Oxford University Museum of Natural History

Annual Review

2020-21 - 2021-22

Museum of Natural History

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The Oxford University Museum of Natural History Annual Review 2020-21 & 2021-22
was compiled from reportssupplied by members of staff

Photographs are by members of Museum staff unless otherwise stated

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Cover image: *2020: The Sphere that Changed the World*, sculpture by Angela Palmer

Contents

Director's Report

2020 marked the 160th anniversary of the founding of the Museum. It was therefore a highly unexpected turn of events to be celebrating the opening of the Museum by closing it for almost half a year, following the first national lockdown of the Covid-19 pandemic. Every challenge presents a learning opportunity however and by the beginning of the 2020-21 academic year, the many and varied ways the Museum had grown and developed during this difficult time could already be clearly seen. Little did we know that we were not, as hoped and expected, past the worst of the disruption, but the skills and resilience that had been built across the breadth of the Museum would stand us in good stead to weather the further lockdowns that were to come.

The adaptations to programming which had begun in the first lockdown continued apace. Through successive waves of restrictions, the importance of nature, creative activities, and community connection became increasingly apparent and the Museum was ideally positioned to respond to public need – bringing art and natural science together and offering engagement opportunities that could make a vital contribution to our collective wellbeing. Highlights of this programming included the *Drawn to Nature* series, which helped the public to connect to the Museum with regular online art activities inspired by the collections, and the exhibition of Angela Palmer's ethereal sculptures *2020: the Sphere that Changed the World* and *Spike* which offered a focal point for reflection on what had happened.

The success of the Museum's programming throughout the pandemic drew attention to its greatest strengths – the relevance of its collections but also the skills and dynamism of the Museum staff. The Museum has a small team, relative to the size and significance of the collections and the building, and all staff are used to working flexibly to pull together across disciplines to support each other. Engagement is embedded into all roles, meaning that staff were able to step up during the lockdowns when audiences of all kinds – schools, teachers, students, and research communities, not just the general public – became harder to reach. The primary and secondary programmes were adapted for online delivery, Research and Collections staff ensured that higher education research and teaching could continue and that students were offered the best possible alternatives to in-person sessions for each level of lockdown restriction, and the Museum was proud to successfully host the first online version of the Annual Meeting of the Palaeontological Association (PalAss), not to mention the first ever, and hugely popular, *Palaeovision* event.

With a great skills foundation across the Museum, it was also possible to push new boundaries. There was a proliferation of online content during the lockdowns and it was difficult at times to be heard amongst the digital noise. Careful thought was put in to where and how we could be different – wherever possible we used live broadcasting and developed new content. One example, running with a brilliant idea from explorer and BAFTA Award-winning wildlife presenter Steve Backshall, was when the Museum hosted the spectacular live-streamed *Mystery at the Museum* event in December 2020 that attracted over 121,000 live views, with over 16,000 people in 7,689 households actively taking part, and raised £33,000 in one evening through donations.

Moving into the 2021-22 academic year the Museum, along with the rest of country, entered a transitional phase as restrictions gradually lifted. This was an important year which saw the final stages of two major projects completed. The central court of the Museum was transformed by the installation of 20 new science-led exhibits in the second phase of the *Life, As We Know It* redisplay project and the Westwood Room and Ellen Hope Gallery opened to the public after restoration and redevelopments that were part of the *HOPE For the Future* project. These permanent changes were also complemented by a striking new look for the Upper East Gallery and the Museum Café as the Contemporary Science and Society series presented its most provocative exhibition yet; *Meat the Future* showcased research by the Wellcome Trust-funded Livestock, Environment and People (LEAP) project and encouraged visitors to reflect on, and perhaps even change, their eating habits.

Following a difficult year in 2019-20 when visitor numbers fell to 42% of previous highs, the strong programming and major projects of 2020-21 and 2021-22 supported a progressive recovery, and by the end of 2021-22 the museum had returned to 74% of the 2018-19 visitor peak. In comparison to the wider sector, the Museum has fared extremely well. In 2022, the University of Oxford Gardens, Libraries and Museums collectively saw a 158% increase in visitors, outperforming the average 120% increase.

We can hopefully look forward a more stable times where we hope to reap the benefits of the hard work of the previous two years; making use of the Museum's impressive new spaces, maximising engagement with the new centre court displays, and continuing to develop our digital skills and capabilities. As the pandemic recedes into the distance, I would like to thank all of the staff in the Museum for enabling a vibrant profile to be maintained in difficult times, and to our visitors for continuing to support us. The twin crises of climate change and global biomass loss continue to mount, and the role of the Museum – as a central coordinating point for research, as a trusted source of information, and as a safe space for discussion – becomes ever more important.

Professor Paul Smith

Director

Highlights 2020-21

Digital Innovation

Digital delivery was the key to survival during the Covid-19 pandemic. The Museum ran a wide range of programmes and continued to innovate and expand its offer throughout the academic year. Higher education teaching took place online with live-streamed and pre-recorded content and new flexible sessions were developed for primary and secondary schools. In December 2020, the Museum successfully hosted the first online version of the Annual Meeting of the Palaeontological Association (PalAss) to bring this research community together, and as the UK continued to cycle in and out of lockdowns, the *Drawn to Nature* series provided regular opportunities for the public to connect to the Museum, and to each other, through art activities inspired by the collections.

Mystery at the Museum

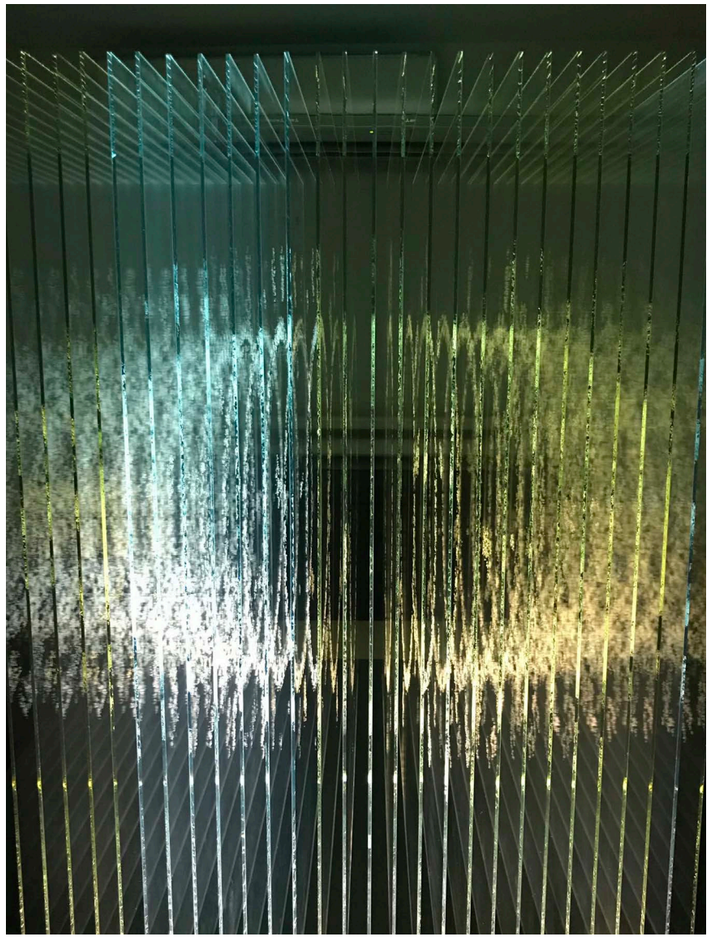
Explorer and BAFTA Award-winning wildlife presenter Steve Backshall led a unique, behind-the-scenes adventure at the Museum, where he urged an online audience to help him solve a series of natural history themed puzzles to recover the iconic dodo specimen from the dastardly thief, Miss Take.

This free online event took place in December 2020 during the second national lockdown of the Covid-19 pandemic and the unusual format – a live-streamed collaborative escape room – was an ambitious new venture for the Museum. Over 15,000 people joined in on the night via Steve's social media channels and the event raised £33,000 through audience donations.

"That was absolutely brilliant. My little boy was jumping up and down every time we saw a clue. Just awesome."

"Such a wonderful event with a fantastic and very important message! My Mum and I both enjoyed watching it and taking part and we are both grown up!"

Event participants



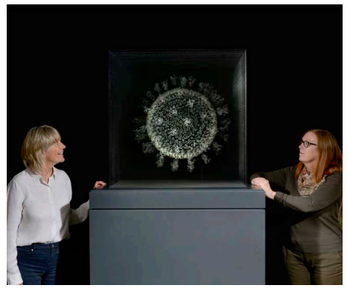
2020: The Sphere that Changed the World, seen from the side © David Fisher

"When I saw the virus in its entirety for the first time, suspended in its glass chamber, I was taken aback by its beauty.

It seemed in direct contradiction to the nature of this menace, which has terrorised us all, and continues to do so. The invisible enemy, as we know it, was suddenly rendered tangible, trapped, while the whole of mankind is trapped by it."

Angela Palmer

2020: The Sphere that Changed the World



Artist Angela Palmer (left) and Professor Dame Sarah Gilbert (right) © David Fisher

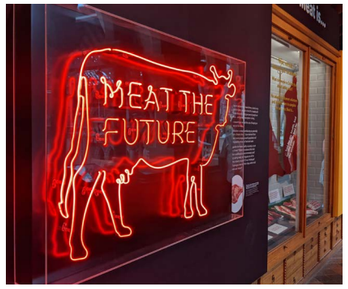
Following the easing of lockdown restrictions on 17 May 2021, the Museum unveiled a deeply poignant new display of ethereal artworks by celebrated sculptor Angela Palmer. *2020: the Sphere that Changed the World* is a three-dimensional 'drawing' of the virus that causes Covid-19, based on the first genomic map of SARS-CoV-2. It shows the virus at eight million times its real size, suspended and imprisoned in glass. *2020* was accompanied by *The Spike*, a smaller representation of the spike protein on the virus. The intimate private view was attended by members of the Oxford-AstraZeneca vaccine team and the sculptures remained on display to the public throughout the summer.

Highlights 2021-22

Meat the Future

Meat The Future was a thought-provoking exhibition presenting cutting-edge research on the environmental and health impacts of eating meat.

The exhibition explained how researchers can calculate these impacts and looked at the options for reducing them; exploring the range of possible alternatives from simply eating less meat to adopting new high-tech replacement products. The exhibition and accompanying events programme were developed through an ambitious partnership between the Museum, the Livestock, Environment and People project (LEAP), and Vaults & Garden café. This collaboration allowed the creation of a multi-sensory experience throughout the Museum, including the first ever extension of exhibition content into the Museum café offer.



"I thought it was very well presented. I think that if you were a meat eater you might start to question your habits. Or if you were a vegetarian or vegan you would be reaffirmed in that."

Visitor feedback

Biodiversity: Kurt Jackson

This touring exhibition by Kurt Jackson showcased new paintings and prints of forests, waterways, and coastlines in the UK, that demonstrate and celebrate the diversity of the natural world. In the display at the Museum throughout Spring 2022, the works were shown alongside specimens from the collection which highlighted the range of species found in the different environments. 13 environmental and zoological researchers from the University of Oxford were also invited to share responses to the artworks and reflections on the theme of biodiversity – how we can understand it, how we can protect it, and what it means to us all.

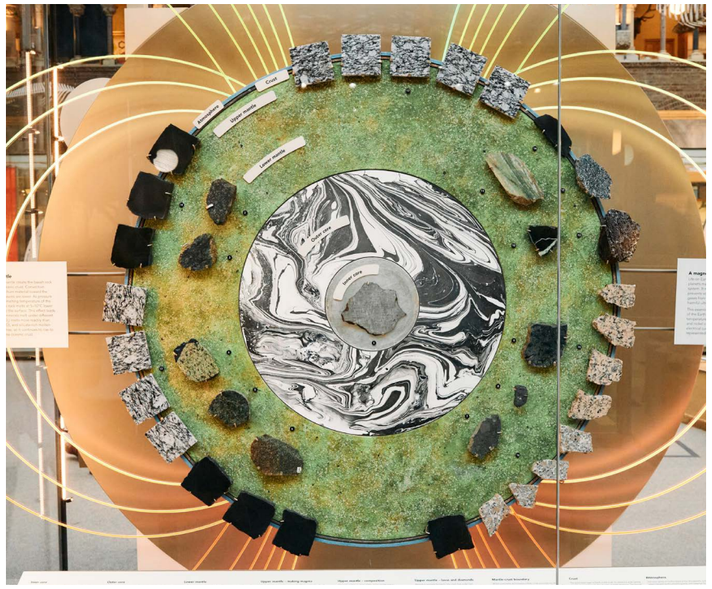
"Makes me feel really happy and my mind feel buzzy. It's so interesting.... combining visual with intellectual that's what makes it all interesting"

Visitor feedback

Biodiversity: Kurt Jackson
© Ian Wallman

"A wonderful depiction of the glory and wonder all around us."

Visitor feedback

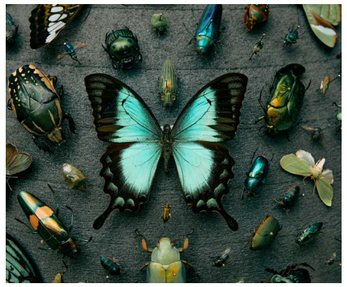


(above and top) Life, As We Know It redisplay © David Fisher

"I absolutely love the new displays and have to tell someone. They're so beautiful and informative – you could spend an hour looking at just one. This museum has gone from strength to strength in the last 10 years. I try to come every six months and there's always something new and exciting to see."

