FAMILY ACTIVITIES PARTICIPANTS
2,515

HIGHER EDUCATION STUDENT PARTICIPANTS
200

MOVE PROJECT VOLUNTEER HOURS
670

HIGHLIGHTS

2017/2018



Women in Science

2018 marks 100 years since the first group of women won the right to vote in the UK. To mark this centenary we displayed portrait banners, with mini biographies, in the Basement Gallery to celebrate women scientists with a connection to the Museum or Oxford University (or both), and rarely seen archival material from our collection. This was complemented by talks by women scientists, family activities and two trails highlighting women scientists: *Women and Science* created by the Museum, and our contributions to the *Shout Out for Women* trail across GLAM.

BioArt

BioArt is an emerging area of artistic practice that brings together art and science, using biological media and scientific, as well as artistic, methods to create artworks. Anna Dumitriu is internationally recognised as a pioneer in BioArt and known for her work with bacteria and synthetic biology. After an almost 6-month run, accompanied by a rich and diverse public and learning programme, our exhibition had been seen by 35,480 people.

Multaka-Oxford

Adding new narratives to our displays and online database is one of the strategic aims for 2024. This has been given a major boost by a £120,000 grant from the Esmée Fairbairn Collections Fund (jointly awarded to the Pitt Rivers Museum) to create inclusive volunteering experiences for people from refugee and local Muslim communities. The resulting project, Multaka-Oxford, ties in perfectly with the thoughtful contributions from our Young Producers (formerly known as 'Youth Forum') and reflects what we want MHS to be: a meeting point (Arabic: Multaka) for people from different backgrounds to enjoy and be inspired by the collections and their social and cultural contexts.

ملتقى أكسفورد

OPS Move Project

Significant work was done by our Move Team and volunteers in preparation for the necessary move of the estimated 70,000 items in our offsite collections from the Old Power Station. This included object assessments and photography, before careful, specialist packing. The ongoing Move Project work will greatly enhance the records of the Museum's collections in the long term.

TripAdvisor Reviews

Reviewed 2 April 2018

An amazing collection

We visited the museum just as a couple not a tour. It is the most fascinating collection of scientific instruments I have ever seen. Our ancestors were so inventive and brave to build ships and set forth to sail across the oceans with such basic equipment, which worked for them. The workmanship in the brass instruments is beautiful. The whole museum gives us a brief history of time.

Show less

walkon161
Stafford, United Kingdom
27 8

Reviewed 17 March 2018 via mobile

Great discovery

We happened to stumble across this museum while walking through Oxford. We were thrilled as my son is currently learning about the history of science. Three floors dedicated to some amazing historical scientific artifacts, such as a blackboard still showing Einstein's calculations from a lecture. There were quizzes for children to complete while exploring, and the volunteers were so helpful and informative. The museum is free which was so refreshing, with a suggested donation of £5 which I think is well worth it. I would very much recommend a visit

Ayse I
Broxbourne, United Kingdom
122 111

Reviewed 25 April 2018 via mobile

A fantastic and informative visit

Staff were very helpful and full of knowledge. On learning we were from Australia, staff immediately pointed us in the direction of exhibits that may be particularly relevant.
I was most excited to find the skull of Phineas Gage. Einstein's chalkboard was interesting and I really enjoyed the exhibit about development of the Periodic table. This place is a goldmine for important events in the history of science.

HarveyGemma
Adelaide, Australia
39 32

Permanent Display

Two new permanent displays are the first in a series of experimental pilots for *Vision 2024*, our ambitious strategy for the Museum's first centenary that we are aiming to formally launch later in 2018. The *1683-1924* display in the Entrance Gallery tells the rich, varied and colourful story of our building and the founding of MHS; *Science and Sacrifice* in the Basement Gallery creates a permanent legacy for our hugely successful 2015 special exhibition *'Dear Harry…' Henry Moseley: A Scientist Lost to War*. We are using these pilots to try out novel ways of interpretation and display and to elicit feedback from our audiences to inform the planned complete redisplay in 2024.

COLLECTIONS

OPS Move Project

Much of the collections team's effort over the year has gone into preparing for the move from the Old Power Station (OPS) to a new storage location. The Move Team was formed in 2016 to document and pack the collection stored at OPS prior to the redevelopment of the building for the Saïd Business School. The team has nearly doubled in size over the last year, increasing the packing rate in order to meet the deadline for completion of the move by the end of October 2018.

The object assessments carried out as part of the project have dramatically increased the number of documented objects, parts and components in store. There are now an estimated 70,000 items in the Museum's offsite collections, which all require moving. The process has included undertaking an assessment of each object to note its condition and what it is made of in order to understand how best to transport it. The Museum has significant holdings of medicines, barometers, electrical equipment and biological specimens which contain materials hazardous to health, and therefore require special transportation licences and handling specifications.

In the last year, over 1644 containers have moved to their new destination, requiring approximately 85% of the total stored collections to be assessed, photographed and packed. Objects have been packed by trained museum professionals using conservation grade materials. Due to the unusual size and shape of some of the objects, not all can be boxed, but require packing into

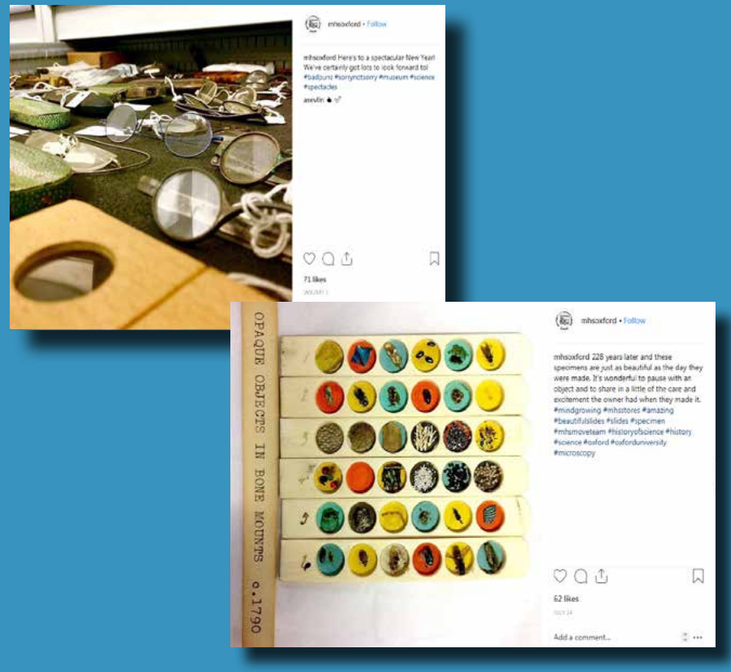
large crates with the assistance of a commercial packing company or 'soft wrapped' and strapped to pallets.

The Move Project would not have achieved so much in such a short space of time without support from GLAM volunteers and the Museum is extremely grateful for their input. Over 670 hours have been donated in the last academic year by volunteers to photograph, document and prepare packing materials.

Other members of Collections' staff have been extensively involved in the Move Project, and in the planning for both interim storage and the longer-term development of a GLAM collections centre. At OPS itself our conservator has dealt with particularly problematic objects, ranging from gaining entry to locked objects without keys; dealing with unknown possible hazards; remedial conservation to enable safe packing; and packing and cleaning advice to the Move Team. She has also contributed to hazard awareness training and the procurement of specialist firms for assessing and treating objects containing hazards such as asbestos.

MOVE TEAM ON INSTAGRAM

The Move Team has been documenting the project's progress on the Museum's Instagram and Twitter channels – see #mhsmoveteam and #mhsstores.

