

OXFORD UNIVERSITY MUSEUM OF NATURAL HISTORY

# Annual Review

2014–2015



Museum of  
**Natural  
History**



The Oxford University Museum of Natural History Annual Review 2014–2015 was edited from reports supplied by heads of Collections, Sections and Research Units.

It was designed and produced by Claire Venables at Giraffe Corner Limited.

Photographs are by members of the Museum staff unless stated otherwise.

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Oxford University Museum of Natural History  
Parks Road, Oxford, OX1 3PW

info@oum.ox.ac.uk  
+44 (0)1865 272950  
[www.oum.ox.ac.uk](http://www.oum.ox.ac.uk)

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## Director's Introduction

After the excitement and bustle of our reopening last year, any hopes that 2014–15 might be a quieter year were soon dashed when we learned in March that the Museum had been selected as a finalist in the prestigious Art Fund Prize for Museum of the Year. It was extremely heartening to see the Museum's efforts across the board – from exhibitions and new displays to public engagement activities – being recognised by a national award panel. It was also a great privilege to be associated with the other outstanding finalists.

What followed was an intense but enjoyable experience that benefitted the Museum through a great deal of positive public exposure, including our own celebration of the shortlisting – the creation of the Dodo Roadshow. This ambitious idea took staff and the Oxford Dodo to 25 museums and galleries across the country, from Land's End to John O'Groats. Just two weeks in the planning and one in the execution, the Roadshow showed the Museum staff at their creative and organisational finest.

Although we didn't clinch the Museum of the Year accolade, our earlier Goes to Town project did scoop the prize for Best Marketing Campaign at the Museums + Heritage Awards in May. In both cases, these awards represented an important external recognition of our activity, and were a tribute to the creativity and passion of the Museum staff.

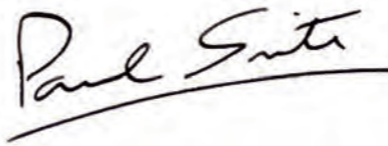
Another major development was the launch of the Contemporary Science and Society exhibition series. This programme of special exhibitions harnesses our public engagement skills to connect the academic research of the University with the Museum's large and varied audiences. Over the coming years, Contemporary Science and Society will present a series of themes focusing on areas of scientific research with a particular impact on society.

The inaugural exhibition, Biosense, looked at research into three aspects of biological sensing, all related to modern drug discovery, and was seen by over 240,000 visitors. Funded by the BBSRC, the University's EP Abraham Cephalosporin Fund and the Wellcome Trust, Biosense partnered with – and presented research from – the Nuffield Laboratory of Medicine, the Nuffield Laboratory of Ophthalmology, the Department of Chemistry, and the Department of Biochemistry.

While Biosense was focused on public engagement with research, Sensing Evolution focused on museum learning. Funded by DCMS Wolfson, this project created two permanent table-top displays using touchable specimens and raised graphics to present the evolutionary adaptations of mammals and reptiles. Coupled with an iPad-based 'scavenger trail' around the Museum, Sensing Evolution introduces some of the key concepts in the theory of evolution to a general audience, and to primary and secondary school groups.

In the Collections, the Gems of Earth and Air project took the next step in a long-term process to make our seven million specimens digitally accessible. Funded by the Arts Council's Designation Development Fund, Gems of Earth and Air migrated data on our mineral collection and butterfly and moth type specimens to a new collections management system, KE EMu, and linked it to high-resolution photography. The project builds on the earlier successes of the GB3D online database of palaeontological type specimens and the digitisation of the Corsi Collection of decorative stones.

The year's achievements were accompanied by a healthy rise in annual visitor numbers, up 15% on the pre-closure period to 640,000. This demonstrates that we have sustained our wide appeal beyond the initial year of reopening, and it stands us in good stead for the busy and varied programme ahead.



Professor Paul Smith  
Director





# Highlights

## Finalist for Museum of the Year 2015

The Museum of Natural History was shortlisted for the prestigious Art Fund Prize for Museum of the Year 2015. The annual prize highlights the UK galleries and museums that have demonstrated exceptional creativity and ambition over the previous 12 months. Museum staff attended the ceremony at Tate Modern where The Whitworth in Manchester was announced as the winning institution.

In their comments, the Art Fund prize judges “agreed that the recent refurbishment of the Oxford University Museum of Natural History was a triumph. The presentation of serious scientific research via eclectic and visually arresting displays, in an architecturally beautiful space,

had been achieved with complete success. While closed, and then in reopening, the museum brought a beloved and weighty subject to the widest possible public, demonstrating imagination, versatility and creativity along the way – and brought to bear via its dynamic and perfectly formed team.”

The shortlisting reflects the Museum’s success since its reopening in February 2014 after 14 months under wraps while the iconic Victorian glass roof was being restored. While the Museum was closed for this renovation, a wider transformation was taking place, which turned the temporary closure into an opportunity to experiment with creative and innovative forms of public

engagement, including the Goes to Town project in Oxford city centre which won the Museums + Heritage Marketing Award. The Museum re-emerged in 2014 with a new voice and an expanded programme for a wider audience.

Being shortlisted for the Museum of the Year prize meant that the Museum was celebrated on BBC Radio 2, BBC Radio 3, and BBC News Online in a series of broadcasts and online interactive presentations during the period leading up to the announcement of the winner. ●



## Contemporary Science and Society – Biosense



Could oxygen sensing revolutionise medical treatment for humans? How does light affect behaviour? And how do bacteria sense their micro-worlds? These were some of the questions addressed by the Biosense exhibition that opened in May.

Biosense celebrated Oxford University’s leading science research by combining scientific stories with incredible images and previously unseen Museum specimens. Biosense was designed to appeal to an adult audience, and was the first exhibition in the Museum’s ambitious new Contemporary

Science and Society series to look at current multidisciplinary research into organisms and the natural environment, all within the splendour of the Museum’s Victorian building.

Accompanying the exhibition, a Biosense trail encouraged visitors to discover additional specimens in the Museum’s displays that were relevant to the show. The Museum also organised a programme of interactive seminar sessions where visitors could meet the scientists behind the research and learn more about their work. ●



© Giraffe Corner

## Sensing Evolution

The Sensing Evolution exhibition project commenced with the aim of building on the success of the Museum’s existing touch table. Staff took the opportunity to renew this popular exhibit and to introduce some simple evolutionary concepts, which are linked to other displays in the Museum via a new Museum app.

Two new large tables with a range of touchable specimens (osteology, taxidermy, fossils, casts, and models) have been installed. At the centre of each table is a newly commissioned model of a common ancestor for each group based on current scientific research, with the basic concept for each table being that mammals or reptiles share a common ancestor and have adapted to live in a wide variety of habitats.

The display is not an attempt to explain the details of the evolution of mammals or reptiles, but to engage visitors and trigger a discussion about evolution. Additionally, each specimen has

a specially commissioned raised image and Braille label, to improve accessibility for blind and partially sighted visitors.

There is also a new digital touch table displaying an interactive tree of life, Life on Earth. This features 70,000 different species and was a large collaborative project funded by the National Science Foundation in the USA and led by scientists from Harvard. OUMNH is the first museum in the UK to host the Life on Earth interactive display.

To accompany the new tables, the Museum has created a Sensing Evolution mobile app. The app allows visitors to visit the Museum in a new way by following a treasure hunt trail around displays to discover some of the most important ideas in the theory of evolution. Steve Backshall and Professor Alice Roberts present two strands of videos in the app, one for children and one for adults, both of which were filmed in the Museum.