Visitor feedback

Redisplaying Life, As We Know It



Life, As We Know It redisplay
© David Fisher

The central court of the Museum has been transformed thanks to the successful installation of 20 new science-led permanent exhibits as part of the second phase of the *Life, As We Know It* redisplay project. The interpretation structure follows a 'Paddler-Swimmer-Diver' model, where each level offers increasing detail and conceptual sophistication. The centre court is dedicated to Paddlers, with ten displays all about biodiversity and the beauty and fragility of the natural world. Diver aisles on either side explore the history of the formation of the Earth and explain the science of evolution. These displays were part of the second phase of works, which was completed and opened fully to the public in September 2022. Swimmer displays on present-day and past ecosystems in the north and south courts will follow in the next phase.

Digital Innovation

The museum sector has long been expanding its digital capability but with the arrival of the pandemic and the first national lockdown in March 2020, there was a need for rapid acceleration. The 2019-20 academic year saw Museum staff adapt and pivot to new ways of working, and throughout the 2020-21 and 2021-22 academic years they settled into their stride, continuing to innovate and make the most of the opportunities that digital delivery presented. The strong portfolio of dynamic and successful events is a testament to their creativity, adaptability, and continuing sensitivity to the changing needs of the Museum's diverse audiences.

Mystery at the Museum

15,000 people joined the Museum's live-streamed interactive puzzle challenge

A door creaks. The circle of torchlight swings round the exhibition hall, picking out ribs, a spine, rows of teeth in its beam... hang on – what's this – an empty showcase?

On 4 December 2020, explorer and BAFTA Award-winning wildlife presenter Steve Backshall led a unique, live-streamed, behind-the-scenes adventure at the Museum. In this free event he urged the online audience to help him solve a series of natural history themed puzzles to recover the iconic dodo specimen from the dastardly thief, Miss Take.

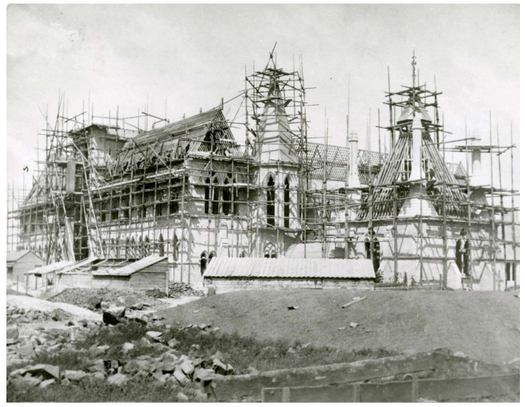
The event took place during the second national lockdown and the unusual format – a live collaborative escape room – was an ambitious new venture for the Museum, and no small challenge to design and run successfully. The Museum Events and Education teams worked closely with Steve and escape room creators Agent November to create a series of interactive puzzles. Staff from across all departments contributed objects and advice and helped to set up and manage the digital delivery on the night, where answers from the audience were fed to Steve through an earpiece as he roamed around the Museum. The technical set up was necessarily complex but staff embraced the challenge and undertook a steep learning curve, mapping network coverage through the building and working out camera and broadcast options to ensure a seamless performance.

Mystery at the Museum was an extraordinary success. There were 7,000 registrations in advance and over 15,000 people joined the livestream on the night via YouTube, Twitter, and Facebook. Steve Backshall generously gave his time for free and the event raised £33,000 through audience donations which were put towards match-funding for the *HOPE For the Future* project. The event lives on as inspiration for future programming and the new skills gained by staff continue to benefit and enhance many areas of the Museum's work.

(opposite) Steve Backshall in Mystery at the Museum

Celebrating 160 years

Anniversary programming continued throughout the year



Construction of the Museum of Natural History

The Museum celebrated its 160th anniversary with an adapted programme of activities including a temporary exhibition, podcast series, and online public lectures delving deeper into the origins of the Museum and the way its history continues to shape its activity today.

The exhibition, *Truth to Nature,* charted the philosophies and artistry underpinning the creation of the Museum in the mid-19th century and reflected on the role of natural history museums today, including the need for greater equity in science. The exhibition drew on imagery from the Museum's archive. It was open to the public between September 2020 and January 2022 and an online version is permanently available on the Museum website. *Temple of Science* was a five-part podcast series exploring the art and architecture of the Museum. The episodes were written and presented by John Holmes, Professor of Victorian Literature and Art at the University of Birmingham and an Honorary Associate at the Museum of Natural History.

The exhibition and podcasts demonstrated the Museum's commitment to pursuing interdisciplinary research and hosting conversations between art and science and the anniversary celebrations offered new opportunities to strengthen partnerships with external university researchers, despite the challenging circumstances as result of the Covid-19 pandemic. A series of additional public talks, *Visions of Nature,* were hosted online in the autumn to highlight Museum research in the fields of natural sciences but also the history of science, including a talk by Georgina Ferry on Nobel Prize-winning chemist Dorothy Hodgkin, whose bust featured in the *Truth to Nature* exhibition.

Paleontologists in lockdown

The Museum successfully hosted an online Annual Meeting of the Palaeontological Association

Dr Jack Matthews assists Dr Luke Parry during the chairing of the virtual event.

In December 2020, the Museum hosted the Annual Meeting of the Palaeontological Association (PalAss) which, due to lockdown conditions, took place as an online event. The conference was organised and hosted by Dr Jack Matthews and a team of Museum Researchers and Events staff. Embracing the challenges presented by the unusual circumstances, the team succeeded at showcasing the Museum as a hub for scientific knowledge, discovery and discussion. The team also worked hard to replicate the sense of community that would normally be found at in-person events, hosting a post-conference *PalaeoVision* event which allowed colleagues to submit musical entries based on their favourite fossils for the critical evaluation of a devoted audience.

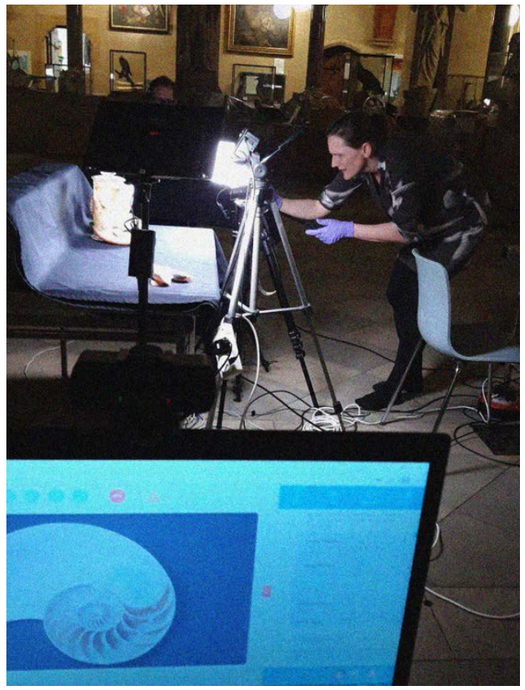
"A massive thank you to yourself and your entire team for organizing Virtual PalAss 2020. It was brilliant – smoothly run, innovative and reaching out to new audiences. The Association has come out of this stronger and into the brave new world of virtual meetings – and this is largely down to your organization. We are all hugely appreciative."

Conference attendee

Drawn to Nature

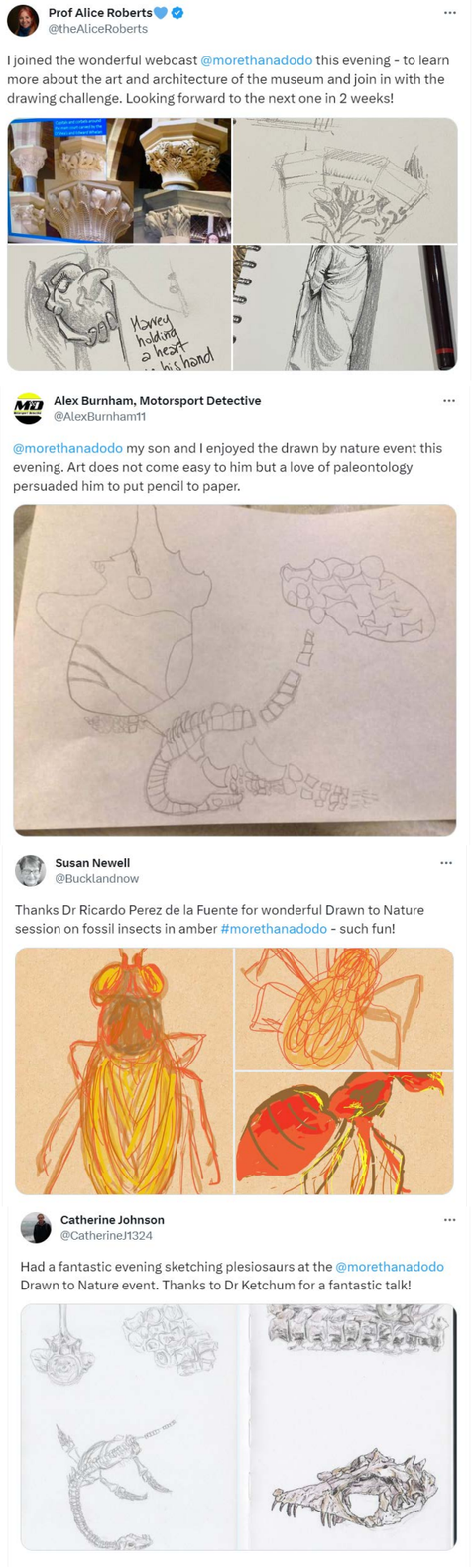
Museum staff led online drawing sessions to support wellbeing during lockdown

Throughout 2021, as the UK cycled in and out of lockdowns, the *Drawn to Nature* series provided regular opportunities for audiences to join Museum staff online and take part in guided drawing exercises inspired by the collections.



Events Manager, Laura Ashby setting up Nautilus specimens.

Each of the 10 sessions began with a short talk introducing an area of the collection and then the live online audience was given a series of timed 'still life' drawing challenges. The aim was to support wellbeing with creative activities but also through being part of a wider online community. The series drew in a steady audience of amateur and professional artists – each event attracted an average of 160 attendees with an impressive geographic reach, spanning the breath of the UK and extending further afield to Bangladesh, South Africa, Azerbaijan, Sri Lanka, Canada and the Bahamas. Many participants, including famous faces like science presenter Professor Alice Roberts, expressed how much they enjoyed the sessions and shared their sketches and drawings afterwards on social media.



Higher Education teaching online

A range of digital resources were developed to facilitate teaching online

The Museum makes a significant contribution to higher education teaching and, under normal circumstances, would host hundreds of students each year from the University of Oxford and other higher education institutions across the UK and abroad. During 2020, as teaching shifted online in response to local and national lockdown requirements, the Museum needed to rapidly adapt to be able to continue to teach the content that would usually be delivered through in-person visits.

A range of digital resources were developed: walking tours, lectures and practical sessions were live-streamed online or pre-recorded as podcasts and videos, and content packages were supplemented with digitised collections material where appropriate. Following University and national guidance, during the few windows of time when the Museum could be accessed by teaching staff and students, the spacious centre court was set up for socially-distanced classes. This resourceful and flexible approach was key to ensuring the best possible experience for students during this difficult and disrupted period in their journey through higher education.

Specialist support for schools

The primary and secondary school offer was adapted for digital delivery

Throughout 2020 and 2021 the Museum adapted its offer for schools in response to the changing arrangements for primary and secondary education. Staff got to work quickly, working at first with only a mobile phone and basic video-editing software, to record digital versions of regular face-to-face sessions at various locations around the Museum. After watching the videos in class, the pupils could join a 30-minute live session to ask questions about the content and research challenges. Teachers had the opportunity to request additional bespoke content during the booking process and were also supported with downloadable resources to help with preparation.

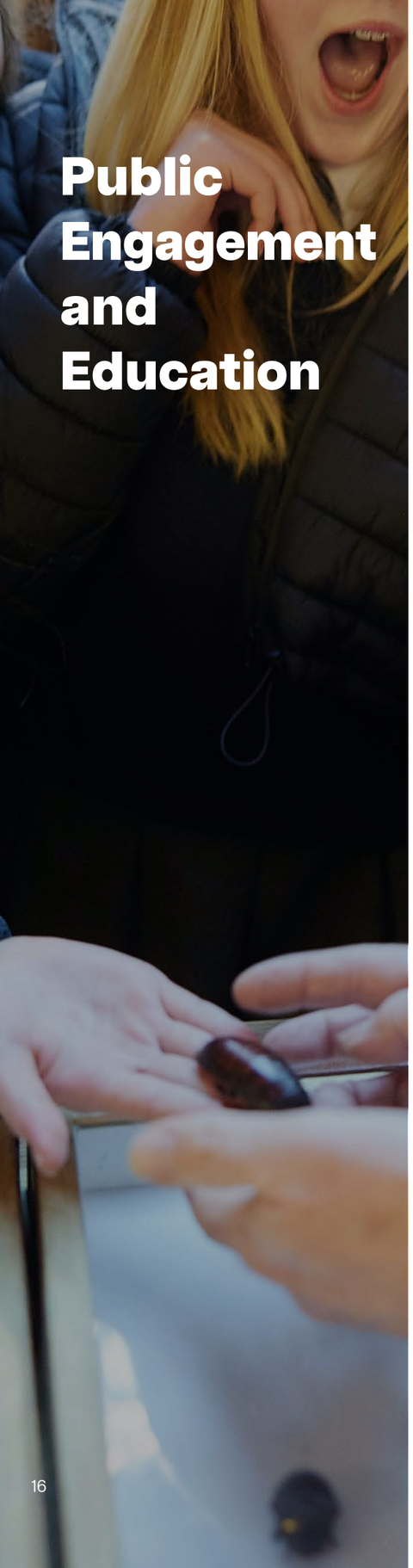
"It was absolutely fantastic! The children got so much out of what you taught them. You made the session so engaging... all 52 children were holding on to your every word - keen to find out more. We really appreciate how you have adapted the session to suit online learning in these tricky times."