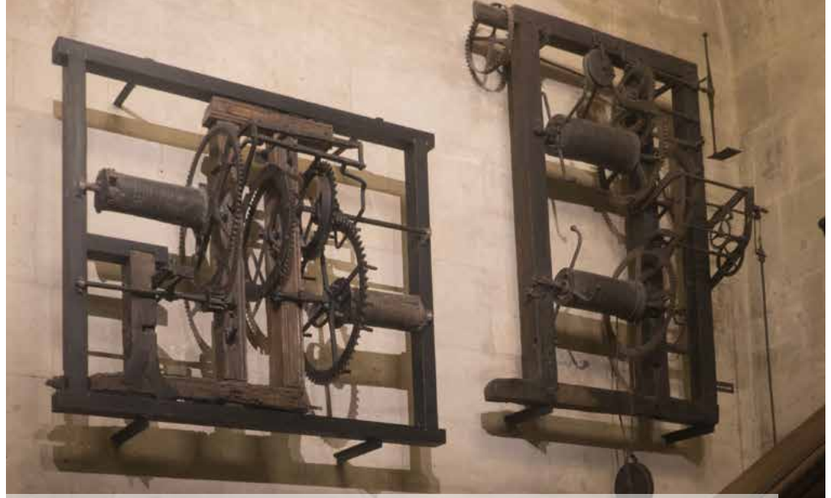


#mhsmoveteam
#mhsstores

COLLECTIONS

Conservation

In addition to working on the Move Project, our Conservator dedicated practical conservation time to new acquisitions and long-term care of collections. Condition assessments were carried out on objects requested for research visits, prior to their study.



There has been significant effort invested in object moves within the main Museum building. Object conservation was required for the redisplay of two cases in the Entrance Gallery and material in open cases in the Basement Gallery was audited, condition assessed and photographed, in preparation for movement to better conservation conditions in our reserve collection.

In order to create much-needed additional office space in the Museum building, objects in storage had to be moved, requiring careful planning and handling by various members of the Collections team. This included carefully controlled relocation of radioactive objects.

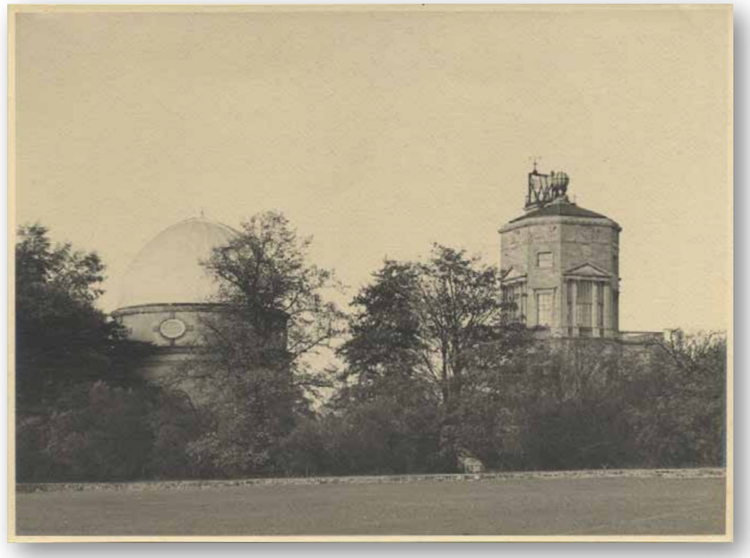
The most challenging moves were of large astronomical objects and clocks attached to the walls on the central staircase. After condition checking and cleaning most of these were taken down, packed and moved into storage by professional art handlers, in order to make way for improved lighting over the staircase and new handrails – which itself required conservation planning.

Training to improve staff skills and also to offer opportunities to the wider community has continued. Our Conservator took part in regular occupational health monitoring for working with hazardous substances, and Safety Office refresher training for RPS Radiation safety. More widely, the GLAM Conservators group made a successful application for funding to hold joint training sessions with external experts for the benefit of all Oxford conservation/collections staff.

Externally, a volunteer gained valuable experience by working with our Conservator over a month on basic conservation cleaning. A heliostat, conserved as a student project at the West Dean College horology department, was returned, after completion, by the course tutor Matthew Read (now at the Bowes Museum). The conservation was carried out in a very sympathetic and successful manner.

COLLECTIONS

New Acquisitions



Photograph of the Radcliffe Observatory in the 1930s (inv. 15612)

The following objects were acquired by the Museum:

Optometrist's Semi-Conical Rule
by Willesden Optical Works Ltd, English, Early 20th Century [2017-8/1]
Inventory No. 15316
Presented by Jeri Bapasola

Circumferentor
by Elliott Brothers, London, Later 19th Century [2017-8/2]
Inventory No. 15332
Presented by Jeri Bapasola

Travelling Wave Tube
by Standard Telephones and Cables Ltd, British, c.1955 [2018-1]
Inventory No. 15437
Presented by Colin Potter

British Standards Institution Metric Conversion Slide
by Blundell Rules Ltd, Weymouth, 1970s [2018-2]
Inventory No. 15439
Presented by Peter Ells

Two Postcards and one Photograph of the Radcliffe Observatory
Owned and possibly taken by Harold Knox-Shaw, Radcliffe Observer, 1930s [2018-3]
Inventory No. 15612-15614
Presented by Anne Charles and Peter Knox-Shaw

Station Pointer in Case
by H. Hughes & Son, Early 20th Century [2018-4]
Inventory No. 15615
Presented by D J Taylor

Microscope
by Swift, 1980s [2018-5]
Inventory No. 15616
Presented by the Royal Microscopical Society

Standard for Correcting Chains, Rods and Other Measures
by Elliott Brothers, 20th Century [2018-6]
Inventory No. 15617
Presented by Peter Williams

EXHIBITION & DISPLAYS

Anna Dumitriu: BioArt and Bacteria

The success of the participatory art installation by Anna Dumitriu within the 2016-17 exhibition *Back from the Dead* led to an extension of the proposed one-month artist take-over into a 6 month exhibition: *Anna Dumitriu: BioArt and Bacteria*, which ran from 28 September 2017 to 18 March 2018.

THE EXHIBITION

BioArt is an emerging area of artistic practice that brings together art and science, using biological media and scientific as well as artistic methods to create artworks. It explores the relationship between humans, science and ethics. BioArtists work with bacteria or other living organisms or tissue, and also study life processes. Using scientific methods such as biotechnology and genetic engineering, the artworks are produced in laboratories, galleries, hacker-spaces, or artists' studios.

The work of BioArtists can help offer new meanings for our lives in the wake of scientific discovery or raise issues for social and ethical debate. Anna Dumitriu is internationally recognised as a pioneer in BioArt and known for her work with bacteria and synthetic biology.

The review in *The Lancet* (vol.391, March 10, 2018) stated: 'treating Dumitriu's work as "in conversation" with *Back from the Dead* creates an experience of depth, grace, and economy'; 'her works not only fuse art and science, they also provoke debate'. The link with the *Back from the Dead* exhibition at MHS in 2016-17 was enhanced by the first piece in this year's exhibition: *Ex Voto* was created from the votives made by members of the public during the previous exhibition, based on people's experiences of bacteria or antibiotic resistance.

PUBLIC ENGAGEMENT

A programme of free public events and tours ran alongside the exhibition, publicised through exhibition-specific flyers, and the Museum's *What's On* leaflets, website and social media:

Anna Dumitriu: Artist's Talk: The artist talked about the exhibition and her work exploring infectious diseases and emerging technologies through art.

BioArt: Altered Realities: William Myers, author of *BioArt: Altered Realities* (published by Thames & Hudson) explained how BioArt responds to our changing definitions of life, nature and identity.

Meet the Bacteria: Anna Dumitriu and Dr John Paul (Public Health England) have collaborated over a 13-year period, and Dr Paul presented their collaborative microbiological work and its impact.

TB: Stories from its DNA: Tuberculosis still kills more people each year than any other germ. Dr Timothy Walker (Nuffield Department of Medicine) explained how its DNA holds some vital clues to where it has been, how it is evading treatment and how we can eliminate it.