A grant from DCMS Wolfson provided the main funding for the



enhanced displays, with emphasis on improvement to both physical and intellectual access. The app was tested with schools and is available as a download from app stores.

The displays opened to the public in May and have stood up well to intense visitor attention and usage. The Museum has seen a wider age range of visitors using the displays than before, including more adults, and increased engagement times. ●



© Claire Venables

Above: Professor Alice Roberts in front of the skeleton parade

Left: The Sensing Evolution mammals touchable table



## A year of awards and recognition

2014–15 was a rich year for nominations and awards. The Zoological Society London (ZSL) awarded their Silver Medal to Head of Life Collections Darren Mann for his contribution to the understanding and appreciation of zoology. The ZSL praised Darren's impressive level of immersion in, and contribution to, entomology in the UK, citing his curatorial responsibilities, his research interests, his commitment to networking with community and volunteer-led groups, and work in engaging with young people. The ZSL noted that Darren's energy meant that, "Everyone leaves the Museum enthused and wanting to know more."

UK Butterflies awarded an Outstanding Contribution Award

for 2014 to the Museum in recognition of the support and encouragement that the Hope Department of Entomology and Library, in particular, provided to UK Butterflies over recent years. This support included access to the historical specimens housed in the Museum and the rich library of publications, input into a variety of articles now found on the UK Butterflies website, and general advice and guidance.

This was the first time that the award was given to an organisation, rather than an individual, and it gave special recognition of the role that the team has played in helping to improve and enhance the UK Butterflies website. The four individuals noted were Katherine Child (for her creation of

high-quality images of specimens specifically for UK Butterflies), Kate Santry (Head of Archives and Library), Dr James Hogan (Collections Staff) and Darren Mann (Head of Life Collections).

The Museum was also recognised by the IEDA and Elsevier International Data Rescue Award in the Geosciences April 2015, which was awarded to a joint project with the British Geological Survey, National Museum of Wales, The Sedgewick Museum, Cambridge and British Macrofossils Online, which aims to create a fully electronic catalogue of all the fossil collections in UK museums. ●

## William Smith archive on show at festivals



Like the Dodo, the William Smith archive also went on tour in 2015, travelling to the Fossil Festival at Lyme Regis and the Yorkshire Fossil Festival in Scarborough. In Scarborough, approximately 400 people spent time looking closely at and discussing artefacts including the Geological Map of Yorkshire, published by Smith and Cary in 1820. The crowds visiting both festivals got a rare look at other original material from the William Smith archive and were asked to help transcribe the collection, which has recently been digitised and catalogued.

A number of local primary and secondary schools visited the Museum's stand at the festivals, participating in activities that gave them hands-on experience aimed at increasing their understanding of fossils. The school groups who visited in Scarborough also had the opportunity to act out a play that explored how fossils are made, with Director Paul Smith providing the narration. ●

## Dodo Roadshow

A travelling Dodo marked the Museum's nomination for the Art Fund Prize for Museum of the Year 2015 and the launch of the national I Love Museums campaign. This unique and ambitious tour, celebrating museums and galleries across the country, came to a close on Monday 15 June when the Museum's famous Dodo completed a week-long roadshow journey from Land's End to John O'Groats, visiting 25 venues along the route.

Joining the Dodo model on its travels was the cast of the precious head that contains the only remaining soft tissue material of a dodo in the world, and bones from the foot of the same bird. At each venue, the Dodo encountered a star object from that museum or gallery's collection, including fellow extinct creatures, artworks, landmarks of industrial engineering, and poets.

Both the Dodo and Museum staff were greeted by enthusiastic colleagues and members of the public who were keen to view the specimens and ask questions. Tamsin Loveless, Head of Communications and Development at the National Maritime Museum Cornwall, one of the early stops on the roadshow, summed up the benefits for her museum:

"Offering access to collections across the country is core to our mission. To offer our visitors a rare glimpse of a much loved artefact and to share an icon in the natural world was an opportunity everyone thoroughly embraced. The initiative to tour a dodo across the country, to engage with other Museums and to cross-pollinate collections and ideas is wonderful. We are very proud and privileged to be part of the Dodo Roadshow journey." ●



Left: The Dodo at Land's End, Cornwall and back in its Museum case





## Oxford Fashion Week

In November, the Museum hosted three highly anticipated fashion shows as part of Oxford Fashion Week – Independent Designers, Couture, and Birds of Paradise. The shows all featured clothes inspired by nature.

Oxford University biology student Hannah Zainuddin took inspiration from the Museum's

collections of exotic birds and proposed the 'Birds of Paradise' theme, acting as creative director for the catwalk. Zainuddin's ambition for the show was to blend science with art, using fashion as a way of mixing academic Oxford with creative elements. She focused on the flamboyant behaviour of the birds and their part in evolution.

The event, which used the skeleton parade in the central court as a runway, showcased over 40 exciting, original looks by cutting-edge professional designers, featuring stunning feathers, dramatic headdresses and contrasting volumes. The week also showcased the Museum as an event venue and raised its profile in the city and beyond. ●



© Julia Cleaver

## Gems of Earth and Air

The ambitious digitisation project Gems of Earth and Air ran for a year from June 2014 to May 2015. The aim of the project was to lay the foundations for the migration of the Museum's Collection databases into a single unified collections management system. This is just the first stage of a much longer undertaking to make all of the Museum's digital collections available online through a single site.

This project included the development of a new collections website with funding from the Designation Development Fund. Data for the website was taken from both the Earth and Life Collections, with the mineral and Lepidoptera collections being chosen in part as collection treasures or 'gems', to attract both funding and a new audience to the online collections.

First, a survey of all existing Earth and Life Collections' datasets was carried out. A significant

amount of archive material had already been catalogued in the KE EMu collections management database as part of previous externally funded projects. The subsequent steps included programming and associated data-checking and data-cleansing to prepare for data migration. Finally, the associated digital images were uploaded with the assistance of volunteers. The entire process has been very lengthy and intricate.

The new KE EMu database

currently holds nearly 35,000 records, which include almost 27,000 minerals, 5,000 Lepidoptera, and over 3,000 archive records. This new unified system makes cross-collection links more evident, and provides an enriched historical context for the Museum's Collections. The database is available to the general public, to specialists, and to researchers across the world via the newly developed website.

[www.oum.ox.ac.uk/collections/](http://www.oum.ox.ac.uk/collections/) ●



Left: The Collections Online website



# Public Engagement and Education

## Late night

As part of the Oxford-wide Christmas Light Festival, the Museum held a late-night Northern Lights event with the Pitt Rivers Museum in November. Light-inspired crafts and icy mask-making provided a creative outlet for the audience, while live music and a bar brought a party atmosphere to the Museum.

The numbers for the evening broke records as 4,000 visitors entered the Museum in three hours – the highest number for all events held across the city that night. Popularity for the event reflects the successful programming; however, the Museum is now exploring using a ticketing system to make visitor numbers more manageable at future events. ●



Right: Musician playing during the Northern Lights late-night event

Below: The actors playing General Pitt Rivers and Henry Acland

## Welcome to My Museum

When two museums share a front door, some confusion is to be expected. To address this perpetual museum muddle, the Museum of Natural History and the Pitt Rivers Museum presented a short play, *Welcome to My Museum*,

where the Victorian founders of each institution came to life to discuss, “two sublime museums under one roof”.

A small grant from the Oxford University Museums Partnership helped the two museums, Pegasus

Theatre, and Film Oxford to collaborate and produce two versions of the play; one for public performance and the second for a film adaptation.