Teacher

Education Officer, Chris Jarvis delivering virtual museum visits with specimens.

"I would just like to say a huge thank you for your minerals, rocks and fossils presentation. The children really enjoyed it and have been talking about it every day since!"

Teacher



Public Engagement and Education

HOPE for the Future

The final stages of the project were successfully completed

HOPE for the Future was an ambitious three-year project to protect and share Oxford University Museum of Natural History's unique and irreplaceable British Insect Collection. The *HOPE* acronym spells out the project's aims – *Heritage, Outreach* and *Preservation of Entomology* – and is also a nod to Frederick William Hope (1797-1862), a founding collector of the Oxford University Museum of Natural History.

The three strands of project have included:

Heritage: Restoring the Museum's historic Pre-Raphaelite Westwood Room and creating the Ellen Hope Gallery with new permanent displays on British insects.

Outreach: Delivering a wide-reaching learning and community programme at the Museum and beyond; developing skills and inspiring lifelong interest in the natural environment and conservation.

Preservation of Entomology: Rehousing and documenting over one million British insects, supported by volunteers, paid internships and bursary students.

The first phases of work on the project began in 2019 following the award of £700,000 of funding from the National Lottery Heritage Fund and the appointment of project staff, including a HOPE Collections Team and HOPE Learning Officers, to begin the rehousing and documentation work and to take materials from the collections out into schools and communities across Oxfordshire. With the onset of the Covid-19 pandemic, there were particular implications for this project due to the focus on outreach and engagement. The outreach phase was delayed by roughly six months, however all outreach targets were met over the course of the project. Whilst Learning Officers were working remotely they produced digital resources that have since been incorporated within The Learning Zone on the Museum website. The project concluded in January 2023.

HOPE: Outreach

The outreach strand of the *HOPE for the Future* project included an extensive programme of both onsite and offsite events with families, grandparents, community elders, young people, students, and teachers. These events have encouraged thousands of people to appreciate and understand insects and their relationship to humans, other creatures, and the environment.

From the collection to the classroom

Bespoke offers were developed for schools and young people

After School Club © Ian Wallman

Insect Discovery Days

Taking *HOPE for the Future* out on the road, over the course of the project between September 2020 and July 2022, HOPE Learning Officers engaged over 1,500 children at 58 Insect Discovery Days in 23 different primary and secondary schools. In a full day of insect-themed activities, students were introduced to insect orders and the role of insects within ecosystems and then used their newly acquired skills to find and identify insects in the school grounds, creating a unique species list for their school.

CPD for Teachers

In September 2021 and March and June 2022, the HOPE team delivered bespoke Continuing Professional Development sessions for teachers to build their confidence and enthusiasm for using insects within their teaching. Working closely with teachers and embedding insects into the science curriculum has been key to ensuring the legacy and the continuation of engagement far beyond the completion of the HOPE project itself.

After School Clubs

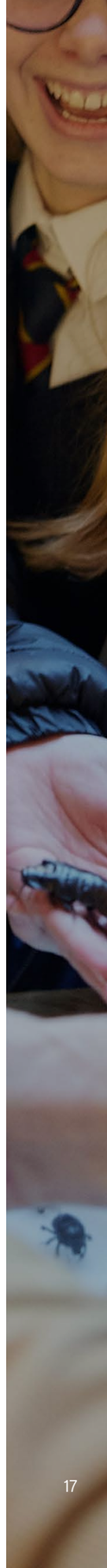
The HOPE project provided insect inspiration for after-school clubs both onsite at the Museum and offsite in partner schools.

At the Museum in November 2021, primary school students learned about macrophotography, microscopy, and investigating adaptations. This after-school club was designed specifically for students who do not often get the chance to take part in enrichment activities and the sessions encouraged them to see how science can be valuable to them and relevant to their future.

HOPE Learning Officers also helped schools to deliver their own events, developing a resource box of four ready-made sessions and providing a `hot line' to Museum entomologists so that students could ask questions, send insect photographs for ID purposes, and share the results of their own entomological investigations.

Crunchy on the Outside

Crunchy on the Outside is an ongoing series of events offering 10-14-year olds the chance to go behind-the-scenes at the Museum and explore the British Insect Collection. Beginning in October 2022, one event is run during each school holiday and include macrophotography and drawing activities, and the group of budding entomologists also spent time exploring and classifying the insects found in the Museum's grounds.



Family fun

Highlights from the programming for families:

Science Saturdays

Science Saturdays provide fun science-themed activities for family audiences during term time. In a long-running takeover of the regular programme, the HOPE project was the inspiration for new insect-themed activities for *Science Saturdays*, which will become a permanent feature. The activities encourage families to explore why insects are important in our ecosystems, what makes an insect an insect, and survival techniques that insects use.

Super Science Saturday

HOPE also took over one of the Museum's regular *Super Science Saturday* family science fair on 12 March 2022. The theme was *Fantastic Minibeasts* and activities included storytelling workshops, discovering fossilised minibeasts, maggot racing, and science singing with Geologise Theatre. The events showcased a selection of research from across the University of Oxford and provided opportunities for scientists to share their work with a family audience.

Collections Assistant, Louis Lofthouse running a demonstration at a Science Saturday event © Ian Wallman

Bookings Administrator and Education Assistant, Jenny Hulmes, and Education Officer, Chris Jarvis, in the HOPE Insect Show: Beasties or Besties? © Ian Wallman

Beasties or Besties?

What happens when a visitor to the Museum, with a certain dislike of insects, meets an accommodating, and rather chatty, giant talking dung beetle?

All was revealed in the *HOPE Insect Show: Beasties or Besties?* which took to the stage during the October 2021 and February 2022 half term holidays and *Super Science Saturday* on 12 March 2022. This participatory show told the story of a Museum visitor's encounter with the giant beetle who persuades them that insects are friends not foes. The beetle describes how insects play a vital role in food chains, nutrient recycling, and pollination, and highlights the entomological work of the Museum.

Towards an age-friendly museum

Pioneering new outreach events created opportunities for all ages

The HOPE outreach team delivered twenty community talks, reaching 246 people across Oxfordshire, as well as online sessions for groups from Bourton on the Water and Hackney. The team also planned and delivered three pilot events targeted at older adults and inter-generational audiences, as well as running informative, interactive stalls at six community pop-up events. The HOPE Officer for older people was also responsible for leading the museum to achieving Age-Friendly status, which was achieved by the completion of the project.

HOPE Explorers

In partnership with Flo's - The Place in the Park, the HOPE team delivered monthly sessions from December 2021 to May 2022 for grandparents and mature carers who look after young children. The intergenerational groups examined specimens from the collection, searched for insects and logged their findings in a bug journal, created solitary bee hotels, and scattered bee-friendly wildflower seeds. The carers received *HOPE Explorer Packs* including craft activities, information booklets, and insect-themed recipe cards, to unpack at home with the children.

'Silver Sunday' participants © Ian Wallman

Age of Nature

The HOPE project reinvigorated *Age of Nature*, a social group for adults which existed pre-2020. The group provided regular opportunities for individuals to meet new people, have a chat, and learn something new about natural heritage and the history of the Museum. In an eight-month programme, running between March and November 2022, sessions included bespoke tours of exhibitions and behind-the-scenes and handling sessions to investigate the hidden stories of the Museum.

Age of HOPE

In a pioneering new outreach programme, the Museum partnered with AGE UK Oxfordshire and Men's Shed Oxford to explore the role that museum engagement can play in reducing loneliness and isolation and supporting wellbeing. Participants visited the Museum in July 2022 for behind-the-scenes tours, live insect handling and other insect-themed activities. The sessions included insect-focused reminiscence and looked at how discovery and learning helps to support good mental health. Participants were also introduced to local conservation initiatives that they could follow and engage with in the future.

2020: the Sphere that Changed the World

18 May – 19 September 2021

An ethereal rendering of the SARS-CoV-2 virus by sculptor Angela Palmer

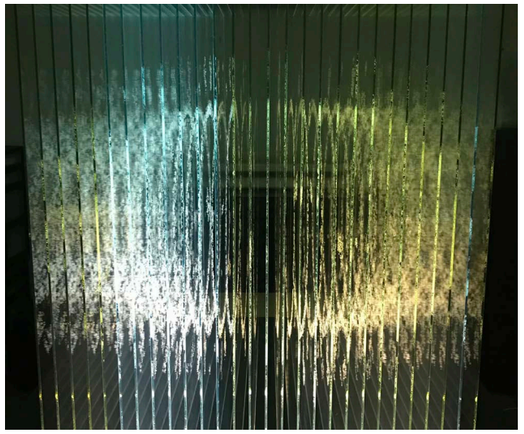
2020: the Sphere that Changed the World and *The Spike* are artworks by celebrated sculptor Angela Palmer that respond directly to Covid-19 pandemic, conceived as the crisis unfolded and the virus extended its grip on the world.

2020 is a three-dimensional 'drawing' of the virus that causes Covid-19. It is based on the first genomic map of SARS-CoV-2 from Wuhan, China and is the result of months of careful work and collaboration with scientists in order to accurately capture and render its form. The virus is shown at eight million times its real size, seen suspended and imprisoned in glass. From the front of the eerie and ethereal sculpture it is possible to see the entire sphere, yet as you pass around the 28 engraved sheets of glass it disappears entirely from view, only to reappear again, echoing the elusive behaviour of the virus as it spread. This large, dynamic sculpture was accompanied by *The Spike,* a smaller delicate glass sculptural representation of the spike protein from the virus particle.

The Spike, sculpture by Angela Palmer © David Fisher

(opposite) 2020: The Sphere that Changed the World, sculpture by Angela Palmer © David Fisher

Artist Angela Palmer (left) and Professor Dame Sarah Gilbert (right) © David Fisher



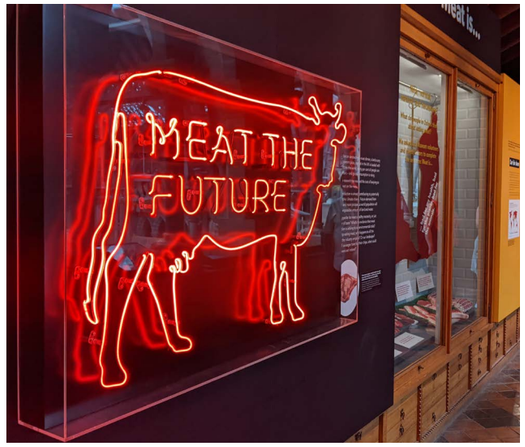
2020, seen from the side © David Fisher

The sculptures were installed at the Museum in spring 2020 and the display was opened to small groups following the easing of lockdown restrictions on 17 May 2021. On this landmark date, with groups of up to 30 people able to mix in social situations, the Museum hosted an intimate private view where Professor Sarah Gilbert, lead developer of the Oxford-AstraZeneca vaccine, unveiled the displays and praised Angela's "powerful and thought-provoking sculpture" describing the works as a "beautiful yet fragile representation of the virus that has become our mortal enemy". The event was attended by other members of the team that worked directly on the Oxford-AstraZeneca vaccine, including Sir Andrew Pollard and Maheshi Ramasami, and University Chancellor, Lord Patten of Barnes. Following the closure of the exhibit, *The Spike* was donated by the artist, to Professor Dame Sarah Gilbert and her team at the University of Oxford.

Meat the Future

28 May 2021 – 5 June 2022

A challenging exhibition providing serious food for thought about the impact of our diets



How can we measure the environmental impact of our food? Is meat really as damaging as it's made out to be? And what should we be eating to safeguard our own health as well as that of our planet?

Meat The Future was a thought-provoking exhibition presenting cutting-edge research on the environmental and health impacts of eating meat and exploring the range of possible alternatives, from simply eating less meat to adopting new high-tech replacement products. The exhibition and accompanying events programme were developed through an ambitious collaboration between the Museum, the Livestock, Environment and People project (LEAP), and Vaults & Garden café. Working in partnership, and drawing together the strengths of a wide range of researchers and contributors, enabled the creation of a complex multi-sensory experience throughout the museum allowing visitors to see, hear, and eat their way around the exhibition themes.

LEAP is a Wellcome Trust supported project based at the University of Oxford that seeks to understand the health, environmental, social and economic effects of meat and dairy production and consumption. The Museum's Public Engagement team worked with 35 researchers from across different departments and disciplines to develop the exhibition content and share their research with visitors through a variety of showcase displays, constructed models, digital interactives, filmed interviews and audio installations.

Visitors started their experience on the ground floor where, furthering the Museum's long-running exploration of the relationship and dialogue between art and science, they were confronted by Damien Hirst's *Cain and Abel*

(1994) artwork of two calves suspended in formaldehyde solution. Situated alongside museum specimens including the Chillingham bull skeleton, this striking installation artwork provided the initial catalyst for reflection on the intertwined history of humans and cattle.

On the first floor, the Upper East gallery was transformed into a row of market stalls with designs inspired by different food-themed environments including a butcher's shop, supermarket aisle, a farmhouse dresser and bistro cafe. Within these familiar settings visitors were able to see how meat consumption varies around the world, learn about the link between biodiversity loss and agricultural practices, and find out how researchers are developing new ecolabel packaging to help consumers make more informed choices. In a specially developed mock online supermarket visitors could calculate the environmental footprint of their shopping and, reflecting on the impact of their habits, they could then put their new knowledge into practice in the *Eat the Future* café where the ecolabelling had been applied to a new vegan and vegetarian offering.

Meat the Future attracted over 245,000 visitors to the exhibition and 4,800 attendees at events. 97% of visitors who completed the on-gallery evaluation survey (2856 individuals) said they learned something new at the exhibition and 59% of visitors said they wanted to change their behaviour as a result. The exhibition continues to reach and impact new audiences through its permanent presence as an online exhibition on the Museum website and the tour of the displays to the Food Museum in Stowmarket in June 2023.