In Conversation: Anna Dumitriu and Nicola Fawcett: Anna Dumitriu and microbiologist Dr Nicola Fawcett (Nuffield Department of Medicine) discussed their collaboration and how it highlights the impact of infectious diseases and antibiotics on our lives.

Guided tours: Two free public guided tours of the exhibition, led by Anna Dumitriu, proved very popular.

'An inspiring blend of science and art. Thank you for this incredible exhibition.'

Tom, DPhil biochemistry student and amateur opera singer

'We, students from Germany, have never experienced an exhibition like this before. The topic of science usually is not presented this way – through the art we were able to find inspiration.'

EDUCATION

The exhibition presented the Museum with a fantastic opportunity for learning. As both practitioner and enthusiastic advocate, Anna personifies the possibility of creative links between science and art. Her experience and willingness to participate in public engagement meant that we were able to provide rich opportunities for conversation between artists and researchers from the University's science departments alongside an aesthetically engaging and thought-provoking exhibition.

With support from ISSF (Wellcome Institutional Strategic Support Fund), three events were programmed to coincide with British Science Week in March 2018: the *BioArt and Bacteria* family event which provided opportunities to meet artists and scientists at the cutting edge of medical research and contemporary practice; and two cross-curricular art-science study days aimed at students in KS4 (GCSE level) and KS5 (A-level) including art workshops with Anna Dumitriu. This was an amazing opportunity for students to find out more about how a contemporary artist has been inspired by experimental work and immersed herself in conversations with scientists.

'I have definitely learnt a lot and I am surprised that art and science would link like this. I really enjoyed meeting the researchers and their interactive activities.'

Year 10 student

LEGACY

The exhibition will go on to tour to Philadelphia from October 2018, the Eden Project from March 2019, and then other venues to be confirmed.
Anna Dumitriu: BioArt and Bacteria remains on the MHS website, with acknowledgement of the generous support of the EPA Cephalosporin Fund:
www.mhs.ox.ac.uk
It also features on the artist's tumblr page
http://annadumitriu.tumblr.com/BioArtBacteria

EXHIBITION & DISPLAYS

Permanent Displays

Significant enhancements to the permanent displays were made during the course of the year. Two showcases in the Entrance Gallery were refurbished to tell the rich and varied story of our building and the founding of MHS. The colourful, large-scale graphics provided an opportunity to trial new display styles while focusing on the building's opening as the Ashmolean in 1683 and the origins of MHS in Lewis Evans' 1924 presentation of his collection to the University.

In the Basement Gallery a large new high-specification showcase houses *Science and Sacrifice: Harry Moseley – Son, Scientist and Soldier*. This display creates a permanent legacy for our hugely successful special exhibition *'Dear Harry…' Henry Moseley: A Scientist Lost to War*. Supported by HLF, the Moseley exhibit features the Museum's first use of a computer animation as part of the permanent display.

EXHIBITION & DISPLAYS

Women in Science








2018 marks 100 years since the first group of women won the right to vote in the UK. To mark this centenary we organised a number of events, talks and projects, running throughout the year to celebrate the contribution of women to science.

Illustration from part one of *Photographs of British Algae: Cyanotype Impressions*, by Anna Atkins, 1843, MHS inv. 11887.

BASEMENT GALLERY DISPLAY

In the Basement Gallery we produced a small display of rarely seen archive material highlighting the work of four women:

- **Anna Atkins produced in 1843 the first book illustrated with photography**
- **Sarah Angelina Acland was a pioneer of colour photography in the early 1900s**
- **Ada Lovelace has been described as the world's first computer programmer**
- **Elizabeth Hippisley was a chemist and geologist in the late 1700s**

We have been pleased to receive excellent feedback on the displays. Both quotes on these two pages are from our visitors' comment book.

PORTRAITS

The Basement Gallery has been transformed by a series of portrait banners featuring women who have been part of the scientific world from the 1700s to the present day. Each is linked to the Museum either through an item in the collections or their roles at Oxford University. Among them is Dame Jocelyn Bell Burnell, Visiting Professor of Astrophysics and recent winner of the prestigious Breakthrough Prize in Fundamental Physics.

'I am a woman and a mathematician. I am so pleased at seeing and reading about a mathematical woman who was the first computer programmer.'

FAMILY ACTIVITIES

A member of our learning team created a new family trail, *Women and Science*, highlighting links between our collections and the achievements of women in the different fields of science, as well as their roles as owners and makers of scientific instruments.

We also ran a successful family day where children were able to learn more about two female photographers in our collection, Anna Atkins and Sarah Acland, and try out 'cyanotype' photography, using the sun to make photos in the manner of Anna Atkins in the 1840s.

TRAILS

MHS is represented in the *Shout Out For Women* booklet: a trail aimed at adults across the collections of Oxford University's Gardens, Libraries and Museums. Four women were featured with links to our collection: Mary Senex (manufacturer of globes), Dorothy Crowfoot Hodgkin (the Nobel Prize-winning crystallographer), Mariam al-Asturlabi (maker of astrolabes) and Sarah Angelina Acland (pioneer of colour photography).

'I am a Spanish 2nd year Physics student and am 1 of the 10 women in a class of 70 students. There is still so much to do but this display has been so inspiring for me. Keep on!'

Portraits LtoR: Portraits left to right: Jocelyn Bell Burnell (© Keiko Ikeuchi), Dorothy Crowfoot Hodgkin (Principal and Fellows of Somerville College, Oxford and the Estate of Sheila Fell), Ethel Bellamy (MHS), Sarah Angelina Acland (MHS), Ada Lovelace (New York Public Library), Anna Atkins (Nurstead Court Archives), Mary Somerville (Principal and Fellows of Somerville College, Oxford), Caroline Herschel (MHS).

TALKS

A series of talks has been scheduled to celebrate the achievements of women in science and public life. Dr Elizabeth Bruton provided insights into the little-known history of female wireless telegraphists in her talk 'Uncertain at Present for Women But May Increase'. Talks scheduled for later in 2018 include Professor Ursula Martin on Ada Lovelace, and Dr Patricia Fara's discussion of the pivotal role of women scientists during the First World War.

RESOURCES

Biographies of the women scientists featured on our portrait banners and our *Women and Science* trail are available to download from our website:

www.mhs.ox.ac.uk

PUBLIC PROGRAMME

SPECIAL EXHIBITION

We hosted a range of talks and tours to support the special exhibition, *Anna Dumitriu: BioArt and Bacteria*, including family days, evening talks, and artist-led tours. A full list of talks appears in the report of the exhibition in this Review. Anna Dumitriu led two public tours of her work in the Special Exhibitions Gallery, explaining her practices exploring infectious diseases and emerging technologies through art.

PRINT

The Museum's regular programming leaflets were produced throughout the year, containing information about exhibitions and the full range of family-friendly events, gallery tours, evening talks and special events. For the majority of events a poster was created for display outside the Museum and online.

CURIOSITY CARNIVAL

The academic year began with the hugely successful *Curiosity Carnival,* a city-wide programme of activities across the University of Oxford's museums, libraries, gardens and woods for European Researchers' Night 2017. The evening offered a chance for the public to find out what research is really all about, meet Oxford University researchers, ask questions, and discover how research changes lives. European Researchers' Night is a Europe-wide event dedicated to explaining research through fun, interactive learning, and is funded by the European Commission. MHS hosted a delightfully difficult pub quiz for the Carnival, which saw each group paired up with a researcher from the University. Questions ranged from 'What was the name of the first dog in space?' to 'Who painted *The Persistence of Memory?*'.

SOUNDING SPACE

In November we worked with Oxford Contemporary Music to present *Sounding Space*, a musical promenade though the Museum by the group Sirinu, with accompanying images and highlighted objects on display. The programme was performed three times in one evening and featured astronomically-inspired music from medieval to modern. The programme finished with the world première of *Einsteins Tafelmusik*, a new music-theatre commission by Professor Martyn Harry of Oxford's Music Faculty.