Working with Pegasus Theatre, Rachel Barnett scripted an imagined conversation between the museums’ founders, Henry Acland and General Augustus Henry Lane-Fox Pitt Rivers. Pegasus helped to source actors and costumes, and even a prop-maker to recreate Pitt Rivers’ fine pufferfish helmet.

Film Oxford spent several late nights working with a very patient crowd, in order to immortalise their adaptation of the play on film. The public performance was well attended, with over 250 visitors dropping in to watch General Pitt Rivers rudely interrupt Henry Acland’s speech welcoming visitors to *his* museum. Pitt Rivers rightly points out that there must be two museums as the building has two gift shops and even two differently branded pencil sharpeners for sale in them: “scientifically incontrovertible proof!” ●



## Facilitating visits for autistic people

New resources for visitors on the autism spectrum were made available on World Autism Awareness Day. Inspiration for the new resources came from a mother who had enquired whether the Museum provided information she could use to prepare her son, who is on the spectrum, for their visit.

The Museum recognised that visiting can be challenging for autistic people and designed the special resources to help reduce potential challenges. These innovative resources provide a visual introduction to the Museum and highlight some of the more

sensory aspects of exhibits in order to help build confidence for families before the visit.

The Museum kept in touch with the mother, who wrote to say:

*“I remember contacting you one summer wishing that there was something I could just download and print off that would allow me to do that all important pre-work... I think it looks fabulous and I will be trying it out during the holidays coming up.” ●*



Touch



Live animals in cases



Find



Dark



Look



Listen

Above: The map key specially designed by Giraffe Corner

Left: The new resources available

## Presenting...

The Collections teams have run the popular Presenting... series since March 2013. The series started as a way to showcase treasures from the Museum’s collection during its closure year. This provided something engaging and changing for visitors to see as they passed through the darkened Museum into the Pitt Rivers. Since re-opening early in 2014, the Museum has celebrated significant natural history anniversaries, shared some of the staff’s favourite objects, and put on joint displays with other departments in Oxford University.

For 2015, Presenting... received a make-over: a brand new Presenting... display case was installed. With humidity control and UV protection, this

standard-leading unit provides the rare opportunity to showcase some of the extremely special and fragile specimens from the Collections.

The new display was launched with an exhibition of insects collected by Charles Darwin. As well as showing off specimens collected by the great man in Australia and Tasmania, Darwin’s Insects told the story of his close friendship with Frederick William Hope (1797–1862), founder of the Hope Department of Entomology in the Museum. Hope was one of the most eminent entomologists of his time, and when Darwin collected insects he often turned to Hope to help identify them.

Darwin’s journey on HMS Beagle began in 1831. Towards

the end of the trip he travelled around parts of Australia and Tasmania observing and collecting many species, including the insects in the Presenting... case. These insects were displayed in pill boxes similar to those Darwin would have used to collect the specimens originally, and visitors were able to see Darwin’s handwriting on each insect’s tiny label.

One of Darwin’s letters to Hope, sent in 1837, was displayed alongside the pinned insects. In the letter, Darwin asks for Hope’s expert assistance because so many of the insects were unknown to science, and he mentions insects that he collected between January and April 1836, which include the specimens exhibited. ●



## Festival of Nature

On 13 June 2015, the Museum hosted Wild Fair, the culmination of Oxford's first Festival of Nature in partnership with Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT). The two-week festival included activities to engage the public across the

county, with walks, radio and television interviews, and talks by conservationists and wildlife experts, including a conversation with George McGavin. Featured in the *Oxford Times*, the evening event saw over 200 people actively participating in an animated

session that included handling objects from the Collections. Despite wet weather, Wild Fair attracted around 4,000 visitors to the Museum to meet wildlife and conservation groups from across the region. During a fun-packed afternoon, members of staff gave talks on their work while volunteers roamed the galleries with specimens that were linked to the various stalls run by BBOWT partners, and engaged visitors in conversation. On the stalls, bees produced honey from pop-up flowerbeds and life-sized inflatable basking sharks rubbed shoulders with live birds of prey, alligators, and bats. The event was such a successful partnership with BBOWT that there are plans to build on the strengthened links and re-run the event in 2016. ●



Right: Handling specimens at the Festival of Nature

## Geo Day

The Museum works alongside many other providers of science enrichment activities for schools. Museums, science centres, and departments within the University all provide educational offers and Science Oxford trains a huge team of STEM ambassadors who are keen to take their research into schools. However, similar opportunities for geographers at the secondary level are much more limited.

Over the summer, Education Officer Sarah Lloyd met with researchers from the University's School of Geography and the Environment, the Department of Earth Sciences, and local geography teachers to plan some special events to support the geography curriculum. As a result, the first A-Level geography day, Geo Day, took place in October with 170 attendees taking part from ten local schools.

The agenda for the day used the same successful format as for

A-Level days for other subject areas, with a programme of talks, workshops, and self-led activities. Dr Sallie Burrough from the School of Geography talked about some of the world's best-known deserts and the way they are explored using new tools and technologies. Director Paul Smith described Arctic processes, landscapes, and ecosystems, and the impact of climate change on fragile Arctic environments. DPhil student Kevin Wheeler from the School of Geography talked about the formation of rivers, and described the complex historical and contemporary issues surrounding the Colorado River and the Nile. Professor David Pyle from the Department of Earth Sciences spoke about the challenges of living on or around active volcanoes, and Dr Jeannie Scott from the School of Geography led a role-play activity based on the impact of volcanoes. Later in the day, students had the opportunity to

play a game examining the effects of climate change on farming. This game was developed by Oxford's Environmental Change Institute and the University of Reading's Red Cross Red Crescent Climate Centre and Africa Climate Exchange.

Comments from teachers were positive and constructive, citing the day as a superb introduction to the University experience that reinforced information to Year 12 and Year 13. They rated the lectures as challenging but not pitched too high, with relevant content linked to students' exams as well as giving them an insight into geography careers.

The day was observed by Kate Holden, Secondary Education Officer for Tyne and Wear Museums, and Emily Robinson, Secondary Education Officer for Manchester Museum. Both were inspired and hope to extend their offer for schools by providing similar events. ●

## Successful day schools for adults

To coincide with the Wildlife Photographer of the Year exhibition, in September staff hosted a new adult day school looking at different types of imaging techniques that are used in the Museum. Imaging Techniques in Modern Natural History was the second skills-based day school, following the successful taxidermy workshop earlier in the year.

The 14 places were taken up by people from a variety of backgrounds, expertise, and interests, including artists, photographers, and professional image-makers. In small groups of three or four, the participants gained hands-on experience in multi-plane photography, scanning electron microscope imaging, 3D laser scanning, and DSLR macro

photography with professional photographer Keith Barnes. Feedback from the day was very positive, with several people suggesting that it worked well as a taster of the techniques, which could then be offered in a longer and more in-depth format in the future. The last weekend of January saw Collections staff representing the Museum and hosting 13 naturalists on a Diptera identification course. This very comprehensive and fun weekend was run in partnership with John and Barbara Ismay from the Dipterist's Forum. Participants from all over the country enjoyed two days of talks and workshops where they learned all about morphology, biology, and the behaviour of the British fly fauna. ●



## Visitor number one million

The Museum's one millionth visitor since its reopening stepped inside in July 2015. Thirteen-year-old Daisy and her brother George travelled a long way for their first visit to the Museum: their family lives on the outskirts of San Francisco, California, and they were spending the summer with their grandparents just outside Oxford. Daisy said she loves exploring the variety of museums in her home town, so was excited to investigate the Museum. Staff ambushed Daisy and her family with certificate and goodie bag as they arrived.