"My daughter has just gone vegan and as a result of this exhibit, we've decided to cut beef from our diet for the rest of the family."

"I was already trying [to eat less meat] but now, with specific subject knowlege, I feel empowered to change."

Exhibition visitior feedback

Meat the Future events

Highlights from the supporting programme:

Late Night: Consumed

In October 2021, this after-hours event and late opening of *Meat the Future* offered the new ways for visitors to explore the exhibition topics through bite-size researcher talks and food and farming-based board games and art activities. There was food for thought, as they discovered their Meat Personas, and thoughtful food, with the traditional bar offering complemented by insect-tasting opportunities. Crunchy roasted cricket, anyone?

Community Connector Project

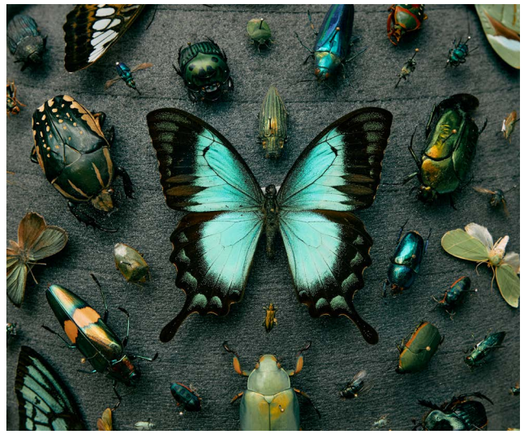
Taking *Meat the Future* out on the road, the Museum ran an outreach event for football fans at Oxford City Football Club on 15 January 2022 which looked at the role of food and health in fitness and encouraged the attendees to try meat-free catering options. The event was led by one of the Community Connectors who work across the Gardens, Libraries and Museums to take projects out to community groups and partners in and around the city.

Tamed: Three Species That Changed the World

In this online talk in December 2021, Professor Alice Roberts looked back at the origins of our interdependent relationships with domesticated animals. The talk explored how Stone Age hunters domesticated dogs and cattle, how Bronze Age nomads domesticated horses, and how teaming up with these other species helped our ancestors to survive and thrive.

Redisplaying Life, As We Know It

The central court was transformed with new displays on the history of the earth, evolution and biodiversity



Life, As We Know It redisplay © David Fisher

The second phase of the ambitious *Life, As We Know It* redisplay project was completed by September 2022, bringing 20 new science-led permanent exhibits to the main court. It represented the first major redesign of this space in over 20 years and was part of a wider masterplan to replace the ageing showcases and introduce new interpretative displays. This phase of the redisplay has been achieved thanks to generous support from FCC Communities Foundation, with ten cabinets replaced with state-of-the-art showcases to create optimal display conditions for the collections material.

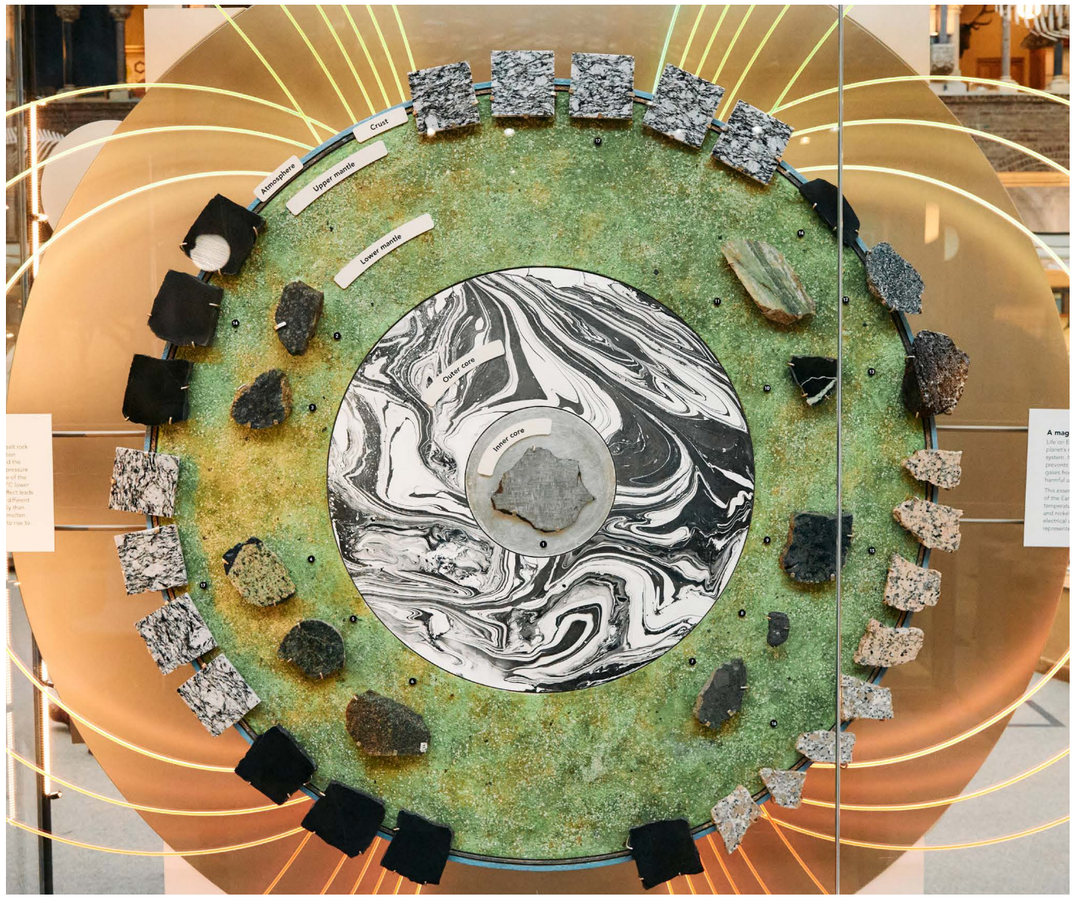
The interpretation structure follows a 'Paddler-Swimmer-Diver' model, where each level offers increasing detail and conceptual sophistication. The centre court is dedicated to Paddlers, with ten displays all about biodiversity and the variety of life on Earth. Using hundreds of specimens, five exhibits present some of the many different ways that diversity is seen in nature, including through colour, form, and size. The importance and fragility of biodiversity are presented in five displays on the opposite side of the court, introducing themes of human impact on the environment.

Diver aisles on either side of the court were created for new displays on the history of the formation of the Earth and on the science of evolution. In the South aisle, the story begins with the oldest objects in the collection – 4.6 billion-year-old meteorites dating back to the birth of the solar system – and new exhibits take visitors from the formation of our planet to the emergence of early life and our oxygen-rich atmosphere. Across the court

(above and top) Life, As We Know It redisplay © David Fisher

in the North aisle, evolution is brought to the fore for the first time as a central concept within the Museum, rather than an underpinning as seen in the previous displays. The sequence begins with displays of whales and their extinct ancestors to illustrate core evolutionary principles, and continues with showcases explaining variation, selection, adaptation, and competition.

The new displays opened in late September 2022 and received press coverage in the Daily Telegraph, BBC News Online, BBC South Today, and the Oxford Mail, along with other radio and social media channels. Evaluation of this phase of the project showed a high level of engagement with the new exhibits, with a wide appreciation for their aesthetic and scientific content. The project will continue over subsequent phases until all the main showcases in the court are replaced and their exhibits renewed.



Life, As We Know It redisplay © David Fisher

"After seeing these displays I want to learn more about space and time. I want to grasp the significance of what '4.5 billion years ago' actually means."

"The blue-edged lobster really stands out. It's very special to see things like this even if it's not in the wild. I feel like you may find it in the sea if you go out and look. I'm inspired to study science more."

Visitor feedback

Biodiversity: Kurt Jackson

3 February – 15 May 2022

Paintings and prints by Kurt Jackson exploring the diversity of the UK's natural habitats

Biodiversity: Kurt Jackson © Ian Wallman

Biodiversity: Kurt Jackson is a touring exhibition that demonstrates and celebrates the diversity of the natural world. The exhibition showcases new paintings and prints by contemporary artist and environmentalist Kurt Jackson, featuring a range of natural landscapes in the UK including forests, waterways, and coastlines. In these works, Kurt Jackson highlights the interdependencies of different lifeforms and explores his concerns for the future of these natural habitats and the complex ecosystems they support as they continue to be impacted by human activity and climate change.

"Our existence depends on this biodiversity; the air we breathe, the food we eat, the water we drink ultimately all requires it."

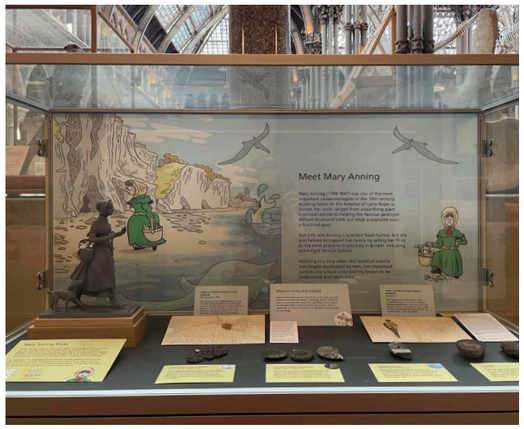
Kurt Jackson

In the exhibition at the Museum, the works were displayed alongside specimens from the Museum's collection which highlighted the range of species found in the different environments. 13 environmental and zoological researchers from the University of Oxford were also invited to share who shared their responses to the artworks and reflections on the theme of biodiversity – how we can understand it, how we can protect it, and what it means to us all. The exhibition received nearly 200,000 visitors during its time at the Museum and has also been turned into an online gallery.

Meeting Mary Anning

The touring maquette started its journey at the Museum

Mary Anning (1799-1847) was one of the most important palaeontologists of the 19th century but when 10-year-old Evie from Lyme Regis, where Mary Anning lived and worked, learned about her achievements she was shocked to find that her contribution to science was not better known. With support from her mum, Evie began the *Mary Anning Rocks* campaign to build a statue of her for the town. To celebrate the unveiling of the statue, the campaign and the Geologists' Association coordinated a UK-wide tour of the small-scale maquette for the statue, so that Mary Anning's story can be shared far beyond her home town. The maquette began its journey at the Museum and was on display to visitors from May-June 2022.



(opposite) The Mary Anning maquette

Research

Periclimenaeus karantina Park and De Grave, 2021. Photograph by JH Park (CC-BY-NC-SA-4.0).

The Quarantine Shrimp

Acclaim from the World Register of Marine Species

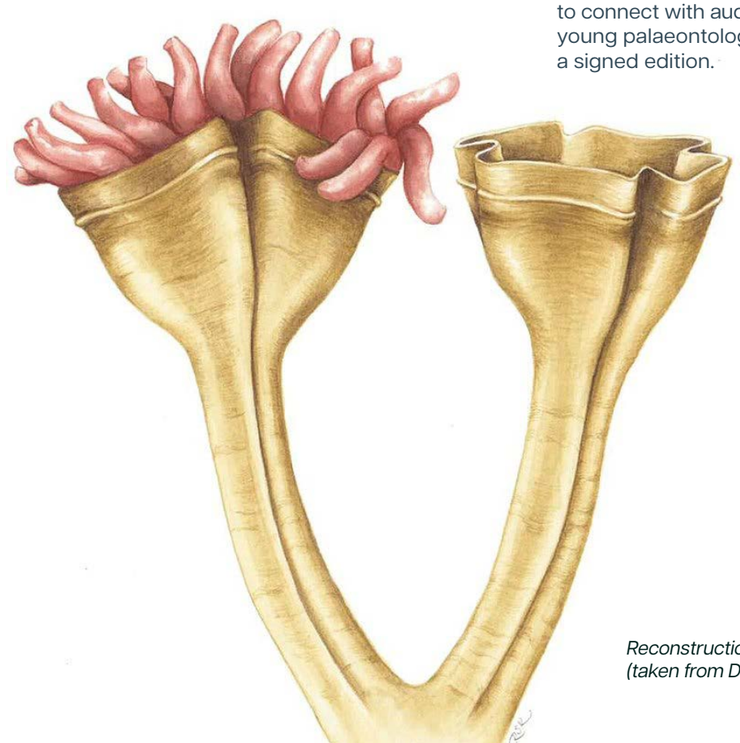
In December 2021, a new species of shrimp described by Museum researchers was named amongst the top ten 'most remarkable new marine species' of the year. Over 2,000 new descriptions are submitted by taxonomists to the World Register of Marine Species (WoRMs) each year and the top ten list is collated on an annual basis to celebrate the most interesting of the new additions. Senior Researcher at the Museum, Dr Sammy de Grave, working alongside colleague and collector of the species, Dr Jin-Ho Park, described the 'Quarantine Shrimp', *Periclimenaeus karantina,* during the Covid-19 lockdown period. It could scarcely be more appropriate to the moment, living a suitably isolated lifestyle and dwelling alone inside sponges and ascidians.

The earliest Cnidarian

A new discovery made the BBC News

Dr Frankie Dunn being interviewed on BBC News

Auroralumina attenboroughii, also known as the 'Dawn Lantern', is an ancient polyp-like species, described in July 2022 by Museum Researcher Dr Frankie Dunn and collaborators, based on fossil evidence from Charnwood Forest. The species belongs to the animal group Cnidaria (an invertebrate group including anemones, corals, and jellyfish) and the fossil evidence dates to the Ediacaran period 635 million years ago, when animal life first evolved underwater, making this new discovery the earliest 'true' Cnidarian known. The media response to the discovery was extraordinary, and coverage included a four-minute live appearance on the BBC News on 25 July 2022 where Dr Dunn answered questions about the discovery of the fossil and its scientific significance.