SENSING CULTURE

We continued to host *Sensing Culture* tours on topics such as astronomy for visitors who are blind or partially sighted. The tours include object handling and specially printed swell paper tactile images.

"Very illuminating – encouraged me to think about visual culture differently."

Scenes from a Projected World. Special Event

SCENES FROM A PROJECTED WORLD

In June we hosted Dr Emily Hayes (Oxford Brookes University) for a unique projection event. *Scenes from a Projected World* combined Dr Hayes' research into the history of the Royal Geographical Society with spoken word, projected images and musical accompaniment to explore the magic lantern's role in the creation of environmental knowledge.

TOURS

Our very knowledgeable volunteer guides continued to offer regular free guided tours of the Museum, every Thursday and Saturday, telling the stories behind the objects and the history of our very special building.

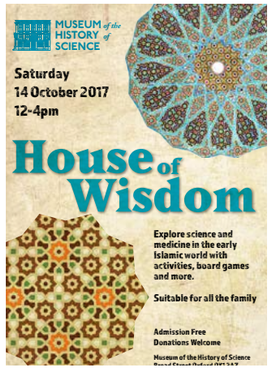
We also provided tailored, private guided tours to groups with special interests, including retired GPs, family, student and alumni groups.

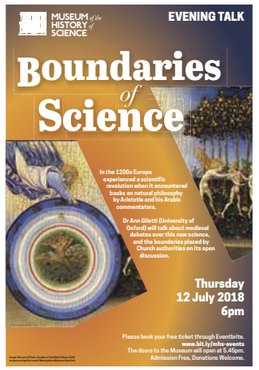
Information about our tour offers are on our website: **www.mhs.ox.ac.uk**

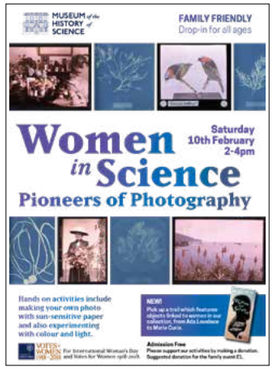
REGULAR EVENTS

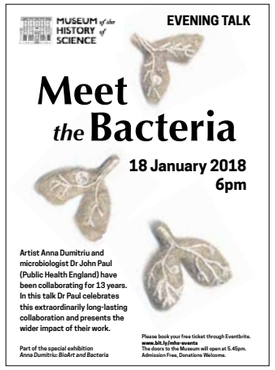
Our collaboration with Oxford Neuroscience (part of the University's Medical Sciences Division) continued this year when we hosted Professor Christopher Kennard for a talk titled *Art, Illusions and the Visual Brain* for Brain Awareness Week in March. Professor Kennard's talk was such a huge success that it was repeated in June.

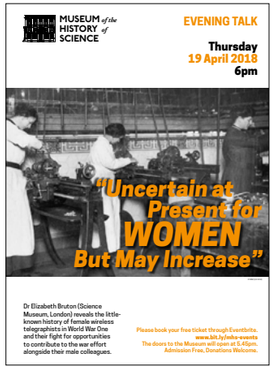
Marconi Day, produced with the Oxford and District Amateur Radio Society, also continued this year, with 250 people taking part in the event to celebrate the birth of Guglielmo Marconi in April.

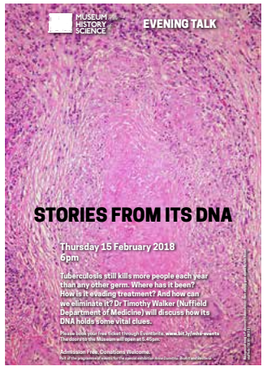












LEARNING & PARTICIPATION

Schools' Programme

PRIMARY SCHOOLS

Our offer to primary schools is building momentum with the introduction of new sessions for under 5s and sessions on electricity for older children. Significant partnerships included a series of sessions for Pegasus School, in association with the *IntoUniversity* programme supporting schools in deprived areas of East Oxford; a bespoke Science Week programme for St Andrew's Primary; and a day for KS2 focussing on astronomy in partnership with the University's Department of Astrophysics.

SECONDARY AND POST 16

The partnership with Astrophysics, supported by funding from a research project into 'fine-tuning', extended to 2 further study days aimed at Key Stages 4 (GCSE) and 5 (A-level). These events engaged with over 180 students from local primary and secondary schools, and secondary schools from Birmingham and Reading. Feedback from teachers and students was overwhelmingly positive and highlighted the benefit of curriculum enrichment achieved through historical perspectives combined with contemporary research and meeting scientists.

CROSS-CURRICULUM LEARNING

The learning programme associated with the special exhibition *Anna Dumitriu: BioArt and Bacteria* included study days with secondary schools and a one-day art-science event. Details are included in the report on the exhibition in this Review. Sixth-form students also benefited from a repeat of the study day based on the previous year's exhibition *Back from the Dead,* which included talks from academics and hands-on activities with researchers.

The Museum's partnership with Oxford City College continued in supporting the MARS (maths, art, religion, and science) curriculum programme for students on art and design foundation and degree courses. The partnership was extended to Modern Art Oxford with the exhibition *Space Tapestry* providing a platform for exploring astronomical themes with workshops on Galileo and the telescope at MHS, coupled with an artist-led workshop at Modern Art Oxford.

> *'I really enjoyed all of the activities and it gave the students a great opportunity to hear from physicists – definitely worthwhile and highly recommended.'*
>
> Teacher

> *'The activities were really well-structured and kept the children engaged. The pace was excellent and it kept them interested.'*
>
> Teacher

ARTS AWARD

The Arts Coordinator, together with the GLAM secondary school learning teams, championed the delivery of the Arts Award programme and is developing a strategy for the implementation of the Artsmark accreditation scheme for schools.

The two schemes combine in a new partnership with the Special Educational Needs school, The Iffley Academy, in which all GLAM institutions will be involved in supporting Arts Award projects for their Key Stages 3 and 4. 11 year 7 students from the Academy were engaged in a wonderful Discover Level Arts Award project with MHS. Students enjoyed visits to the Museum, participated in a drawing workshop with camera obscuras, and created their own exhibition at the Academy. Seeing these students blossom and grow in confidence through this project has been a truly rewarding experience.

> *'Brilliantly organised and well-paced… a great 'stunning' start to our electricity topic.'*
>
> Teacher, Year 4, St Andrew's

LEARNING & PARTICIPATION

Special Projects

MHS Young Producers, aimed at people aged 18-30, is now in its third year, and membership has grown. Building on the experience of creating interventions in the *Islamic World* showcase in the Top Gallery, the group took on the more ambitious task of a complete revision of the current display of this large case. Using detailed feedback from the *Curate* initiative (see facing page), the group aims to redisplay the material in a way that will provoke an exciting and meaningful visitor experience. There is also the prospect of dialogue and consultation with volunteers from the *Multaka-Oxford* project, to enhance the display through personal narratives informed by contemporary Muslim perspectives.

***Medieval Medicine in Islam*,** delivered in collaboration with a Wellcome-funded academic research project led by Professor Emilie Savage-Smith at the Institute of Oriental Studies, came to a close in autumn 2017. The project enabled us to experiment with novel approaches to learning through the development of board and card games, leading to the roll-out of new teaching resources and activities in a series of outreach events with long-term school partners, including Cheney School, Oxford Academy and Langley Academy. In addition, we have a legacy of new teaching sessions in both primary and secondary programmes, and new activities such as the *House of Wisdom* event for family audiences.

'I felt our views were given serious consideration and were taken on board.'

Curate participant

'An ideal opportunity to visit a great learning space. A really lovely experience…the children talked about the shape hunt for days!'

Pilot Shape and Number session Primary School Teacher

Curate was launched with support from the Oxford University Museums Partnership (now GLAM) *Innovation Fund*. The project aimed to establish an experimental platform for public consultation, focusing on the display of scientific instruments from the Islamic world in the Top Gallery. 35 volunteers, recruited through academic and volunteer networks and printed invitations, were invited to take part in 3-hour workshops which offered close encounters with unusual objects. Volunteers gave detailed feedback on the displays and proposed new ideas. The project was completed in December 2017 with participants invited to join in debriefing sessions. The output has fed directly into the work of the *MHS Young Producers*.