Since February 2014, many of the Museum's one million visitors have joined in with the rich programme of public engagement projects aiming to entice the widest possible range of ages and interests to visit. Hundreds of family-friendly events have educated and entertained, with newly created programmes for the under-fives and ever-popular half-term extravaganzas.

School children have poured in for secondary and primary sessions alike. With evolution now featuring on the primary curriculum, the Museum has been working with teachers to support them in this new area and to develop a brand new primary workshop called *Evolve, Adapt, Survive*.

Curiosity does not end when the school bell rings. Natural History Investigators, a new science club for 14–16 year olds, has given young people special access to Museum Collections and staff expertise on

Saturday mornings. Achieving a national CREST Award in recognition of their achievements was the icing on the cake. But the past 18 months has also seen much more on offer for adult audiences. The popularity of taxidermy workshops proved that grown-ups love nothing more than getting messy and making something to take home. Fashion shows, contemporary science lectures, and late-night pub quizzes were some of the eclectic public events on offer. ●



Above: Identification 101: specimens with identification figures on the Diptera course.

Left: Daisy, the Museum's one millionth visitor since its reopening, and her brother George



## Jan Bergström Young Geoscientist Award

As the recent winner of the Jan Bergström Young Geoscientist Award, Dr Allison Daley is an inspiration to many early career geologists. Allison holds the joint posts of Museum Research Fellow and Departmental Lecturer in Animal Diversity in the Department of Zoology.

The late Professor Bergström dedicated his professional life to palaeontology, to the development of geology in Sweden, and to the Geological Society of Sweden, *Geologiska Föreningen*, who created the Jan Bergström Young Geoscientist Award in honour of his memory. The prize is awarded annually and recognises significant research contributions to earth sciences from early career geoscientists who have a clear connection to Sweden.

Allison completed her PhD at Uppsala University in 2010, and received the Award for her research on the ecology of the Cambrian seas and on the long-term evolution of arthropods. Professor Bergström was Allison's mentor and friend, and they

published a joint paper in 2012 on the anatomy of *Anomalocaris*.

Recently, Allison and her colleagues used fossil evidence to reveal the existence of a two-metre-long lobster-like animal that lived 480 million years ago, *Aegiocassis benmoulae* (see below). ●



Right: Dr Allison Daley holds up an *Anomalocaridid* fossil at the Burgess Shale in Canada.

Below: Reconstruction of the giant filter-feeding *Aegiocassis benmoulae*. Reconstruction by Marianne Collins, ArtofFact

## *Aegiocassis benmoulae*, an ancient arthropod

Meet *Aegiocassis benmoulae*, a 480-million-year-old, two-metre sea monster. This unlikely looking creature has been described, and imagined in this illustration, by Museum Research Fellow Dr Allison Daley in collaboration with Dr Peter Van Roy and Professor Derek Briggs at Yale University. The team published their work in the journal *Nature* in March, garnering widespread media attention.

*Aegiocassis benmoulae* belongs to a group of long-extinct sea-dwelling animals called anomalocaridids. These were fearsome-looking creatures, having segmented bodies with wide swim-flaps, large eyes, a circular jaw with sharp teeth, and a pair of large claws. Anomalocaridids first appear in the fossil record during the Cambrian Explosion, a major evolutionary event that saw the appearance of most major animal groups in a relatively rapid period of time. They were early ancestors of

the arthropods, the group that today includes spiders, insects, centipedes and lobsters. When they first evolved in the Cambrian, anomalocaridids were apex predators and one of the largest animals around, reaching up to about 50 cm in size. However, *A. benmoulae*, which arose later, in the early Ordovician period, was a very different breed.

Most Cambrian anomalocaridids have one set of triangular swim-flaps sticking out the side of the body, but *A. benmoulae* had two pairs of trunk flaps. These ventral and dorsal flaps correspond to the two branches of a limb that is characteristic of crustacea and represents an evolutionary stage before the branches had fused. It therefore allows scientists to trace the evolution of one of the key body features that made arthropods such a successful group of animals right through to the present day.

*A. benmoulae* also had a very different ecology from most

anomalocaridids. While the Cambrian forms were mostly apex predators, this animal was a filter feeder: it used fine comb-like spines on its head appendages to filter plankton from the seawater. Only one other Cambrian anomalocaridid used filter feeding, but it remained a relatively modest size whereas *A. benmoulae* was one of the largest arthropods ever to have existed. This combination of gigantic size and filter feeding evolved from a previously predatory animal group is similar to the type of evolution seen later in whales. It makes *A. benmoulae* a very important animal for understanding both ecology and evolution in the oceans 480 million years ago. ●



## A lesson from the past

In September, the Museum highlighted research by Dr Tracey Aze that offered a warning from history about carbon emissions and global warming.

The study showed how the fossils of planktonic foraminifera, single-celled marine organisms, hold clues to the effects of man-made global warming on the oceans. Around 56 million years ago, in a period known as the Palaeocene–Eocene Thermal Maximum (PETM), a rapid rise in greenhouse gases was associated with an increase in sea surface temperatures, with significant impact on marine life.

The PETM – which lasted for about 170,000 years – saw the release of roughly the same volume of CO<sub>2</sub> as that expected from modern fossil fuel

consumption. The amount of CO<sub>2</sub> that is predicted to be released from the Industrial Revolution to about 100 years from now is roughly equivalent to what happened in the PETM. But the big difference is the rate of release: today greenhouse gases are increasing far more quickly than 56 million years ago.

The research conducted by Tracey was part of a project led by Professor Paul Pearson of Cardiff University and funded by the UK Ocean Acidification Research Programme.

Tracey and her team used newly-extracted planktonic foraminifera fossils from Tanzania, dating from the PETM period. The tiny shells of these organisms contain several oxygen isotopes, the proportions of which are mostly determined by

the sea temperatures at the time. The fossil shells offer a glimpse into the way sea temperatures were rising alongside the release of greenhouse gases, as well as a record of the relative abundance of this planktonic life in the oceans.

The PETM shows us that rapid increases in CO<sub>2</sub> in the atmosphere had significant impacts on global temperatures, with the new information from the Museum's study site showing that tropical sea surface temperatures may have exceeded 40°C with an associated local disappearance of marine life.

The research paper, entitled 'Extreme warming of tropical waters during the Paleocene–Eocene Thermal Maximum', was published in the September 2014 issue of *Geology*. ●

## People of the British Isles

For those who have tried to trace their family tree and come to a dead end, recent work from Museum environmental archaeologist Professor Mark Robinson and colleagues shows that chances are their 'missing' ancestors were still living in the same place over a thousand years ago. Their paper, published in *Nature*, looked at the genotypes of more than 2,000 people and discovered some surprising results.

The People of the British Isles (PoBI) survey selected people with grandparents who were born in shared rural locations, so as to remove the effects of recent population movements, and created the first fine-scale genetic map of any country in the world. It showed that the UK's population could be divided into 17 genetically distinct groups, most with very little interbreeding for the last thousand years or more.