Reconstruction of Auroralumina attenboroughii (taken from Dunn et al, 2022; Nat. Ecol. Evol.)

The Earth: a Biography of Life

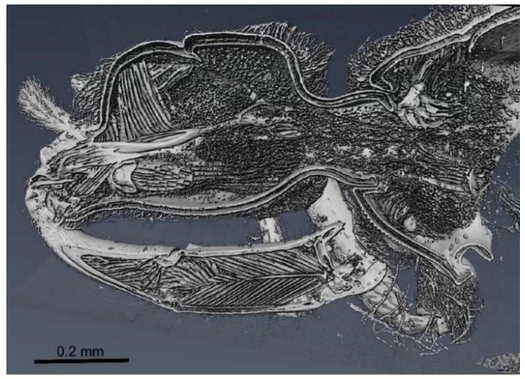
Book launch and in conversation event

Dr Elsa Panciroli (left) in conversation with Dr Anjana Khatwa (right) at the book signing.

The new book, *The Earth: a Biography of Life,* was launched at the Museum in April 2022, with author and Museum Researcher Dr Elsa Panciroli in conversation with TV presenter and earth scientist Dr Anjana Khatwa. The book uses a selection of diverse living and extinct organisms to explore the history of life on Earth, showcase evolutionary innovations, and describe our interconnected planet. The event provided a chance to connect with audiences and nurture budding young palaeontologists eager to get their hands on a signed edition.

Scanning crickets at the Swiss Light Source Synchotron

A new approach to studying small animal biomechanics



Synchrotron micro-CT scan of a reduviid insect, longitudinally dissected virtually to expose head musculature.

Dr Leonidas-Romanos Davranoglou and colleagues visited the Swiss Light Source synchrotron (a particle accelerator) in Switzerland to work on a pioneering new approach to studying small animal biomechanics. The research team successfully expanded the use of time-resolved X-ray microtomography to scan and record living, singing crickets for the first time, demonstrating the viability and potential of the method. During the visit inJune 2022, the team also scanned 46 arthropod species, collecting data that will help to determine how complex signalling processes and the structures producing them have evolved.

Mapping biodiversity in the Balkans

DNA sequencing to contribute to biogeographical research

In July 2022, Dr Leonidas-Romanos Davranoglou led an international team on fieldwork in the Balkans collecting beetles and scorpions. The data collected by the researchers will contribute to efforts to document and protect the biodiversity in the region. The DNA of some specimens will be sequenced to determine the phylogenetic relationships between them, which will further researchers' understanding of the biogeographic history (the history of the distribution of animals) of the Eastern Mediterranean.

Dr Leonidas-Romanos Davranoglou holding Europe's largest scorpion, Iurus dekanum, *in Crete.*

Examining the impact of fossil extraction in Skye

Research sites are conserved for future generations

PhD student, Jonathan Lim (School of Archaeology, University of Oxford) using GPS.

The Isle of Skye in Scotland is home to a number of research sites that are protected for their geology, fossils, landscape, flora and fauna, and are studied on a regular basis. A research team from the University of Oxford, including Dr Elsa Panciroli, alongside colleagues from National Museums of Scotland, conduct annual fieldwork and returned to Skye in 2022. On this visit Dr Panciroli, and collaborator Jonathan Lim, used drones to map the research localities and the fossil extractions to date. The mapping data will enable an examination of the distribution of specimens along the shore and the cumulative impact of fossil extraction. The assessments will help to support long-term conservation, ensuring fieldwork can continue without compromising the landscape.

NERC fellowship award

Funding for new research into the rise of early animals

The museum continues to attract funding for cutting-edge research and in October 2022 a five-year fellowship was awarded to Dr Frankie Dunn by the Natural and Environmental Research Council (NERC). Dr Dunn will be the principle investigator for the project: *The dawn of the Phanerozoic: non-bilaterian evolution and the nature of the Cambrian Explosion*. The research aims to shed light on one of the most controversial episodes in Earth's history, the origin and diversification of animals, by increasing the research effort on ancient lineages like sponges or cnidarians (an invertebrate animal group including anemones, corals and jellyfish).

Two individuals of Pteridinium simplex, *an Ediacaran erniettomorph from Namibia. (taken from Darroch et al. (2022) in Paleobiology (DOI: 10.1017/pab.2022.2).*

Jiawen Loo

Hosting student researchers

Museum Researchers supported a diverse range of student projects

EPA Cephalosoporin Fund internship

Student intern Kaylin Chong, funded by the EPA Cephalosoporin Fund, worked with Dr Lauren Sumner-Rooney in July 2021 on a project investigating vision traits in spiders.

Carey bursary students

In August 2021, Jiawen Loo and Will Potter Herrera, recipients of the University of Oxford's Carey bursary, worked with Dr Frankie Dunn and Dr Ricardo Pérez-de la Fuente on separate projects to investigate the evolution of morphological variation in a group of extinct cnidarians called conulariids, and to describe the diversity of Cretaceous amber snakeflies. In August 2022, Ihini Aambreen, also supported by the Carey bursary, worked with Dr Elsa Panciroli on a project estimating the body mass of Mesozoic mammals.

Ihini Ambreen

Will Potter Herrera

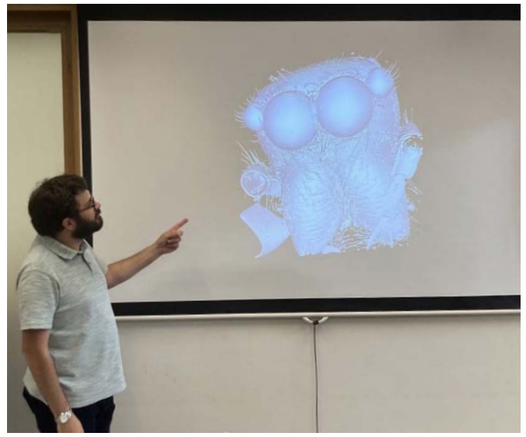
Kaylin Chong

Museum-based master's degree projects

Giovanni Mussini, pursuing a master's degree in Biological Sciences at the University of Oxford, joined the Museum between September 2022 and May 2023 to research the vetulicolians, a group of strange early animals that existed during the Cambrian period 541 million years ago. Giovanni was supervised by Dr Frankie Dunn and Museum Director, Professor Paul Smith. Giovanni successfully defended his thesis in June 2022 and has now started a PhD at the University of Cambridge. A presentation of the results of his work at the Museum won the award for best talk at the 2022 Palaeontological Association meeting held in Cork in Ireland.

Undergraduate teaching in digital morphology

For two consecutive years, the Museum hosted second-year Biological Sciences students for a two-week skills course in Digital Morphology. The course was led by Museum researchers Dr Imran Rahman and Dr Lauren Sumner-Rooney in 2021 and by Dr Frankie Dunn, Dr Duncan Murdock, and Dr Elsa Panciroli in 2022.



Dr Duncan Murdock during the Digital Morphology course.

In the first week, students enjoyed a programme of practical instruction on techniques for acquiring and analysing 3D morphological data on extinct and extant organisms, complemented by guest lectures on case studies. In the second week, they applied their knowledge to their own research projects on diverse topics including bite force in sabre-tooth cats, ants preserved in amber, and enigmatic ancient animals.

Collections

HOPE: Preservation of Entomology

The *HOPE for the Future* project has enabled more than one million insects from the Museum's British insect collection to be saved for display, research, and learning. Rare and wonderful museum collections such as this are a vital information bank for understanding the climate and biodiversity crisis, and for understanding the extent of species loss and ecology damage.

Rehousing the British Insect Collection

An internationally significant collection is saved

The Museum's British insect collection spans almost the entire history of British entomology, representing extensive information on the biodiversity of Britain and how it has changed. It is 'Designated' by Arts Council England as being of national and international importance. These insect specimens, some over 200 years old, urgently needed saving from pests, pinning rust, and the external environment.

Through *HOPE for the Future* the individual specimens were condition checked, relabelled, and transferred to new storage, ensuring the collection meets modern checklist standards for research and study. The project was significantly impacted by the Covid-19 pandemic as the planned for volunteer programme which it was reliant upon had to be cancelled. Nevertheless, the schedule and activity of the core working group was adapted and after a considerable team effort, the collections move was completed within the planned time frame.

Move a Million participants © Ian Wallman

Move a Million

Visitors had a chance to become part of the Museum's history

A series of 12 Move a Million events offered members of the public the opportunity to help with the relabelling and movement of insect specimens. 1,722 people took part in the events, each becoming a part of the Museum's history through their contributions to the project. Opening up museum practice offered a unique way to visitors to engage and connect with the collections and significantly increased the visibility of the *HOPE For the Future* project within local communities.

The Upper Thames Pleistocene Project

6,000 Ice Age fossils have been made accessible for research and teaching

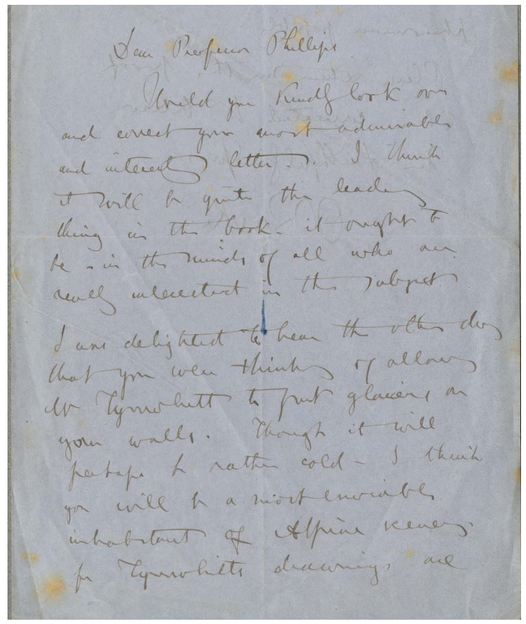
Neil Adams and Karen Bell working on the Upper Thames Pleistocene Project.

In 2018, the Museum received a generous donation from Dr Katharine Scott of over 6,000 Ice Age fossils from across Oxfordshire dating from between 200,000 and 35,000 years ago. Thanks to funding from The Street Foundation and the Curry Fund of the Geologists' Association, the Museum began a project in 2019 to clean, catalogue, photograph and re-box the collection. Museum staff and volunteers completed the work in February 2022 and the specimens – including the remains of mammoths, straight-tusked elephants, and woolly rhinos – are now accessible for research, teaching and display. All of the catalogue records are available to view on Collections Online, with 3D scans of a small selection of specimens also available on Sketchfab.

A letter from Ruskin

This important acquisition has enriched the history of the Museum

In 2021 the Library and Archive acquired a unique piece of Museum history – a letter from the Victorian art critic, John Ruskin (1819-1900), to John Phillips (1800-1874), Professor of Geology at the University of Oxford. Phillips played a key role in the foundation of the Museum and Ruskin - who had taken an interest in the new development - introduced him to a number of his friends who he felt could contribute their ideas and skills to the project. This group included the cleric, academic and artist, the Reverend Richard St John Tyrwhitt (1827-1895).

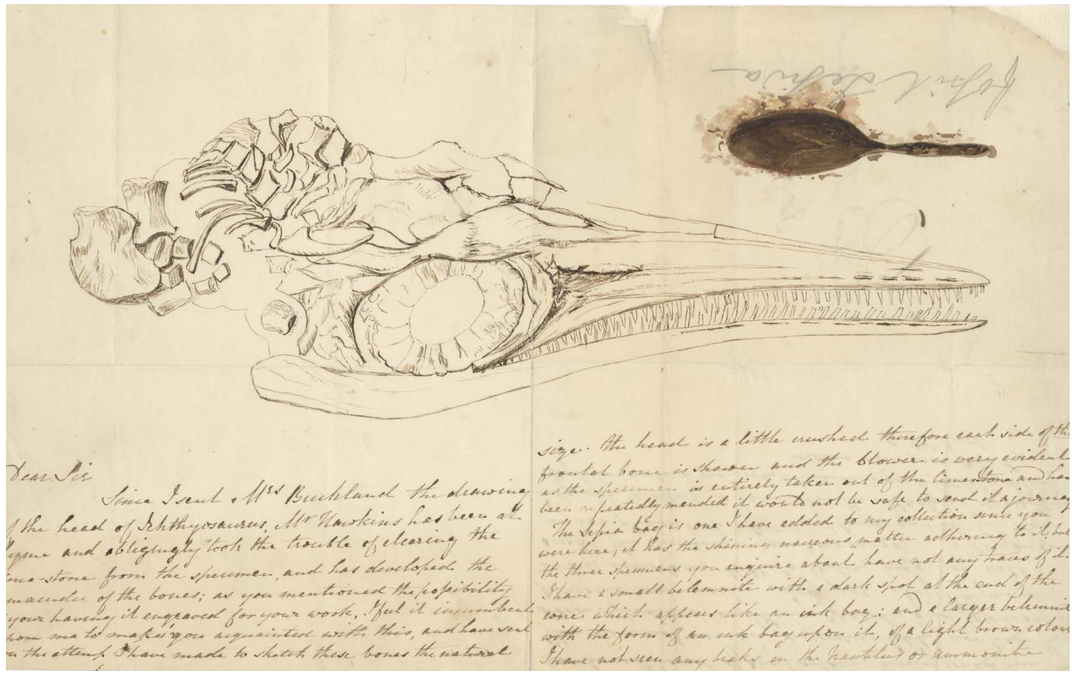


John Ruskin's letter to John Phillips.

"I was delighted to hear the other day that you were thinking of allowing Mr Tyrwhitt to put glaciers on your walls. Though it will perhaps be rather cold- I think you will be the most enviable inhabitant of Alpine scenery, for Tyrwhitts drawings are surely- do not you think so- the truest and most loving renderings of Alpine phenomena possible."