The Maths Project was launched in April 2018 after an online appeal and support secured from the University's Van Houten Fund. This exciting 18-month project will develop a series of new workshops for schools, from Foundation to GCSE level, providing inspiration to students through 'real world' problem-solving focussing on objects and stories from the collection. The project will also offer a significant opportunity to graduate students from the Mathematical Institute to take part in public engagement, whilst the Museum will benefit from their expertise. The first workshop on *Shape and Number*, designed for under 5s, has already been piloted and very well received.

LEARNING & PARTICIPATION

Multaka-Oxford

In September 2017, MHS and the Pitt Rivers Museum, with funding from the Esmée Fairbairn Collections Fund, launched *Multaka-Oxford*, a project enabling those affected by forced migration to work with relevant collections at the two museums.

AIMS

Multaka-Oxford aims to develop collaborative and socially engaged practice across public engagement and collections, whilst also ensuring that the Museum continues to contribute and play a useful role in the local community. The project takes its name and inspiration from the project *Multaka: Museums as a meeting point*, based in Berlin, which provides opportunities for individuals to create Arabic tours across four museums in the city. *Multaka* is Arabic for "meeting point" and the aims of both the Oxford and Berlin projects are to create a place where people can meet and share their experience, knowledge and skills with each other and staff. To gain a deeper understanding and strengthen links with the Berlin team, the Oxford team (Nicola Bird, Rachel Harrison, Rana Ibrahim and Abigael Flack) received funding from Jonathan Ruffer to visit Berlin project staff and volunteers in July 2018. *Multaka-Oxford* focuses on two collections at the museums: Islamic astronomical instruments at the Museum of the History of Science, and a recent acquisition of textiles from the Middle East at the Pitt Rivers. The project aims to develop processes for collaborative collections documentation and enhancement and to add new voices and perspectives into the museums' collections and public engagement.

COMMUNITY ENGAGEMENT

Central to the success of this project is creating inclusive volunteer opportunities at the Museum and building on the community engagement work that the GLAM teams are known for. Following a period of planning and recruitment, the Multaka team began during April to June 2018 to work closely with local community partners, including Asylum Welcome, Refugee Resource, Connections, Oxford City Council Syrian Vulnerable Peoples Resettlement Scheme, and volunteer-led groups such as Syrian Sisters. These organisations refer and support people in the new voluntary roles the project is creating.

PROJECT VOLUNTEERS

Volunteers' motivations for joining the project are learning English, gaining transferable skills, putting existing skills to use, learning about UK work environments, getting a reference and meeting people. All volunteers are also very keen on the opportunity to share and learn more about their own and other cultures and history. The volunteers have brought a wealth of new perspectives, research and stories about the collections that will be incorporated into the museums' public engagement work and programming. During the first 3 months 12 volunteers were supported through our community partner organisations to register and complete their inductions. Over those first few months, volunteers gave 86 hours of their time. The project aims to recruit 40 volunteers – a mix of newcomers to Oxford and re-engaging with existing Oxford University Museums volunteers.

'I want to regain confidence and self-worth by helping to make a difference, give something back. I will gain and develop new and existing skills and knowledge.'

ACTIVITIES

Sharing understanding of conservation issues is an important part of the *Multaka-Oxford* project and our Conservator was involved in the recruitment and training of the Collections Project Officer for the project at MHS, and in introductory sessions with the project volunteers.

> *It was my first experience with Multaka to share the knowledge, display the Museum objects and give some details about these objects. I hope we volunteers did our best [at the Mela] to address people in clear and simple language.*
>
> Multaka-Oxford Volunteer at Oxford Mela

In Spring 2018 the project team began running collections research workshops, recording podcasts and adding the voices (in Arabic and English) to the collections database. The volunteers have also been writing blogs about museum objects, available at https://multaka-oxford.tumblr.com The team have also been out and about in the community with volunteers talking about objects and the project.

ملتقى أكسفورد

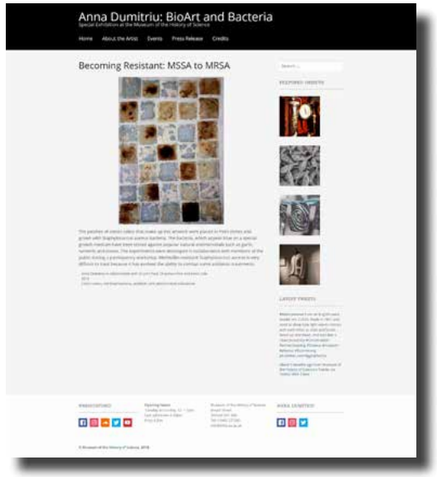
LOOKING FORWARD

In autumn 2018, project volunteers will start to lead guided tours in Arabic at the Museum. They will also work with local communities to produce a high-profile public event to showcase the project's work and approach.

As the project moves into 2019, new approaches will be developed and the project will continue to respond to its volunteers and community. The community partners and Multaka volunteers are involved in an ongoing capacity through the Multaka Advisory Group. This group advises and reflects on the project's direction and relevance. Project staff listen hard to volunteers' feedback to make sure the roles created through the project engage them in a way that addresses their interests, whilst meeting the aims of the project. Evaluators from the Oxford University Department for Education will work with the project team to capture and analyse learning and to further develop this model of collaborative and socially engaged museum practice. Training and networking events are planned to share the learning within the museum sector.

multaka-oxford.tumblr.com
@multakaoxfordmuseums
#MultakaOxford

DIGITAL



During the year, MHS benefited from the continued roll-out of the Gardens, Libraries and Museums (GLAM) Digital Strategy. A range of projects directly enhanced our operations and planning has begun for future work. We are represented on the Programme Implementation Board which oversees the many strands of the Digital Strategy.

For front of house, a new Electronic Point of Sale system was implemented as support for the previous system at several of the museums had expired. Another shared initiative was the acquisition of a new software solution for managing volunteers, who are vital to the delivery of our regular tours and many events. Behind the scenes our file server and all PCs were migrated to CONNECT, the University's managed desktop service. Work has also been carried out across the Museums & Gardens on the underlying server and network infrastructure through the M&G IT Team.

While additions such as an online exhibit for *Anna Dumitriu: BioArt and Bacteria* continued to be made to the MHS website, planning has begun for migration to a new site. Mosaic is a University-developed platform which is increasingly used by divisions and departments. All the GLAM institutions are moving to Mosaic, with MHS going live in 2018-19.

Other collaborative work includes participation in a year-long pilot project on Linked Open Data, where MHS data was used to investigate the requirements for connecting collections information within GLAM and in formats that can be shared with the wider online world. Our Conservator has participated in the specification of a new cloud-based solution for environmental monitoring which is being shared across GLAM.

There is now an agreed GLAM Preservation Strategy for digital assets and a local audit of assets has been started. This work will dovetail with our Local Action Plan, which is investigating requirements for a Digital Asset Management System, as well as identifying options for incorporating manuscripts and archives into our Collections Management System and improving online collections access. Planning and analysis for the Local Action Plan has begun and will continue into next year.

RESEARCH AND TEACHING

TEACHING

MHS staff have for many years taken an active part in the teaching of the History Faculty, particularly at postgraduate level through Masters courses in the History of Science, Medicine and Technology. This year we successfully launched a new Advanced Paper within the MSc curriculum, "Astrology in the Medieval and Early Modern World". Co-taught by Dr Silke Ackermann and Dr Stephen Johnston, the paper ranges across both Europe and the Islamic world, and makes extensive use of artefacts at MHS. Four students and an additional auditor chose the course from the menu of options available in Hilary Term.