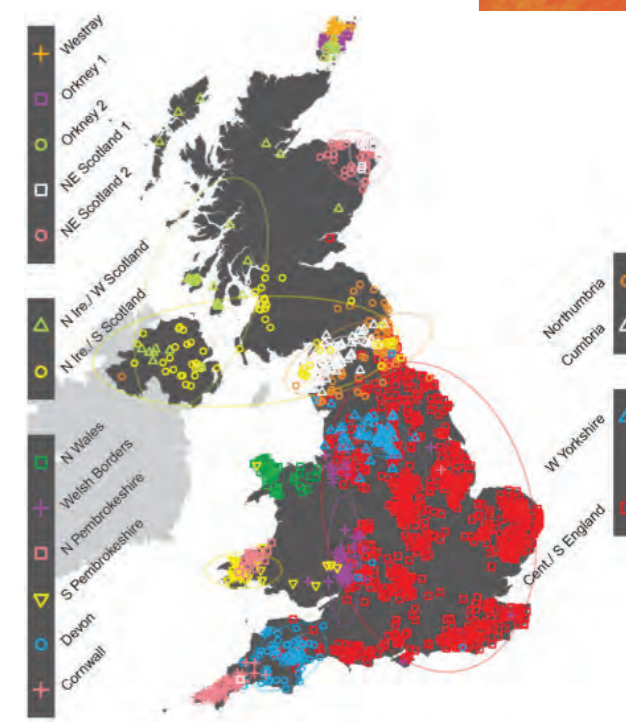
The Romans, Danish Vikings, and Normans, despite conquering

Britain, seem not to have made much of a mark genetically. However, there is an Anglo-Saxon component to the population of south-east, central and eastern England, and, as might be expected, the inhabitants of Orkney are partly Norse. In both these areas, the earlier populations were not wiped out but merged with the invaders.

Among the surprising discoveries from the PoBI survey was the fact that many of the groups in north and west Britain seem to have been living in the same areas as their Celtic-speaking tribal ancestors since at least the 6th century. Welsh natives may be more genetically similar to an Ice Age settler than to someone from Bristol or Liverpool.

While British ancestral history is interesting in itself, it is not the primary purpose of the PoBI research study. Instead, the research group, led by Oxford professors Sir Walter Bodmer and

Professor Peter Donnelly, is looking to decipher the genetic structure of the UK in order to track down genes associated with common human diseases. ●



Below: A genetic map of Britain created by the People of the British Isles study



## The Fossils of Chengjiang

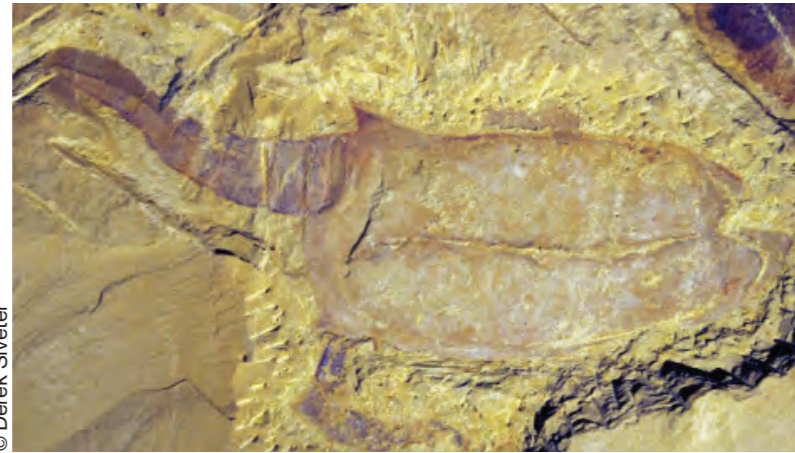
One of the most remarkable fossil sites in the world is located in Chengjiang in China, where exquisitely preserved fossils record the early diversification of animal life. The 525-million-year-old mudstone deposits in the hills and lakes of Yunnan Province, South China, are so fine that they have preserved not only the shells and carapaces of Cambrian animals, but also the detail of their soft tissue. In recognition of this, in 2012 the site was added to the World Heritage list by UNESCO.

Professor Derek Siveter, a Senior Research Fellow at the Museum, has been studying this material for a number of years, and wrote the book *The Fossils of Chengjiang, China: The Flowering of Early Animal Life* in 2004. But the discovery of new fossils over the past decade has led to a wealth of material to be

documented, and Derek recently returned to the University of Yunnan for a two-week visit, where he began work on a revised edition of the book.

Much of the documentation of these important fossils is currently in Chinese, so the new edition will bring the material to English-speaking researchers and fossil

enthusiasts. It introduces both the professional and the amateur palaeontologist – and all those fascinated by evolutionary biology – to the aesthetic and scientific quality of the Chengjiang fossils, many of which represent the origins of animal groups that have sustained global biodiversity to the present day. ●



© Derek Siveter

## Prehistoric parasites

Scientific understanding of very early life is constantly developing. *Invavita piratica* is a new species of fossil parasite recently discovered at the Museum in a 425-million-year-old rock from Herefordshire. This tiny creature is interpreted by Senior Research Fellow Professor Derek Siveter and his colleagues as belonging to an unusual group of parasitic arthropods called pentastomids. It is particularly exciting because it was found attached to its host, an ostracod crustacean, and a paper published in the journal *Current Biology* describes how this discovery sheds new light on the evolution of pentastomids.

*Invavita piratica* is the latest new species from the Silurian Herefordshire Lagerstätte, a deposit of exceptionally well-preserved marine invertebrate fossils ranging from less than a millimetre up to a few centimetres

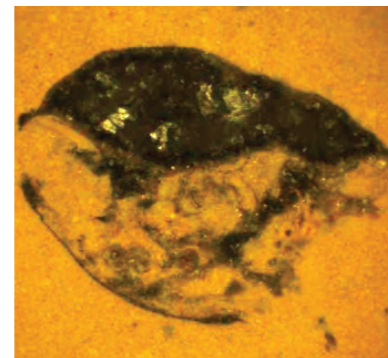
in length. The research investigates the fine structure of the Herefordshire fossils by a process of serial grinding and photography followed by painstaking editing and 3D digital reconstruction of the specimens as ‘virtual’ fossils.

Fossil pentastomids are incredibly rare: *I. piratica* is the first adult to be discovered and the first fossil pentastomid to be found attached to its host. Apart from Silurian specimens, just a few isolated juvenile pentastomid fossils are known from even older Upper Cambrian and Ordovician rocks.

The discovery of a marine ostracod as the host of *Invavita piratica* shows that the parasitic lifestyle of pentastomids first evolved in the sea with invertebrates as early hosts. Pentastomids like *I. piratica* may have been transferred to marine vertebrates when their ostracod hosts were eaten by fish or

conodonts. The timing of the terrestrialisation of pentastomids is unknown but it may have been in parallel with the subsequent vertebrate invasion of the land.

Living pentastomid species almost exclusively infest the respiratory tract of land-dwelling vertebrates, particularly reptiles but also birds and mammals. Because all known fossil pentastomids lived long before land vertebrates evolved, the identity of these early hosts were something of a puzzle. ●



## Crab in the lab

One of the most loved specimens in the Museum is the enormous Japanese spider crab. It has been on display for over 100 years, so it was unsurprisingly showing serious signs of deterioration. In July, staff in Life Collections decided that the crab should come off display for conservation treatment. Conservator Bethany Palumbo took charge of this famous specimen.

The most obvious damage was the loss of colour; the natural carotenoid pigments had completely faded due to decades of continuous light exposure under the glass roof. Japanese Spider Crabs are bright red and white in life, but the Museum’s had become

washed out beige. Once it was taken into the laboratory for a closer look, Bethany soon realised that there were many areas that were replica and infill, composed of old materials such as acidic cardboard, newspaper and even carved wood.