J. Ruskin writing to J. Phillips, undated, c.1860

Phillips did allow Tyrwhitt to paint glaciers on the walls of the geological lecture room (now the Director's Study) and two original murals remain there to this day. The Ruskin letter, successfully acquired at auction, enriches the history of the Museum but also tells a wonderful story of friendship, art and alpine scenery.



A letter from Elizabeth Philpot to William Buckland, transcribed as part of the project.

The life and work of William Buckland

Cataloguing and rehousing work on the archive was completed

In January 2022, the Library and Archive completed the cataloguing and rehousing of the William Buckland correspondence. William Buckland (1784-1856) was a pioneering 19th century geologist and theologian, and the first Reader in Geology at the University of Oxford. The Museum is the main repository of Buckland's archive which includes professional correspondence and more than 4,000 fossil, rock, and mineral specimens. The correspondence consists of over 500 letters written to and from Buckland between 1814-1854 which offer fantastic insights into his life, work and network during this time.

Transcribing the archive

A new e-volunteering initiative revealed exciting details from the Museum Archive

Working with the GLAM volunteer service, the Library and Archive ran an e-volunteering Archive Letter Transcription project that enabled 38 volunteers to work on transcriptions at home. Digitised images of the letters, from geologist William Smith (1769-1839) and entomologist James Charles Dale (1791-1872), are available in the Museum's online catalogue and the transcriptions have now been attached to the records. The project has made the letters more accessible to researchers and the public and revealed exciting details that provide insights into the personalities and personal lives of key 19th century collectors.

"He has turned wine merchant & is about to marry: two circumstances inimical to entomology: & I think it best to save his most valuable insects from the damp & rot which will otherwise await them."

R. T. Abraham writing to J. T. Dale, referring to a collector named Bluett, 1941.

Partnerships

Eat the Future

Environmental sustainability takes priority at the Museum café

2020 was a year full of challenges but also unexpected opportunities. With the departure of the Museum's long-running café partner, there was time and space to upgrade the facilities, but also a unique and exciting opportunity to think differently about what the catering offer should be and to respond directly to the research presented in the new temporary exhibition, *Meat the Future.* The Museum successfully sought funding from the Arts Council England Recovery Fund for an upgrade of the catering equipment and full rebrand and redevelopment of the café area. The brief focused on environmental sustainability and the ethos of the partnership was prioritised through the tender process.

At a point of great uncertainty for the hospitality sector, the support from the Recovery Fund was invaluable; with no capital investment required from the supplier, it was possible for small, local businesses to compete on an equal footing with larger organisations with access to greater resource. A new partnership was established with Vaults & Garden, an award-winning locally based café built on the principles of sustainability, who demonstrated a clear commitment to the flexitarian diet with a focus on local produce. The low meat, low carbon healthy café offer at the Museum does not include any beef, lamb or processed meat products, and all dessert and confectionery options are 30% plant-based or vegan. The café also adheres to Fairtrade and Rainforest Alliance standards and is palm oil-free, helping the Museum to align its offer with its sustainability aims.

MUSEUMS +HERITAGE AWARDS WINNER 2022

Museums + Heritage Partnership of the Year Award

The Meat the Future partnership was a winner at the annual awards

Meat the Future took the limelight at the 2022 Museums + Heritage Awards, receiving the Partnership of the Year of the year award. The exhibition was a three-way partnership between the Museum, the Livestock Environment & People (LEAP) research team at the University of Oxford, and Vaults & Garden café. The exhibition was described by the judging panel as "a brilliant example of a completely mutual and cross-dependent partnership. Meat the Future successfully combined research, engagement and commerce in an immersive and involving experience".

John Henslow Correspondence Project

The Museum Archive became a contributor to the Epsilon digital resource

In 2021 the Museum contributed to the John Henslow Correspondence Project, a collaboration led by the University of Cambridge to bring together all of the correspondence held by public institutions and private individuals. John Henslow (1796-1861) was a British priest, botanist and geologist at the University of Cambridge, he is best remembered as a friend and mentor to his pupil Charles Darwin and the chair of the famous Oxford evolution debate held at the Museum in 1860. The Museum Archive contributed 39 letters so they could be made available on Epsilon, a single, searchable online platform. This new resource will help researchers to study the networks behind the spread of knowledge in the 19th century and better understand this fascinating period of great scientific discovery and change.

Geology and Cartography

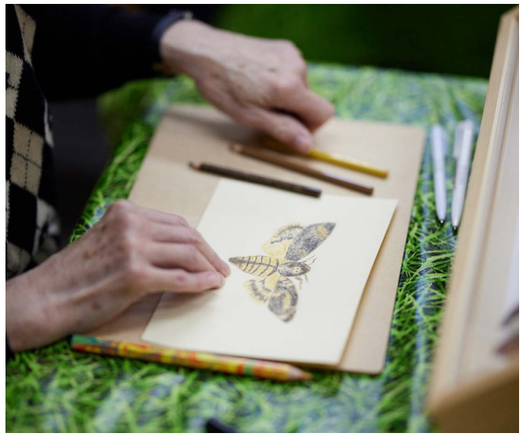
New partnerships were developed with specialist networks

In October 2021 the Library and Archive, along with Honorary Associate Nina Morgan, hosted two specialist viewings of 10 Geological Maps of the British Isles for members of The Oxford Seminars in Cartography (TOSCA) and History of Geology Group (HoGG). Director Paul Smith generously gave up his office so the maps could be displayed alongside two original Pre-Raphaelite murals depicting the forces of geology – fire and ice – as represented through the volcano Vesuvius and the Mer de Glace glacier. These events engaged a new specialist audience and provided the opportunity for members to get up close to important archive items not normally on display. The maps were shown alongside Thomas Sopwith's wooden geological models and William Smith's map, the first geological map of Britain, completed in 1815.

Community Outreach

HOPE For the Future deepened and expanded community connections

The *HOPE For the Future* outreach programme was delivered through a network of more than 15 community partnerships. The Museum deepened existing relationships with organisations focused on children and young people, including Oxfordshire County Library Service, Oxfordshire Science Learning Partnership, and Oxfordshire Play Association, and continued its long-standing work on community-wide engagement partners including Jericho Comedy and Cowley Road Works, coordinators of the Cowley Road Festival.



A drawing by a 'Silver Sunday' participant © Ian Wallman

The project also enabled the development of new partnerships with a specific focus on engaging older people aged 70+ years, a previously underserved audience. The outreach team worked with Flo's – The Place in the Park, a community hub in Florence Park in South East Oxford who provide community services and family activities for parents and carers of all ages, with AGE UK Oxfordshire, working specifically with one of the charity's LGBTQIA+ community group in Barton in North East Oxford, and with Men's Shed Oxford – a local social group for older men who take part in workshop activities, aiming to reduce loneliness in later life, social isolation and support wellbeing.

"We cannot stress enough how important we find these sessions and the opportunity they provide to meet new people in an active learning environment. They really are a highlight to our month."

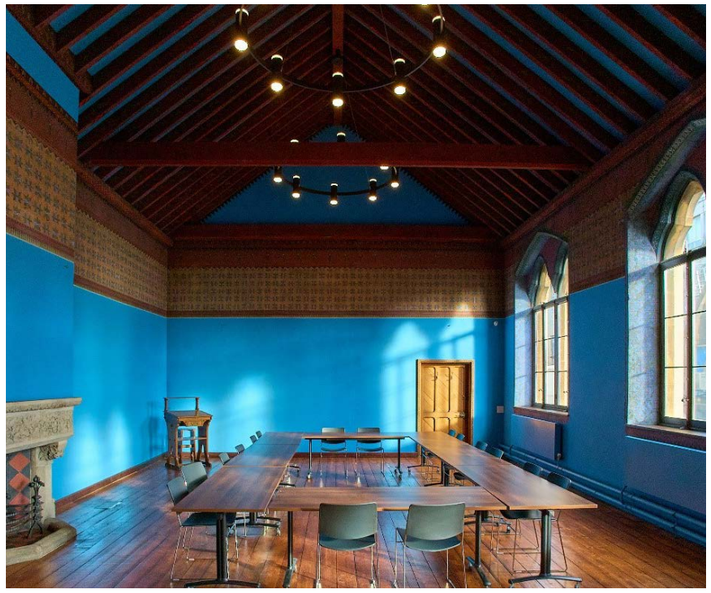
Age of Nature participant

(opposite) 'Silver Sunday' participants © Ian Wallman

Museum Projects

HOPE: Heritage

The heritage strand of the *HOPE for the Future* project focused on the built and cultural heritage of the Museum. It has enabled the restoration and reopening of two public spaces on the first floor, allowing visitors to see and appreciate parts of the Pre-Raphaelite architecture for the very first time and supporting the design and creation of new displays featuring specimens from the Hope Entomological Collection.



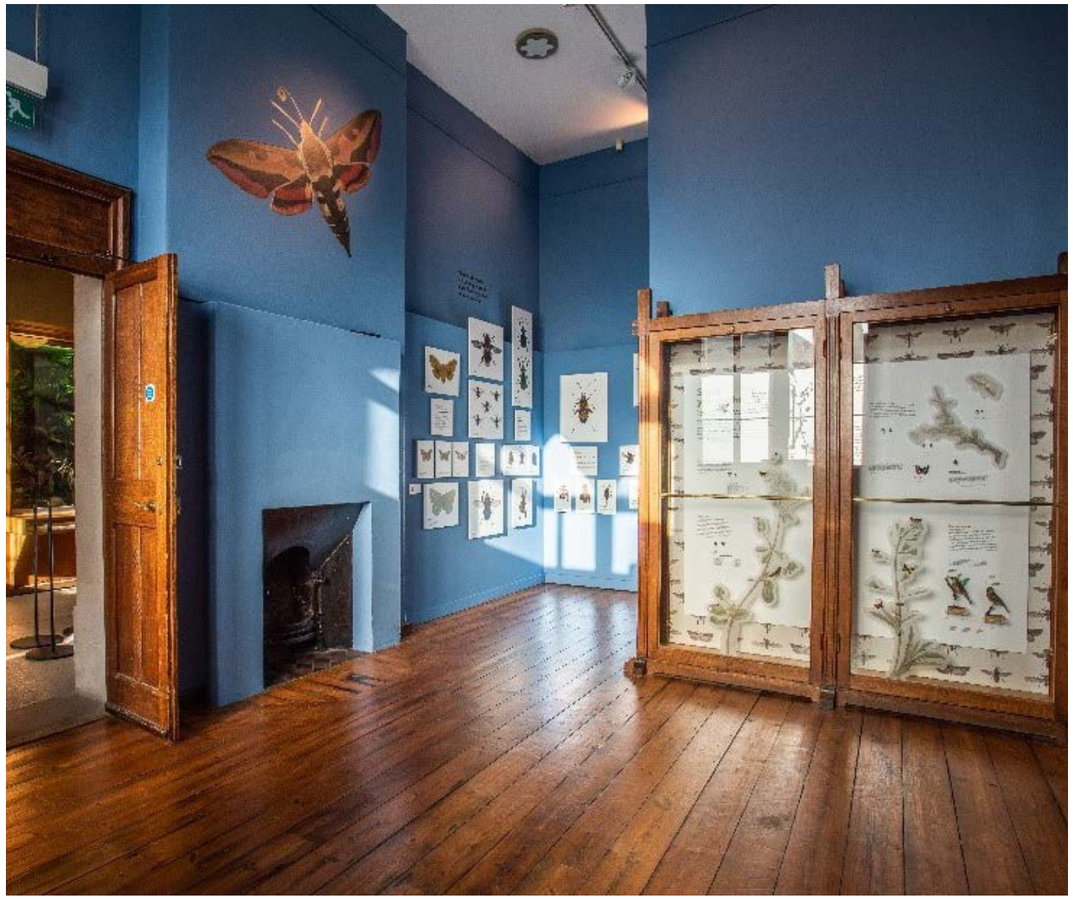
The Westwood Room © Ian Wallman

The Westwood Room

The spectacular pre-Raphaelite design scheme has been successfully restored

The Westwood Room is a prime example of Pre-Raphaelite design, which promoted art and architecture inspired by the natural world. The room is named after the renowned English entomologist and archaeologist, and the Museum's first Hope Professor of Zoology, John Obadiah Westwood (1805-1893), and its original function was to house the Hope Entomological Collections.

The space was previously closed to the public but it has been restored to its original design and colour scheme and reopened as part of the HOPE For the Future project. Colourful wall friezes and insect-inspired details are seen throughout, including on the intricately carved fireplace which depicts the lifecycles of Stag Beetles and Hawkmoths. The work was completed in January 2023 with an opening event taking place in early February 2023. The Westwood Room is intended to be used for a variety of events, from corporate dinners and board meetings to private parties and weddings.



The Ellen Hope Gallery © John Cairns

The Ellen Hope Gallery

New displays highlight the vital role insects play in our lives

The new Ellen Hope Gallery explores the importance of insects, from ecosystem services such as pollination, decomposition, and waste removal, to recycling nutrients and providing food for many other larger animals. However, over the next few decades, as many as 40 per cent of the world's insect species could become extinct. The gallery examines the sharp decline in populations and the actions we can all take to increase numbers and diversity.

Highlights include a newly commissioned film with local residents discussing their connection to insects and efforts to protect insect populations. A digital interactive also uses the illustrations of local artist Katherine Child to demonstrate ways to create habitats for a variety of insects.

The gallery is named after Ellen Hope, who in 1835 became one of the earliest female Fellows of the Entomological Society of London. In 1849, Ellen Hope's husband, Frederick Hope, donated his vast insect collection to the University of Oxford, founding the Hope Entomological Collections. Ellen Hope continued to support the collections after Frederick's death. In recognition of her passion for the natural world, the gallery highlights her impact and, by association, the wider role of women in science.