At postgraduate level Dr Johnston also taught the Advanced Paper on "Science and Practice: Instruments, Collections and Museums, 1700-1900" and contributed to the teaching of "Methods and Themes in the History of Science". At undergraduate level, he also provided the majority of lectures in the History Faculty Prelims paper on "Nature and Art in the Renaissance", whose lectures were given in the Museum.

During Michaelmas Term, Dr Lee Macdonald gave tutorials in the History and Philosophy of Science Supplementary Subject for science undergraduates. These tutorials took place in the MHS Library and Dr Macdonald used a small selection of our pre-1900 scientific books as props to support his teaching.

RESEARCH

The Director continued to build a close relationship with Istanbul University and Medeniyet University by hosting two young scholars developing careers in the history of science: Dr Gaye Danişan Polat for the academic year 2017/18 and Ms Zeynep Kuleli for January to June 2018.

As part of the Museum's longstanding relationship with the Maison Française we hosted a research seminar focused on the material culture of science in March. Dr Johnston also spoke at a Maison Française workshop on "Performing and Knowing: Experimental and Sensory Approaches" in April.

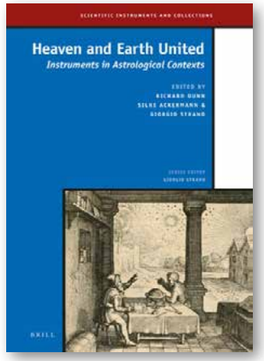
Dr Silke Ackermann gave papers and keynote speeches nationally and internationally, focusing especially on the definition and role of 'Islamic Science' and religion in teaching and displays.

Dr Johnston gave papers on "From Elizabethan Sea Dog to Royal Librarian: the Many Lives of Edward Wright" at the Renaissance Society of America's March meeting in New Orleans and on "The Body Beautiful: Euclid and Geometrical Solids in Renaissance Europe" at Oxford's Mathematical Institute in June. He also spoke on "The Universe in your Hands" at a Department of Continuing Education event in September and was invited to deliver a series of workshops on the astrolabe at the University of Minneapolis in March.

In November, Dr Lee Macdonald presented a paper on nineteenth-century solar physics at the Annual Meeting of the History of Science Society in Toronto, Canada. In June, Dr Macdonald presented a paper at a one-day workshop on Astronomer Royal George Airy (1801-1892) at Cambridge University Library, which he helped to organise.

Dr Elizabeth Bruton, Honorary Research Fellow, delivered papers on wireless telegraphy, radio and industrial research during World War I in Cork, Oxford, Rome, Philadelphia, Leeds, Swindon and York. In November she co-organised a conference on "The History of Women in Engineering in the UK" at the Institution of Engineering and Technology in London.

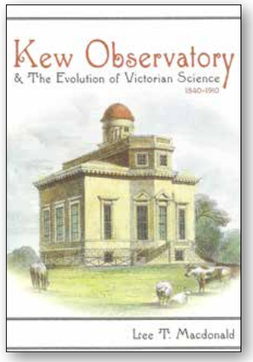
PUBLICATIONS



Silke Ackermann, Charles Burnett and Josefina Rodríguez-Arribas (eds), ***Astrolabes in Medieval Cultures,*** Medieval Encounters, vol. 23 (Leiden: Brill, 2017).

Richard Dunn, Silke Ackermann and Giorgio Strano (eds), ***Heaven and Earth United: Instruments in Astrological Contexts,*** Scientific Instruments and Collections, vol. 6 (Leiden: Brill, 2018).

Stephen Johnston, '"Preciseness and Pleasure": the Astrological Diptychs of Thomas Hood', in Richard Dunn, Silke Ackermann and Giorgio Strano (eds), ***Heaven and Earth United: Instruments in Astrological Contexts*** (Leiden: Brill, 2018), 61-85.



Lee Macdonald, ***Kew Observatory and the Evolution of Victorian Science, 1840-1910*** (Pittsburgh: University of Pittsburgh Press, 2018). On 19 June, MHS hosted a well-attended launch party for the book in the Entrance Gallery, where people were able to buy copies and where the book remains on sale in the MHS Shop.

Lee Macdonald, 'The Origins and Early Years of the Magnetic and Meteorological Department at Greenwich Observatory, 1834-1848', ***Annals of Science,*** vol.75:3 (2018), 201-233. An earlier version of this paper was awarded this journal's US$1,000 prize for early-career scholars during the 2016/17 academic year.

LIBRARY AND ARCHIVES

Research Facilitator, Dr Lee Macdonald, has continued to run the Library and Archives and has acted as a first point of contact for research enquiries. During the year 1 August 2017 to 31 July 2018, the Library and Archives processed 173 research enquiries and hosted 63 research visits. The enquirers were from many parts of the world. They included students from undergraduate level upwards, academics at all levels of seniority and a considerable number of independent scholars.

The Library and Archives also hosted some longer-term visiting researchers. Gaye Danişan Polat, a postdoctoral researcher from the University of Istanbul, used the Library for her research into the history of astronomical observatories in Turkey. Zeynep Kuleli, also from the University of Istanbul, visited the Library in connection with her research on the influence of Islamic science on the physical sciences in early-modern Europe. Both of these Turkish scholars have been affiliated with MHS as Research Associates for the 2017/18 academic year.

In June 2018, the Library and Archives hosted Dr Heiner Böhm, a spinal surgeon from Weimar, Germany, with strong interests in the history of medicine. Dr Böhm used some of the Library's historic medical texts in connection with a project to develop the Museum's medical collections.
Appointments to view items in the MHS Library and Archives can be made by sending an email to **research@mhs.ox.ac.uk**

NATIONAL AND INTERNATIONAL IMPACT

LOANS

The Museum regularly supports exhibitions in the UK and abroad, requiring collections staff input on facilities and logistics as well as conservation in the preparation of detailed loan-out condition reports and packing for transit. The following went out on new loans this year:

The Bhugola or Earth-Ball (Inv. 51703) for *Illuminating India: 5000 years of Science and Innovation*, 4 October 2017 – 22 April 2018 at the Science Museum, London. The exhibition run was extended so that it could be visited by delegates of the Commonwealth Heads of Government Meeting, including Prime Minister Modi of India.

An Equinoctial Ring Dial with Quadrant (Inv. 87302), a Compound Microscope (Inv. 39147) and a Refracting Telescope (Inv. 35975) for the *Ashmole's Museum* permanent gallery at the Ashmolean Museum.

RETE

The Museum continues to administer *Rete,* the international mailing list on the history of scientific instruments. The list has notably grown over the past year, with subscribers up 28% to 650 and the number of countries represented rising from 27 to at least 35. The mailing list serves a vital function in connecting the new generation of young scholars to senior members of the academic and museum communities, and is also used as the principal means of communication by the Scientific Instrument Commission of the International Union of History and Philosophy of Science. It demonstrates the global centrality of the Museum to its field.

ADVISORY BOARDS

The Director, Dr Silke Ackermann, served as follows:
Member of the Research Advisory Boards of Deutsches Museum Munich, Staatliche Kunstsammlungen Dresden, the Centre for History of Science at the Royal Swedish Academy of Sciences Stockholm, and UNIVERSEUM The European Academic Heritage Network.
External Advisor for Eton College Collections Committee on outreach and access.

The Head of Research, Teaching and Collections, Dr Stephen Johnston served as follows:
Thomas Harriot Seminar committee.

Research Facilitator, Dr Lee Macdonald, served as follows:

On two Royal Astronomical Society committees: Chair of the Library Committee, and member of the Astronomical Heritage Committee.

OPERATIONS & PLANNING

Commercial

RETAIL

This was an exciting year for the Museum and its retail operation. We moved the shop from the Basement to the Entrance Gallery, and later relocated the shop more prominently in that space. The relocation followed a continued uplift in sales, and has given the shop sufficient space to ensure that a wide range of interesting products can be displayed, while maintaining access to our collections. The hybrid space in the Entrance Gallery offers visitors a unique opportunity to learn about our collections while selecting a memento to take away with them.