Before it was ready to go out on display Bethany replaced the faded colour by airbrushing – the most time consuming process as it required multiple layers and various brushing techniques to make the crab look true to life. Once completed, Bethany gave the crab a final protective coating, providing good water resistance, ready for the next time it needs a good clean. ●



Left: Conservator Bethany Palumbo with the finished Spider Crab

Below: 1837 portrait of William Smith by Hugues Fourau

## Celebrating Smith

March 2015 marked the 246th birthday of William Smith, the ‘father of English geology’. While the Museum has been marking this important day for a number of years, 2015 also happened to be a particularly special year for this remarkable man.

William Smith is perhaps most famous for publishing the first geological map of England and Wales in 1815, making this the bicentenary of the incredible feat. Although Smith single-handedly mapped the geology of England and Wales, and created a map that would change the way people understand the world beneath their feet, too few people know his name and what he achieved.

To celebrate the bicentenary, and also in the hope that Smith will become a wider-known figure in the history of science, various organisations across the world, including the Museum of Natural History, held a range of events during the year.

The birthday weekend officially kicked-off the anniversary celebrations, with the opening of

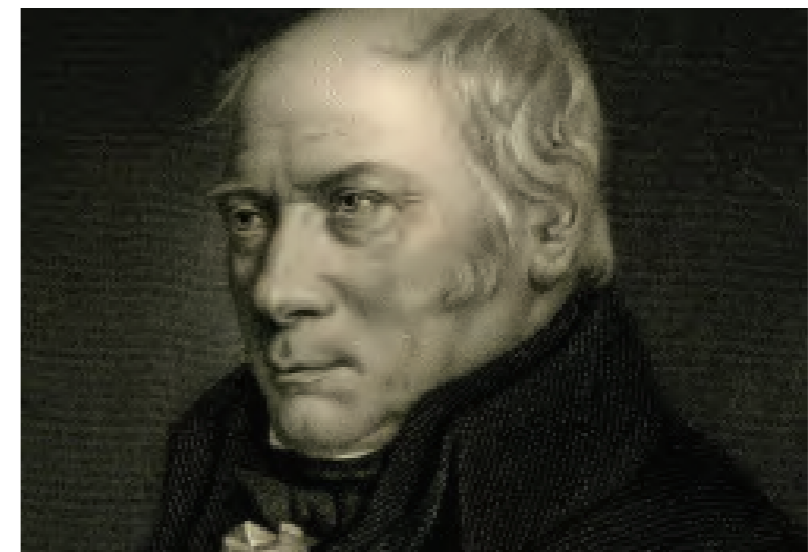
the Churchill Heritage Centre special exhibition, curated by the Museum and displayed in the heart of Smith’s home village.

A plaque to mark the place where he was born in 1769 was also unveiled by Professor Hugh Torrens, the leading expert on William Smith. A large crowd gathered for the event, with a mixture of local people, proud of their connection to one of the village’s most famous residents, as

well as Smith academics, experts, and enthusiasts.

The exhibition included well-known publications from the William Smith archive at the Museum of Natural History, such as his geological map of Oxfordshire. Rarely seen items, such as letters between himself and his niece, an excerpt from his diaries, and the marriage deed of his grandparents, were also displayed.

[www.williamsmithonline.com](http://www.williamsmithonline.com) ●





## Fossil donations to Earth Collections

In early autumn 2014, Earth Collections staff travelled to Wales to pick up an exciting collection of fossils that had been gifted to the museum.

The collection was kindly donated by Phil Bennett. Phil has been finding fossils for over 20 years, and in 2004 he won the Mary Anning Award for his outstanding contribution to palaeontology by making his collection available for researchers to study. He has an excellent eye for spotting new and interesting things and consequently has a species of trigonotarbid (a spider-like animal) and a crustacean named after him.

Phil told Museum staff all about the various specimens and pointed out some of his best finds, one of his favourites being a beautiful fossil fish called *Palaeoniscum* from the Upper Permian of County Durham, which is approximately 250 to 270 million years old. While *Palaeoniscum* is instantly recognisable as a fish, some of the older vertebrate fossils in Phil's collection would look a little out of place in a modern ecosystem. These fossils, from



the Old Red Sandstone in Wales, date from the Lower Devonian period (approximately 410 to 420 million years ago), and include strange, fish-like vertebrates called osteostracans.

Osteostracans' bodies were covered in large scales and they had no jaws or teeth. Strikingly, they also had massive bony head shields, with a mysterious structure called a 'cephalic field'. Palaeontologists do not know for sure what the cephalic field was for, but some think that it was a sensory organ used to pick up vibrations in the water or changes in electric fields, helping them detect prey or predators.

The second collection,

from Professor Martin Brasier, comprises around 4,000 specimens, including an amazing array of macrofossils from the Ediacaran (latest Precambrian) to Fortunian (earliest Cambrian) of Spain, Russia, Australia, Canada, Oman and China. His 'Animal Ancestor' collection holds some of the earliest known examples of each of the major animal phyla, including material from Chengjiang, the Wheeler Shale, and the Burgess Shale.

Both Phil Bennett and Martin Brasier have given the Museum wonderful collections that can be used for display and teaching, and will be available for researchers to study for years to come. ●



Above: *Palaeoniscum*, a fossil fish from the Upper Permian of County Durham

Right: An osteostracan from the Lower Devonian of Wales with a semi-circular head shield (left). The specimen is about 6 cm long from head to tail.

## The iron snail

The Museum has recently received specimens of the enigmatic deep-sea vent snail, *Chrysmallon squamiferum*, the scaly-foot snail.

This is no ordinary snail. Firstly, it lives in deep-sea hydrothermal vents in the Indian Ocean, more than 2,500 metres deep, just beside black smokers that churn out superheated water exceeding 350°C. Secondly, it is the only known gastropod with a suit of scale armour. Thirdly, the scales, as well as the shell, are mineralised with iron sulphide, the only animal so far known to make a skeleton out of iron.

The 'scaly foot' has now been known to science for more than a decade, and there are numerous studies and publications on its strange biology, yet this species has never been formally described and

named until now. A recent paper by Dr Chong Chen (Department of Zoology, University of Oxford) and colleagues finally gave it the scientific name *Chrysmallon squamiferum*.

The Museum received a set of five specimens as part of the description process, which will serve as key references for scientists who wish to study this extraordinary species in the future. ●



© David Shale

## Bringing dinosaurs to life

Dinosaurs were living, breathing, moving animals, but that is sometimes hard to visualise when standing in front of a skeleton, so an illustration of the animals in their environment can go a long way towards bringing them back to life.

When Museum staff set out to update the labels for the free-standing dinosaur skeletons, they

wanted to present current science alongside scientifically accurate illustrations, which should show the dinosaurs as dynamic animals. Julius Csotonyi, palaeoartist, wildlife artist, and scientific illustrator, specialises in life-like restorations of prehistoric animals and habitats, and was just the person for the job.

Julius worked closely with

scientists at the Museum and in the Department of Earth Sciences to create the illustrations. All of the artist's reference material comes from palaeontological research and published scientific literature. For reconstructions of newly discovered taxa, which he is commissioned to do for press releases and scientific papers, Julius also has discussions with the palaeontologists who have made the discoveries. He finds this some of his most exciting work because he is able to participate in the process of scientific discovery, keeping a foot in both camps of science and art.