Behind the Scenes of Life, As We Know It

Collaboration across the Museum was key to the delivery of this major project

The second phase of the redisplay project involved the creation and installation of 20 new exhibits in the main court, with the size and centrality of the displays making this the most demanding phase of the overall masterplan and a challenging ask even before the onset of the Covid-19 pandemic.

Life, As We Know It redisplay © David Fisher

Concepts were developed by working groups of staff from across the Collections, Public Engagement, and Research departments and specimen preparation and installation work cast an even wider net, with Conservation, Visitor Services and internal and external mount makers also contributing to the huge effort to complete the displays. The teams were hitting their stride with content creation when the first national lockdown was announced. Face to face discussions about themes and specimens came to a halt, and with many staff across the Museum put on furlough it took time to get up and running again. Gradually the teams adjusted to meeting virtually and working with shared documents – ways of working that have become valuable long past social distancing – and productivity increased and the content development process picked up speed.

Particular challenges remained for the collections teams who were unable to access specimens to take measurements and check conservation demands of each object, however one benefit of the lockdowns was that the specialist case manufacturers, Click Netherfield, were able to make full use of the building closure to enable construction without any impact to visitors or teaching. Working together with design consultancy Easy Tiger Creative and set builders The Workhaus, ten brand new showcases were quickly and efficiently installed to house the new displays.

Creating the display highlights:

Great and Small display

Great and Small, one of the most striking displays of Phase 2, features an enormous Japanese Spider Crab. This specimen has been on display in the Museum for over a hundred years and is a firm favourite with visitors. Moving the crab into a prominent position within the central court, the intention was to redisplay it in a vertical position, suspended amongst other arthropods, both great and small. The specimen is incredibly delicate, and having been displayed horizontally for more than a century, the move required a lot of planning and care and the Museum team worked closely with external mount makers to ensure a safe transition. Japanese Spider Crabs are the largest living arthropod on Earth, and the specimen is a wonderful focal point within the Biodiversity displays.

Meteorite fragments

In the Earth aisle the Museum's varied and beautiful meteorites are now showcased in the solar system display. These have been found scattered across the globe, and at 4.6 billion years old, are as old as the Earth itself. One of the meteorite fragments, found in France in 1815, is believed to have fallen from Mars.

Tree of Life display

Deputy Head of Research at the Museum, Dr Ricardo Pérez-de la Fuente, completed an extraordinary task to facilitate the creation of the *Tree of life* display. He researched and drew a brand new phylogenetic tree of all life on Earth, which now sits in the centre of the Museum, spanning 2 metres in diameter. Complex enough to encourage deep visitor exploration, but accessible enough for non-experts to explore the inter-connectedness of life, it is proving to be a popular feature in audience evaluation.

(opposite) Life, As We Know It redisplay © David Fisher

The next generation

The Museum supports future museum professionals through hosting EPA internships

Between June and August 2021, EPA student interns at the university worked on a variety of projects across the museum. The students were hosted by the Collections and Public Engagement teams and in addition to working on their own projects, had the chance to contribute to museum-wide events and develop a broad understanding of museum practice.

Conserving biological specimens

Rosa Parker was based in the zoology conservation laboratory and worked on the conservation of specimens that had been decanted from showcases as part of the *Life, As We Know It* redisplay project. She worked on a diverse range of specimens including a small seahorse and a large sawfish rostrum, undertaking cleaning, repair and reconstruction work and taking conservation photographs. Rosa also helped with the development of resources for wider museum use, selecting specimens to feature in films about patterns in nature and animating slide content for the *Drawn to Nature* event series.

Rosa Parker

Unlocking the lantern slide collection

The Library and Archive hosted Aron West and Yasmeen Khaliq who catalogued, digitised and rehoused a significant portion of the Museum's glass slide collection. The glass slides would have been used for teaching and lecturing in the late 19th and early 20th century, projected and enlarged for audiences using a magic lantern, similar to the way we use digital presentations to help students learn today. Aron and Yasmeen catalogued over 3,500 glass slides, featuring images ranging from views of scientific specimens, to portraits of academics, to scenes from expeditions as far away as New Zealand, Peru and Egypt. They concluded their internship by sharing their work in a lunchtime slide show for staff.

Aron West

Sam Gillard

Incorporating the Levy Syrphidae Collection

Sam Gillard worked on the incorporation of the Levy Syrphidae Collection, of 4,500 UK specimens and 5,500 Palearctic specimens, into the Hope Entomological Collection. The incorporation of collections involves adding accession and determination labels and correctly rearranging the materials. Sam completed the work started by interns in previous years, expanding the arranged collection from three drawers to 20 drawers, and also working on the incorporation of the world collection and contributing to decisions on taxonomic ordering.

Natural Science and Heritage Bursary Scheme

A successful pilot for a new scheme supporting students from under-represented backgrounds

(left to right) Maria Youssef-Lindo, Maya Daniel, Stacey Haziri, Azzah Awadh and Irene Barriga Garcia-Lisbona.

In 2021 the Museum piloted an innovative new scheme, generously funded by the Carey family, to offer paid work placements to sixth form students from under-represented backgrounds. Maria Youssef-Lindo, Maya Daniel, Stacey Haziri, and Azzah Awadh, all Year 12 students at Oxford city schools, took part in the four-week pilot in August and were hosted by the Museum Public Engagement team and supported by EPA intern Irene Barriga Garcia-Lisbona. The group developed an in-depth understanding of museum public engagement and used their new understanding of audiences to design fun and accessible family activities. Following this successful pilot, the Museum will continue the future development of the scheme.

Appendices

Appendix 1: Visitors of the Oxford University Museum of Natural History 31 July 2020

Carole Souter CBE (Chair)
The Pro-Vice-Chancellor (Gardens, Libraries and Museums): Professor Anne Trefethen
Senior Proctor: Professor Simon Horobin
Professor Christopher Ballentine
Dr Elizabeth Jeffers
Dr Jamie Lorimer
Professor E.J. Millner-Gulland
Professor Thomas Richards
Dr Erin Saupe
Dr Laura Van Broekhoven
Professor William Whyte
Professor Paul Smith (Secretary to the Board)

Appendix 2: People

Staff of the Museum 2020-2022

Director: Professor Paul Smith
Acting Director: Janet Stott (June 2022)
Deputy Director: Janet Stott
Museum Executive Assistant: Hannah Betts (to Nov 2021)
Museum Executive Assistant: Louise Wright (from Nov 2021)

Life Collections

Head of Life Collections: Darren Mann (to Dec 2020)
Head of Life Collections: Zoë Simmons (from Dec 2020)
Acting Head of Life Collections: Zoë Simmons (Oct 2019)
Senior Collections Manager: Darren Mann
Conservator: Jacqueline Chapman-Gray
Assistant Conservator: Eva Bosher-Krivanova (from Jun 2022)
Mount Maker: Victoria Price (from Jan 2022)
Collections Managers: Mark Carnall, Dr James Hogan, Amoret Spooner (from Feb 2022)
Collections Assistants: Robyn Crowther (to Oct 2020), Robert Douglas
Image Technician: Katherine Child (to Dec 2021)

HOPE for the Future Project – collections

Collections Team Leader: Amoret Spooner
Collections Assistants: Louis Lofthouse, Ryan Mitchell, Steven Williams
HOPE Apprentice: Tom Greenway

Earth Collections

Head of Earth Collections: Eliza Howlett
Collections Managers: Hilary Ketchum, Duncan Murdock (from Sept 2020)
Preparator and Conservator: Juliet Hay
Collections Assistant: Karen Bell (Oct 2020-Sept 2021)
Project Officers: Neil Owen (Aug 2019-Jan 2021), Neil Adams (Mar 2021-Feb 2022, Karen Bell (Oct 2020-Feb 2022)

Research

Head of Research: Professor Paul Smith
Deputy Head of Research: Dr Imran Rahman (to Jun 2021)
Deputy Head of Research: Ricardo Pérez-de la Fuente (from Nov 2021)
Senior Researcher: Dr Sammy De Grave
1851 Research Fellow: Dr Frances Dunn
Museum Research Fellows: Dr Ricardo Pérez-de la Fuente, Dr Lauren Sumner-Rooney (to Sept 2021)
Leverhulme Research Fellows: Leonidas-Romanos Davranoglou (from Oct 2021), Elsa Panciroli (from Oct 2020)
Palaeobiology Technician: Dr Carolyn Lewis, Luis Baudouin Gonzales (Sept 2020-Aug 2022)
AHRC CDP Researchers: Elaine Charwat, Grace Exley (from Oct 2021), Helen Goulston, Ellie King, Susan Newell

Archives and Library

Librarian and Archivist: Danielle Czerkaszyn
Digital Collection Manager: Dr Sarah Joomun
Digital Archivist: Matthew Barton (from Nov 2021)

Public Engagement

Head of Public Engagement: Janet Stott
Head of Education & Learning: Sarah Lloyd
Life, As We Know It redisplay Project Managers: Scott Billings, Rachel Parle
Digital Content Officer: Rosanna Hayes (to Jul 2021)
Web Content and Communications Officer: Ella McKelvey (from Nov 2021)
Digital Communications Officer: Sarah Bell (from Dec 2021)
Education Officers: Jenny Hulmes (to Dec 2020), Chris Jarvis, Ana Wallis (to Dec 2020), Carly Smith-Huggins (from Dec 2020)
Education Bookings Assistant: Michelle Alcock (to Dec 2020), Jenny Hulmes (from Dec 2020)
Exhibitions Officers: Ellena Grillo, Ellie King (from Nov 2021), Kelly Richards, Natasha Smith (from Aug 2021)

HOPE for the Future project – learning

Project Manager: Anna Jones
Learning Officers: Rodger Caseby, Susannah Glover, Kate Jaeger
HOPE Community Engagement Officer: Hayleigh Jutson (from Jun 2021)
HOPE Collections Outreach Assistant: Louis Lofthouse (from Jul 2022)

Operations

Head of Operations: Wendy Shepherd (to Nov 2021)
Acting Head of Operations: Laura Ashby (from Dec 2021)
Events Manager: Laura Ashby (to Nov 2021), Megan MacLean (Dec 2021-May 2022)
Deputy Events Manager: Megan MacLean (to Nov 2021), Tania Pamplin (Dec 2021-Jun 2022), Bella Pratt (from Jul 2022)
Accountant: Nicole Cunningham
Accounts Assistant: Anne Atkinson
Front of House Manager: Clare Denton (to Oct 2021), Jordan Wernyj (Oct 2021-Dec 2021), Ellie Talbot (from Dec 2021)
Deputy Front of House Manager: Michelle Alcock (to Aug 2021) Jordan Wernyj (from Dec 2021)
Visitor Services Assistants: Yasmin Anwer (from Jun 2021), Jane Griffin, Matthew Humpage (from Jun 2021), Julia King (to Sept 2021), Clement Lofthouse (from Jun 2021), Louis Lofthouse (from Jan 2022), Navigator Ndhlovu, Robert Parker, Sylvia Pinna (from May 2021), Abigail Smalley (from May 2021), Ellie Talbot (from Jul 2021), Sergine Zeufack (May-Aug 2021)
Building Manager: Peter Johnson
Maintenance Technicians: Cara Powell (to May 2021), Ben Wilsker (from Oct 2021)
Museum Cleaning Technician: Gary Coates (to Apr 2021), Eva Bosher-Krivanova (from Apr 2021)
Retail Manager: Fitri Puspitasari
Shop Assistant: Thomas Edgeworth (from Jul 2022), Lucy Shott, Jason Weir (from May 2022)

Gardens, Libraries & Museums shared services

GLAM Registrar/Chief Operating Officer for GLAM: Kevin Rodd

Head of Partnerships and Programmes and Programme Director for Oxford Cultural Leaders: Lucy Shaw (to Mar 2022)
Projects Officer and Oxford Cultural Leaders Co-ordinator: Emma Thomas

Head of Audience and Engagement Support: Helen Adams (from Mar 2022)
Head of Volunteers and Community Engagement: Joy Todd
Community Engagement Officers: Nicola Bird (to Jul 2022), Susan Griffiths, Beth McDougall
Volunteer and Outreach Officer: Dr Caroline Moreau
Community Engagement Assistant: Hayleigh Jutson
Volunteers and Community Engagement Assistant: William Courtenay (from Aug 2021)
Arts Engagement Officer: Miranda Millward

Research and Impact Manager: Dr Harriet Warburton
Research and Impact Support Officer: Emma Webster
PER Evaluation Officer: Felicity McDowall (from Aug 2021)

Head of Communications and Marketing: Suzanne de la Rosa
Administrative and Communications Assistant: Jasmine Gauthier
GLAM Press Manager: Clare Parris (from Mar 2022)
GLAM Press Assistant: Sarah Holland (from Mar 2022)

Head of Assessment and Evaluation: Rozia Hussain (to Jan 2022)
Head of Data Analysis and Evaluation: Annette Sandrawich (from Jul 2022)
Data Analyst: Ramesh Narayan
Commercial Programme Manager: Shirley Jackson (from Feb 2022)

Collections Project Manager: Harry Phythian-Adams (to Nov 2021)
Collections Programme Manager and Manager of Offsite Storage: Tom Boggis (from Feb 2022)
Collections Move Project Manager: Rosie Hughes
Collections Move Team Leader: Peter Brown
Collections Moves Project Assistants: Pete Brown, Lucy Crossfield, Jennifer Donovan, Megan Farrell, Rosie Hughes, Giles Longwood, Laura Malric-Smith