There is also an important offsite commercial location in the Ashmolean Museum Shop, which continues to host a range of MHS products. These consistently feature in their bestselling charts, and our retail partnership allows us to embrace the origins of our Museum while still driving growth of our commercial operation and brand profile. The Museum Shop delivered a year end profit which has motivated the team to focus on developing the product ranges and processes further and looking at how to grow in 2018/19.

VENUE HIRE

The Museum continued to enhance its own financial sustainability by exploring the use of its spaces as private venues, and contributing to income from venue hire charges. Through hosting a range of events during the year, the team had the opportunity to see how the different spaces function as venues for dinners, drinks receptions, book launches, conferences and meetings.

Particularly notable were the inaugural dinner of our Director's Circle in the Basement Gallery and a prestigious dinner for a client, which set a high standard for private boutique dining among our historic instruments.

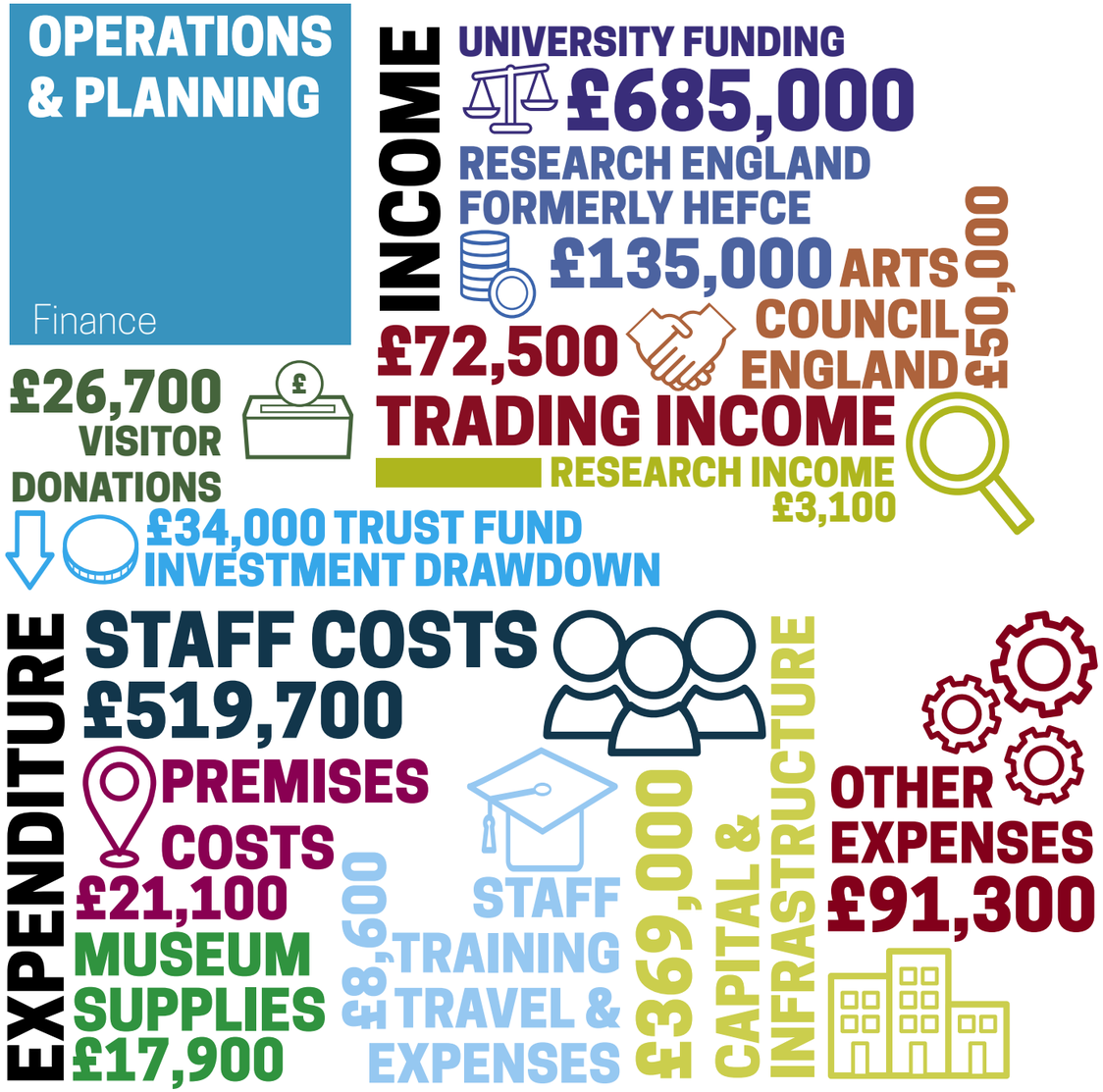
We also hosted a conference for the Oxford Martin School on Typhoid Past & Present, across our Basement Gallery and Seminar Room, with warm reviews from organisers and delegates.

For information about opportunities for venue hire, please see the Venue Hire page on our website.

PRIVATE TOURS

We provided private tours, in and out of normal opening hours, for groups with special interests, led by senior curatorial staff or our knowledgeable volunteer tour guides. These tours, together with donations from booked group visitors, have helped to contribute much-needed income and donations during the year, all in support of the work of the Museum.

For information about group visits and private guided tours, please see the Group Visits and Guided Tours page of our website.



The Museum received most of its income from the University of Oxford(67%). The Museum directly received and managed £50,000 of Arts Council England funding in 2017-18 but benefited from shared ACE funding of £255,000 when divisional posts and account adjustments are included. The third main source of income was from the Museums and Galleries Fund of Research England (formerly Higher Education Funding Council for England). The remaining income in the Museum is derived from trading activity, endowments, trusts, donations and grants.

The museum welcomed 180,664 VISITORS. These daytime visitors made an average donation of 15 pence each. This meant we saw a 36% increase in visitor giving from 2016-17.The Museum also saw an increase in retail and trading activity with an average retail spend of 30 pence per visitor and a year on year 39% increase in overall visitor spending.

During 2017-18 it was announced that the Museum will face challenges in the future and should prepare to see a cash-flat or partially reduced contribution to operating costs from the University of Oxford. The Museum continues to explore innovative new ways of being financially sustainable. There is an increased focus throughout all sections within the Museum on commercial activity, philanthropic giving and research grants.

The Museum expenditure has risen in line with our increased income. The financial year was concluded with an approved financial deficit.

Half of our expenditure in 2017-18 was payroll costs (50%). The Museum pays a significant fee for capital and infrastructure charges (35%), these fees directly pay for the Museum building, additional offices and our off-site store. Our operating expenses include Supplies, Equipment, Staff Training and Premises Costs. Our premises costs include for example: utilities, cleaning and security equipment. Our Other Expenses (8%) include a number of recharges for services provided by central departments. These recharges include IT costs, Finance costs and HR support costs.

As the Museum moves into 2018-19 it is working to reduce these costs in line with an anticipated reduction in available funding.