Julius said that he felt greatly honoured to have his illustrations incorporated into a permanent display in such a renowned and respected institution. It is his hope that his work will help in a small way to contribute to scientific outreach by interesting the public in the intriguing field of palaeontology. ●



Above: Specimens of *Chrysmallon squamiferum* photographed live

Left: *Iguanodon bernissartensis* by Julius Csotonyi



# Partnerships

## TCV Natural Talent apprentice

The Conservation Volunteers (TCV) is a charity that works to improve the environment through practical training and community engagement. Its Natural Talent programme aims to increase knowledge and skills in species or habitats that are less well understood and have been identified as having a shortage of expertise. Additionally, public

outreach and engagement are key aspects of the programme, recognising the importance of sharing knowledge with the wider community. The traineeship programme is funded by the Esmée Fairbairn Foundation. The Museum is hosting Ceri Watkin, the TCV Natural Talent Saproxylic Insects Apprentice, for an initial 12 months while she is

based with the entomology team to document the deadwood species at Wytham Woods. Her role will involve working with the insect collections and archives to identify historical records, in addition to carrying out sampling and research in the woods. Ceri will also participate in education and outreach events at the Museum and other local organisations. ●

## The Trevor Bridges mineral collection

Shortly before he died in 2015, retired chemist Trevor Bridges generously presented the Museum with the most scientifically important samples from his mineral collection. The donation comprises more than 1,000 carefully selected specimens, all from British localities, and most field-collected by Trevor and his family. All are meticulously documented, and many are cited in his research publications.

A substantial proportion of the collection comes from mines and quarries that are now flooded or built over, making this important acquisition an invaluable resource for future topographic mineralogy research. ●

## Edmontosaurus cast to the Cheltenham Science Festival

Back in June, the *Edmontosaurus* cast was dismantled by Professor Phil Manning of Manchester University and his team, and rebuilt in the DinoZone at the Cheltenham Science Festival. The DinoZone received over 14,000 visitors over the six days of the festival. ●

## Humpback in action

The sight of a huge sperm whale jaw soaring up to the roof is a familiar welcome to visitors. But the Museum's spectacular specimen now has a companion. Resting against the opposite side of the cast iron column is a humpback whale

skull. The skull was donated back in the 19th century by well-known scientist Professor Daniel Frederik Eschricht of Copenhagen.

Over the decades, the specimen has been displayed in various places around the Museum, laid flat on

the floor, upright, and on top of cases. In 2014, as part of the Once in a Whale project, the specimen joined other whale skeletons in undergoing some much-needed conservation treatment. The story of their conservation is available on the Once in a Whale blog. The skull is now displayed on a special stand, but it was no mean feat to get it there. Bill Richey, the Museum's Cabinet Maker, and Peter Johnson, Workshop and Maintenance, carefully moved the specimen from the corner of the Museum where it was undergoing conservation treatment, reconstructed the complex structure and built the bespoke stand to support its huge weight. ●



Right: Bill Richey, the Museum's Cabinet Maker, and Peter Johnson, Workshop and Maintenance, moving the Humpback Whale skull

## Bees & Weeds

The ecological importance of bumblebees has become more widely appreciated in recent years, thanks to environmental campaigners and reports in the UK of species decline and even some extinctions.

To examine this issue, the Museum teamed up with arts-science organisation Pale Blue Dot, to coincide with the launch of a new research project to investigate why some species of bumblebee are declining and to raise awareness about the ultimate impact this has on people.

In September, the Museum introduced its Bees & Weeds project, building on the Museum's previous collaboration for the Lost & Found exhibition. Staff were joined by over 50 art students from Banbury and Bicester College to highlight the plight of the bumblebee, revealing how its decline is affecting everything,

from what we eat to where we live and work. The Bees & Weeds project brings together art students, public engagement, the Museum's Collections, and a leading bumblebee scientist.

The students spent some time looking at methods of insect labelling and notation, before heading behind the scenes with Collections Assistant Amoret Spooner to the Huxley Room, the location of the Great Debate on Darwin's theory of evolution in the summer of 1860.

Amoret provided an insight into taxonomy as well as her work on the conservation of specimens. The group then visited the huge archive of bee specimens and learned about some of the research that scientists are currently carrying out on UK bumblebee species to help prevent further decline.

The Museum also worked with Professor Dave Goulson from



the University of Sussex, one of the world's foremost bumblebee scientists. He presented his research showing how well bumblebees are faring in gardens compared with the countryside, as well as the optimum range of flowering plants needed to help them thrive. Dave's book, *A Sting in the Tale*, is already a best-seller, and the sequel, *A Buzz in the Meadow*, was published in September. ●

## Breath Festival

In November, the Museum hosted talks, tours and a dance performance as part of the Breath Festival, a unique series of events coordinated by the Oxford University Hospitals Artlink

programme.

To coincide with the festival, the Museum put together a special exhibit in the Presenting... case, all about breath and breathing across the animal kingdom. Given

it was so close to 31 October, there was something of the Halloween macabre about the display too, with pink-coloured lungs and eviscerated bodies suspended in spirit. ●



Above: A bumblebee from the collections

Left: Young visitors to the Museum during the Breath Festival discussing the Presenting... case display



## Oxford Cultural Leaders

Oxford Cultural Leaders (OCL) is a week-long residential programme run by the Oxford University Museums Partnership aimed at bringing together dynamic and emerging leaders from across the cultural sector

in the UK and internationally to learn more about adapting and reinventing their organisations while fostering a strong business focus that embraces entrepreneurial ways of thinking.

The first outing of OCL took place in March, with a blend of teaching, workshops and social elements, and it was delivered by leading figures from across the UK museum sector in partnership with the Saïd Business School. The first cohort included participants from Denmark, Estonia, Germany, Spain, and New Zealand, as well as a range of UK museums and other cultural institutions.

By the end of the week, the participants had gained an insight into themselves as leaders and had an opportunity to reflect on and refine their vision, values, behaviour and attitudes. They were better equipped to deliver robust solutions to current and future challenges, and had increased confidence in themselves as a leader at their organisation.

The success of the first Oxford Cultural Leaders programme means that it has already taken a place among the leading training programmes in the cultural sector and will be repeated in future years. ●



Above: Graduates of the 2015 Oxford Cultural Leaders programme

Right: A bluebird from the Collections with the Museum's Twitter account

## NERC Insect Taxonomy course

The Museum, in collaboration with the Department for Continuing Education, received an award from the NERC Advanced Training scheme to run an Insect Taxonomy and Field Sampling Skills course aimed at postgraduate students and postdoctoral researchers. Twenty-one participants joined the course

in March including scientists from India and Ethiopia.

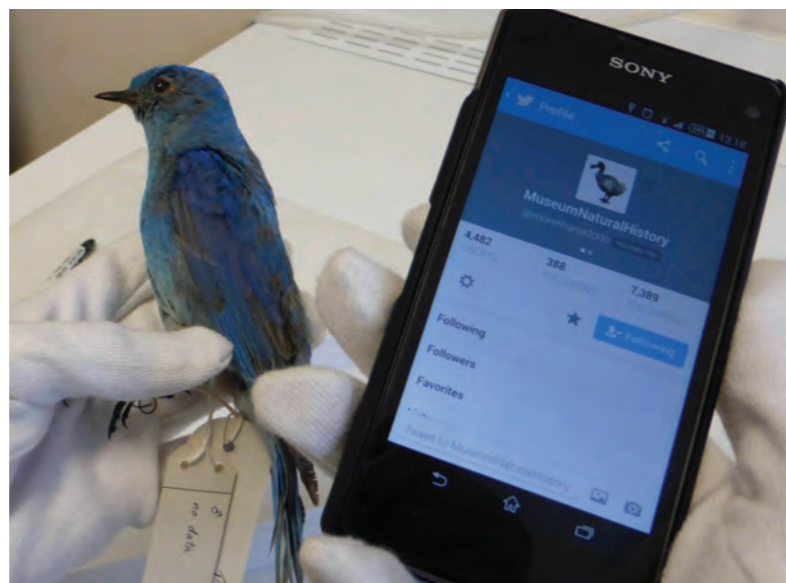
The five-day programme covered principles of taxonomy and classification, basic field sampling skills, specimen preparation techniques, collections management, and the research value of museum collections, plus three days of species-level

identification skills for two key groups (bees and ground beetles).