Digital Strategy Programme Manager: Nick Perry
Digital Engagement Lead: Jenny Townshend (to May 2020)
Digital Engagement Lead: Helen Adams (to Feb 2022)

Head of IT (Museums & Gardens): Haas Ezzet
Commercial Systems Manager: Helen Moulden
Commercial Systems Support Assistant: Freya-Maria Klinger (from Mar 2020)
Commercial Systems Support Assistant: Megan Maclean
Commercial Systems Support Assistant: Stuart Booker (from Mar 2022)
Systems Architect and Network Manager: Anjanesh Babu (to Aug 2021)
Infrastructure Manager: Jona Young (from Apr 2022)
Infrastructure Support Officer: Spiro Vranjes
IT Service Manager: Carl Parker
IT Officer: Amanda Clark, Alex Duta, Callum Smythe (from Jul 2022)
Systems Officer: Daniel Pull

Honorary Associates

John Cooter
Professor John Holmes
Dr John W. Ismay
Dr Jeyaraney A. Kathirithamby
Dr Tom S. Kemp
Professor W. Jim Kennedy
Dr George C. McGavin
Nina Morgan
Malgosia Nowak-Kemp
Roy Overall
Sarah Phibbs
Dr Adrian C. Pont
H. Philip Powell
Monica Price
Mike Searle
Professor Derek J. Siveter
Sally-Ann Spence
Christopher Stimpson
John Tennent
Chris A. O'Toole
Dr Dave Waters

Associate Researchers

Dr Ross Anderson
Dr Neil Adams
Acheampong Atta-Boateng
Dr Luke Parry
Matthew Sutton

Appendix 3: Finance

Donations received and grants awarded

Donations

National Lottery Heritage Fund
£256,404
HOPE for the Future

Nagaunee Foundation
£137,263
Main Court Redisplay

Arts Council England
£103,842
Cultural Recovery Fund

HA Carey
£14,624
Bursary Scheme

David M Ackland
£5,000
HOPE for the Future

Michael J Percival
£5,000
HOPE for the Future

David A Hutchinson
£2,500
HOPE for the Future

Stephen R Miles
£2,000
HOPE for the Future

Doris Field Charitable Trust
£1,000
HOPE for the Future

EPA Cephalosporin Fund
£84,601
Internships and HOPE for the Future

Research

Wellcome Trust
£90,500
Meat the Future

Leverhulme Trust
£79,547
Growing up Fast? Uncovering the Evolutionary Origins of Mammals

Leverhulme Trust
£97,846
Uncovering the origins and biomechanics of insect vibrocoustic communication

The Museum is extremely grateful to the many individual donors, foundations and trusts who have generously contributed to its work in 2020/22.

Appendix 4: New Acquisitions 2020-2021 and 2021-2022

Earth Collections - 2020-2021

A total of 5 accession lots comprising around 2,121 specimens were received by donation or transfer.

Notable accessions acquired during the year included:

- Fossils, rocks and minerals (1130 specimens, from the late Colin Wilkinson)
- Palaeozoic and Mesozoic vertebrates and invertebrates, mostly from the UK (353 specimens, from Tony Holmes)
- Suite of metamorphic rocks, gemstones, mantle nodules and intrusive igneous rocks from across the Hundu Kush-Karakoram-Himalayan mountain complex, as well as South Africa and Oman (c.500 specimens, from Mike Searle)

Earth Collections - 2021-2022

A total of 13 accession lots comprising 963 specimens were received by donation or purchase.

Notable accessions acquired during the year included:

- Deep sea hydrothermal vent chimneys collected from Mid-Atlantic ridge and the Cayman rise (2 specimens, from National Oceanography Centre)
- Zoological, botanical and geological material associated with William Buckland that was inherited by two of his great great great granddaughters (c. 925 specimens, from Joanna Newling-Ward and Kit Ferguson)
- Polished pebbles of the unique decorative stone pietra paesina del lazio, found in a river bed near Rome, Italy (20 specimens, from Mario Piccolo)
- Acanthothyris spinosa from from the Inferior Oolite at Hawksbury, Gloucestershire (1 specimen, from Richard Cox)
- Phillipinite tektites, melted sediment associated with meteorite impacts (6 specimens, from Roy Alexander)

Life Collections - 2020-2021

A total of 18 Accession lots comprising of approximately 8,000 specimens were received by donation, purchase or exchange in 2020-21.

Notable accessions acquired during the year included:

- The David W. Baldock collection of Aculeate Hymenoptera and Diptera (circa 4,500 specimens)
- Newly described types of Chromyidae and Carnidae (Diptera), representing four species. (29 specimens, 4 holotypes and 25 paratypes from Martin Ebejer)
- The Chris O'toole collection of Hymenoptera (circa 3,000 specimens)
- Various objects including plants, fungi, models and casts obtained for the ongoing redisplay project.

Life Collections - 2021-2022

A total of 36 Accession lots comprising of approximately 52,000 specimens were received by donation, purchase or exchange in 2021-22.

Notable accessions acquired during the year included:

- The David Michael Ackland collection of world Anthomyiidae (Diptera) with extensive illustrations and archive. (circa 21,750 specimens)
- The Stanley Alexander Williams collection of UK Coleoptera (circa 8,000 specimens)
- The Dr Bernard Stanley Nau collection of UK Hemiptera (circa 4,000 specimens)
- The Trevor James BEM collection of UK Coleoptera (6,543 specimens)
- The Stephen Miles collection of UK Hymenoptera and Diptera (circa 6,000 specimens)
- The David W. Baldock collection of Aculeate Hymenoptera and Diptera (circa 4,500 specimens)

Archive and Library Collections - 2020-2021

47 journals were subscribed to and a further 5 were donated, containing 170 parts and measuring 0.89 linear metres. 21 monographs were purchased and additional uncatalogued material was also added to the collection.

Notable accessions and donations during the year included a collection of speciality books on beetles from Honorary Associate, Guillaume de Rougemont (50 books) and books on the tsetse fly donated by Penny Davies on behalf of her father, Howell Davies.

1 photographic album was donated by Penny Davies to the archive collection.

Archive and Library Collections - 2020-2021

46 journals were subscribed to and a further 5 were donated, containing 166 parts and measuring 0.89 linear metres. 21 monographs were purchased and additional uncatalogued material was also added to the collection. Notable accessions and donations during the year included a collection of speciality books on Jurassic geology from Hugh Jenkins (60 books).

1 letter by John Ruskin was purchased for the archive collection.

Appendix 5: Loans 2020-2022

Earth Collections

2020-2021: A total of 8 loans of 43 specimens were provided, all of which were to the UK

2021-2022: A total of 21 loans of 260 specimens were provided, all of which were to the UK

Life Collections

2020-2021: A total of 20 physical loans of 1,780 specimens were provided, of which 11 were to the UK, 4 to the EU and 4 to the rest of the world. A total of 35 digital loans of 67 specimens (not accounting for multiple aspects of same sp.) of which 3 were to the UK, 9 were to the EU and 23 were to the rest of the world.

2021-2022: A total of 31 physical loans 805 specimens were provided, of which 19 were to the UK, 5 to the EU and 5 to the rest of the world. A total of 34 digital loans of 74 specimens (not accounting for multiple aspects of same sp.) of which 4 were to the UK, 9 were to the EU and 21 were to the rest of the world.

Archive and Library Collections

2020-21: No loans.

2021-22: There was one loan to the Royal West of England Academy in Bristol, UK.

Appendix 6: Enquiries 2020-2022

Earth Collections

2020-2021: Staff dealt with 280 enquiries
2021-2022: Staff dealt with 299 enquiries

Life Collections

2020-2021: Staff dealt with 383 enquiries
2021-2022: Staff dealt with 634 enquiries

Archive and Library Collections

2020-21: Staff dealt with 198 enquiries
2021-22: Staff dealt with 373 enquiries

Appendix 7: Official Visitors 2020-2022

Earth Collections

2020-2021: There were 60 collections visits, of which 247 were from UK residents, 12 were from other EU residents and 21 were from residents of other countries.

2021-2022: There were 124 collections visits, of which 109 were from UK residents, 7 were from other EU residents and 8 were from residents of other countries.

Life Collections

2020-2021: There were 31 collections visits with 36 visitors, all from the UK.

2021-2022: There were 189 collections visits with 288 visitors. 172 Visits (265 visitors) were from the UK, 7 visits (8 visitors) from EU countries and 11 visits (16 visitors) from other countries

Archive and Library Collections

2020-21: There were 38 individual visitors in total. The majority of visitors were from the UK.

2021-22: There were 143 individual visitors in total. The majority of visitors were from the UK.

Appendix 8: Publications by Museum staff (1 January 2020 to 31 December 2021)

Members of OUMNH staff indicated in **bold;** OUMNH Honorary Associates indicated in ***bold italics.***
Where the same name is shown in two font types, this indicates a transition from staff to Honorary Associate during the reporting period.

Al-Kandari, M., Anker, A., Hussain, S., Al-Yassen, S., Sattari, Z. & **De Grave, S.** 2020. New records of decapod crustaceans from Kuwait (Malacostraca: Decapoda). *Zootaxa,* 4803, 251/280. DOI:10.11646/zootaxa.4803.2.2

Al-Kandari M., **De Grave, S**., Hussain, S. & Anker, A. 2020. Five new records of mantis shrimps (Stomatopoda) from Kuwait. *Crustaceana,* 93, 671/675. DOI:10.1163/15685403-bja10011

Álvarez-Parra, S., **Pérez-de la Fuente, R**., Peñalver, E., Barrón, E. Alcalá, L., Pérez-Cano, J., Martín-Closas, C., Trabelsi, K., Meléndez, N., López Del Valle, R., Lozano, R. P., Peris, D., Rodrigo, A., Sarto i Monteys, V., Bueno-Cebollada, C. A., Menor-Salván, C., Philippe, M., Sánchez-García, A., Peña-Kairath, C., Arillo, A., Espílez, E., Mampel, L. & Delclòs, X. 2021. Dinosaur bonebed amber from an original swamp forest soil. *eLife*, 10, e72477. DOI:10.7554/eLife.72477

Ambrose T. K., ***Waters, D. J., Searle, M. P.,*** Gopon, P. & Forshaw, J.B. 2021. Burial, accretion, and exhumation of the metamorphic sole of the Oman-UAE ophiolite. *Tectonics,* 40(4), e2020TC006392. DOI:10.1029/2020TC006392

Anker, A. & **De Grave, S.** 2021. *Opaepupu,* a new genus and species of bivalve-associated shrimp (Decapoda: Caridea: Palaemonidae) from Hawai'i. *Zootaxa,* 4903(1), 55/70. DOI:10.11646/zootaxa.4903.1.3

Anker, A., Al-Kandari, M. & **De Grave, S.** 2020. On two species of the alpheid shrimp genus *Salmoneus Holthuis,* 1955, from Kuwait, one of them new to science (Malacostraca: Decapoda: Caridea). *Zootaxa,* 4780, 77-92. DOI:10.11646/zootaxa.4780.1.3

Anker, A., Al-Kandari, M. & **De Grave S.** 2020. Taxonomic notes on *Alpheus inopinatus* Holthuis & Gottlieb, 1958 and *A.* cf. *lobidens* De Haan, 1849 from Kuwait (Malacostraca: Decapoda: Alpheidae). *Zootaxa,* 4851, 189-197. DOI:10.11646/ZOOTAXA.4851.1.10

Ballell, A., King, J. L., ***Neenan, J. M.***, Rayfield, E. J. & Benton, M. J. 2021. The braincase, brain and palaeobiology of the basal sauropodomorph dinosaur *Thecodontosaurus antiquus. Zoological Journal of the Linnean Society,* 193(2), 541–562. DOI:10.1093/zoolinnean/zlaa157

Barton, H. A., Breley, G. J. & **Smith, M. P**. 2020. Microbiological observations in the caves of Grottedal, Kronprins Christian Land, northeast Greenland. *Cave and Karst Science,* 47(2), 88–92.

Bauer, J. E. & ***Rahman, I. A***. 2021. Virtual paleontology: tomographic techniques for studying fossil echinoderms. *Elements of Paleontology.* Cambridge, Cambridge University Press, 42 pp.

Baudouin-Gonzalez, L., Schoenauer, A., Harper, A., Blakeley, G., Seiter, M., Arif, S., **Sumner-Rooney, L.**, Russell, S., Sharma, P. P. & McGregor, A. P. 2021. The evolution of Sox gene repertoires and regulation of segmentation in arachnids. *Molecular Biology and Evolution,* 38(8), 3153-3169. DOI:10.1093/molbev/msab088

Benoit, J., Legendre, L. J., Farke, A. A., ***Neenan, J. M.***, Mennecart, B., Costeur, L. ... & Manger, P. R. 2020. A test of the lateral semicircular canal correlation to head posture, diet and other biological traits in "ungulate" mammals. *Scientific reports,* 10(1), 1-22. DOI:10.1038/s41598-020-76757-0

Benyamini, D. & **Hogan, J. E.** 2020. Butterflies of the Holy Land collected and observed between 1863 and 1865 by H. B. Tristram and O. Pickard-Cambridge. *Nachrichten des Entomologischen Vereins Apollo,* N. F., 41 (3/4), 97–113.

Bidgood, A. K., Parsons, A. J., Lloyd, G. E., ***Waters, D. J.*** & Goddard, R. M. 2020. EBSD-based criteria for coesite-quartz transformation. *Journal of Metamorphic Geology,* 39 (2), 165–180. Online 16 Sept 2020. DOI:10.1111/jmg.12566

Brocklehurst, N., **Panciroli E.**, Benevento, G. L. & Benson, R. B. J. 2021. Mammaliaform extinctions as a driver of the Cenozoic mammal radiation. *Current Biology,* 31, 2955–2963. DOI:10.1016/j.cub.2021.04.044

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