PEOPLE

BOARD OF VISITORS

The Vice-Chancellor, University of Oxford
Professor Alex Halliday, Chair of Visitors, Head of Mathematical, Physical and Life Sciences (retired February 2018)
Professor Anne Trefethen, Pro-Vice-Chancellor with responsibility for Gardens, Libraries and Museums
Proctor and Assessor
Professor Robert Iliffe, Professor of the History of Science
Dr Erica Charters for Professor Mark Harrison, Reader in the History of Medicine (whilst on research leave)
Dr Laura van Broekhoven, Director, Pitt Rivers Museum
Professor Sally Shuttleworth, Professor of English Literature (Humanities Division)
Professor Zoltán Molnár, Professor of Developmental Neurobiology (Medical Sciences Division)
Professor John Wheater, Professor of Physics (Mathematical, Physical and Life Sciences Division)
Professor Mark Pollard, Edward Hall Professor of Archaeological Science (Social Sciences Division)
Tony Spence, Head of Collection Services, British Museum
Professor Marcus du Sautoy, The Simonyi Professor for the Public Understanding of Science
Dr Asma Mustafa, Research Fellow in the study of Muslims in Britain, Oxford Centre for Islamic Studies
Secretary: Dr Silke Ackermann, Museum Director

MUSEUM STAFF BY SECTION

Directorate
Dr Silke Ackermann, Museum Director
Danielle Battigelli, Executive Assistant
Dr Stephen Johnston, Head of Research, Teaching and Collections
Kingston Myles, Head of Operations and Planning (from June 2018)

Administration
Asima Qayyum, Administrative Assistant (from September 2017)

Collections
Lucy Blaxland, Collections Manager
Thomas Hopkins, Collections Management Assistant
Rana Ibrahim, Collections Project Officer (Multaka-Oxford Project, from March 2018)
Dr Lee Macdonald, Research Facilitator
Cheryl Wolfe, Conservator

Move Project Team
Lucy Hadley, Team Leader (until December 2017)
Janine Fox, Team Leader (from January 2018)
Samantha Archetti, Maia Balint, Laura Egginton, Matthew Harrop, Rowena Hartley, Martin Hasted, Melanie Howard, Amreet Kular, Rosanna Leithal, Megan MacLean, Annie McCulloch, Jack Ord, Paula Reyes-Arce

Programme and Public Engagement
Rachel Harrison, Community Engagement and Volunteer Officer (Multaka-Oxford Project, from February 2018)
Robyn Haggard, Public Engagement Officer
Keiko Ikeuchi, Photographer and Designer

Learning and Participation
Chris Parkin, Lead Education Officer
Helen Pooley, Primary Education Officer
Sukie Trowles, Education Officer, Medieval Islamic Medicine Project (until December 2017)

Web, IT, Digital and Technical Services
Owen Shaw, Technician
Dr Paul Trafford, Web Officer (until March 2018); Digital Projects Officer (from March 2018)

Front of House
Stuart Booker, Gallery and Shop Supervisor (until December 2017)
Eleanor Glennon, Gallery and Shop Supervisor (until March 2018)
Cai Marshall, Gallery and Shop Supervisor (acting up from January 2018)
Silvia Pinna, Gallery and Shop Supervisor (acting up from January 2018)
Sukie Trowles, Gallery and Shop Supervisor (acting up from April 2018)
Veronica Ford, Gallery and Shop Supervisor (acting up from April 2018)
Gallery assistants (part-time and variable hours): Jeri Bapasola, Marie Chapman, Manfred Driver, Bob Ellis, Peter Ells, James Harrison, Samuel Hudson, Rana Ibrahim, Anthony Lummis, Matthew Scott, Zhaoyuan Wan, John Whitehead

Maintenance
Nick Wicker

Shared Services within GLAM (Gardens, Libraries and Museums)
Finance: Irene Gandara-Jones, Beverly Judd, Scott Birnie
Development: Antony Green, Kirsten Buckley, Alice Hamlett, Catherine House
HR Ashmolean: Laureen McHaffie, Hannah Gilbert, Pam Virgo, Sue Childs and Liam Nash
Gardens & Museums IT

Shared Services within the Oxford University Museums Partnership
Volunteering: Joy Todd, Caroline Moreau
Outreach: Nicola Bird, Susan Griffiths
Arts Coordinator: Miranda Millward

Honorary Research Fellow
Dr Elizabeth Bruton

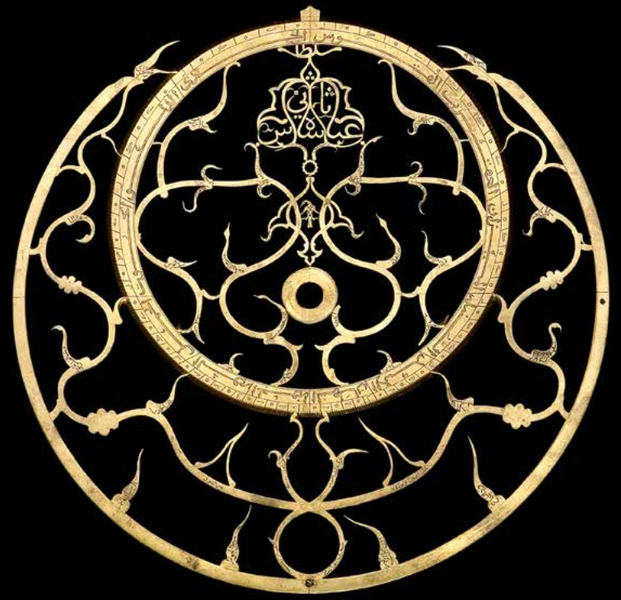
OPS Move Project Volunteers
Harry Knight
Belinda Beaton
Dr Michael Heaton
Yimin Ma
Lucy Fry
Abigail Ford
Nicole Caldwell
Shomik Mukherjee
Hadiqa Khan
3 further anonymous volunteers

Volunteer Tour Leaders
Chaitanya Chintaluri
Graham Forbes
Lucy Gasson
Tony Gillman
Joseph Hettrick
Mary Lale
Sarah Law
Robert Pinches
Roger Smith
Ken Taylor
Yayoi Teramato
John Ward
2 further anonymous volunteers

Public Engagement Volunteers
The Museum is very grateful for the many volunteers who led tours and helped run activities and events for families and the public throughout the year, without whom it would not be possible to engage so many people.

THE FUTURE

Director's Circle



DIRECTOR'S CIRCLE

As we are getting ready to formally launch *Vision 2024,* the ambitious strategy for our first centenary, one of the building blocks for success is now firmly in place: the Director's Circle.

To support us as critical friends in developing and achieving *Vision 2024*, and to act as advocates for MHS, we have brought together a group of individuals who have shown great interest in our Museum and its future. We are hugely grateful for their support and look forward to working together to take MHS to hitherto unseen heights.

If you would like to find out more about Director's Circle and the different ways you can help to support, and become part of, our ambitious vision, please contact the Director, Dr Silke Ackermann, on silke.ackermann@mhs.ox.ac.uk. She would be delighted to hear from you.

BE PART OF THE FUTURE

The Museum inspires hundreds of thousands of people every year, giving access to unique and stunning objects, telling fascinating stories about the history of science, providing engaging sessions for school pupils and students, and offering innovative public engagement programming for all.

We want to transform the Museum into a more welcoming, exciting and fully accessible environment that showcases our incredible collection and provides opportunities for diverse audiences to engage with our objects and stories for generations to come. Your support will enable us to achieve this ambitious vision.

If you would like to find out more about how you can become involved and support the Museum of the History of Science, please visit www.mhs.ox.ac.uk or contact William Thomas william.thomas@devoff.ox.ac.uk; 01865 611699.

THANK YOU FOR YOUR SUPPORT

A big THANK YOU to all our donors who have so generously supported us over the last 12 months. Your donation makes a huge difference!

The generosity of individuals, trusts and public sector bodies has enabled our work over the past year and made our planning for the future possible. We are extremely grateful to:

Our talented and knowledgeable volunteers, who help our Move Team, lead free tours for the public, and assist with our education, family and outreach events

Our many colleagues and partners across GLAM (Gardens, Libraries and Museums) and the wider University of Oxford, as well as other museums, universities, schools and collections

The Edward Penley Abraham Cephalosporin Fund, Research England (formerly the Higher Education Funding Council for England), Arts Council England, Evans Collection Fund, AE Gunther Fund, Millburn Bequest, Wellcome Trust Institutional Strategic Support Fund, Esmée Fairbairn Collections Fund, and Maxson Network Limited without whose funding we could not operate, engage with the public or put on our special exhibitions

Individual donors, and those whose donations are enhanced by Gift Aid

And all those who wish to remain anonymous, but whose support is vital for new acquisitions and our public programmes.

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