Feedback from participants was positive, with all people surveyed saying the course was interesting and enjoyable, and that the trainers delivered a course that fully met its objectives and included techniques and concepts that would be valuable in the future. ●

## Social Media: What is it Good For?

In February, the Museum hosted a knowledge exchange workshop in partnership with the Natural History Museum, London, entitled Social Media: What is it Good For? The aim of the day was for museum professionals and social media specialists from the two institutions to work together to explore innovative solutions or new ways to use social media to benefit natural history collections and to identify related risks. The results of the workshop will be disseminated to a wider audience of generalist and non-natural science curators through a good practice guide or toolkit blog. ●



## Public Wi-Fi

The Museum launched free-to-use Wi-Fi for all visitors in March to complement the Sensing Evolution app. Significant funding for this was received from Superconnected Oxford (Oxford

City Council, DCMS and the Oxfordshire LEP) as part of a wider initiative to improve Wi-Fi access across the city. Prominent signage was displayed to make visitors aware and to encourage

them to use the Museum's social media. The Joint Museums team also developed a mobile website designed specifically to deliver information and services to online visitors. ●

## Museum shop

The popular Museum shop was refreshed in 2015, including the creation of a bespoke product line ready for the William Smith exhibition, *Written in Stone*. The Museum plans to extend the product lines offered to reflect future exhibitions, as well as redesigning the shop floor.

Net sales for the shop were £211,000 in 2014-15 as sales continued to increase, with the average spend per transaction rising from £5.69 to £6.29. The shop generated £38,500 in net income for the Museum, up 30% on the previous year. ●



Left: Some of the William Smith merchandise created for the *Written in Stone* exhibition

## Staff changes

The Museum said farewell to three members of the Front of House team, Michelle O'Donohue, Georgiana Datcu (who has taken up a full-time role elsewhere in the University), and Israr Hussain (who left after seven years at the Museum to work at the Saïd Business School).

Chris Stimpson will be working with the osteological collections at the Museum as Visiting Oxford University Researcher vertebrate palaeontologist for the Palaeodeserts project in the Department of Archaeology. With the aid of the collections, Chris is identifying and analysing middle Pleistocene-age bones recovered during recent fieldwork in the southwestern Nefud Desert, Saudi Arabia.

Philip Hadland joined the Museum to provide maternity cover as Collections Assistant in Earth Collections.

DPhil research student Harriet Drage started a four-year NERC-funded Environmental Sciences Doctoral Training Partnership studying the evolution of ecdysis in the fossil record under the supervision of Allison Daley and Paul Smith.

The Museum has taken on a TCV (The Conservation Volunteers) Natural Talent Saproxylic Insects Apprentice, Ceri Watkins. Ceri will be working with the entomology team for 12 months to document the deadwood species at Wytham Woods and participate in a number of education and

outreach events in conjunction with the Museum.

Carly Smith-Huggins was appointed Assistant Education Officer in a post that is split between the Museum and the Pitt Rivers. Carly was recruited from the highly successful HLF Education Traineeship project.

The Museum welcomed Ellena Smith in the role of Executive Assistant, supporting members of the Museum's Executive Team. In the shop, Fitri Puspitasari was promoted to Shop Manager, following the end of Yvonne Cawkwell's secondment and her return to the Pitt Rivers. Navigator Ndhlovu also joined the Front of House team as Visitor Services Assistant working part-time. ●



# Appendices

## Appendix 1: Visitors of the Oxford University Museum of Natural History at 31 July 2015

The Vice-Chancellor: Professor Andrew Hamilton FRS  
Pro-Vice-Chancellor (Academic Services and University Collections): Professor Anne Trefethen  
Assessor: Dr Patricia Daley  
Lord Krebs FRS (Chair)  
Professor Chris Ballentine  
Jana Bennett  
Robert Campbell  
Professor Philip England FRS  
Professor Richard Fortey FRS  
Professor Charles Godfray FRS  
Professor Alex Halliday FRS  
Professor Gideon Henderson FRS  
Professor Peter Holland FRS  
Professor Jonathan Michie  
Dr Michael O’Hanlon  
Professor Alice Roberts  
Professor Paul Smith (Secretary to the Board)

## Appendix 2: People

### Staff of the Museum 2014–15

Director: Professor Paul Smith  
Administrator: Wendy Shepherd  
Executive Assistant: Ellena Smith

#### Life Collections

Head of Life Collections: Darren Mann  
Conservator: Bethany Palumbo  
Collections Manager: Malgosia Nowak-Kemp  
Collections Assistants: Gina Alnatt, Molly Carter, Katherine Child, Dr James Hogan, Zoë Simmons, Amoret Spooner  
Natural Talent Apprentice: Ceri Watkins

#### Earth Collections

Head of Earth Collections: Monica Price  
Curator: Dr David Waters  
Collections Manager: Philip Hadland, Eliza Howlett, Hilary Ketchum  
Earth Sciences Conservator: Juliet Hay

#### Research

Head of Research: Dr Sammy De Grave  
Museum Research Fellows: Dr Tracy Aze, Dr Allison Daley and Dr David Legg  
Senior Research Fellow: Professor Derek Siveter  
Research Assistant: Dr Carolyn Lewis

#### Archives and Library

Head of Archives and Library: Kate Santry

#### IT

IT Officer: Sarah Phibbs  
IT Assistant: Dr Rosemary Painter  
Project Assistant: Dr Sarah Joomun

#### Public Engagement

Head of Public Engagement: Janet Stott  
Public Engagement Officer: Scott Billings  
Education Bookings: Shirley Careford  
Education Officers: Chris Jarvis, Sarah Lloyd, Carly Smith-Huggins  
Interpretation and Education Officer: Rachel Parle  
HLF Skills for the Future Trainee: Jenny Hulmes, Aisling Serrant

#### Joint Museum Education Service

Head of Volunteers and Outreach: Joy Todd  
Community Outreach Officers: Nicola Bird, Susan Griffiths  
Arts Education Officer: Adrian Brooks  
Volunteer and Outreach Assistant: Dr Caroline Cheeseman  
HLF Trainee Coordinator: Neil Stevenson  
HLF Skills for the Future Trainee: Hannah Eastwood, Rachel McLaughlin  
Arts Award Officer: Miranda Millward

#### Operations

Facilities and Events Manager: Julia Parker  
Retail Manager: Yvonne Cawkwell  
Accounts: Beverly Judd  
Front of House Staff: Georgina Datcu, Antonia Edwards, Jane Griffin, Rebecca Hogben, Navigator Ndhlovu, Liam Masterson, Michelle O’Donohue, Ben Skarratt  
Shop Assistants: Safora Bibi, Stuart Booker, Magdalena Molina, Fitri Puspitasari  
Cabinet Maker: Bill Richey  
Workshop and Maintenance: Peter Johnson  
Cleaner: Gary Coates

#### Cross-Museums Fundraising

Oxford University Museums Research Facilitator: Dr Harriet Warburton  
Senior Campaign Executive: Jossie Austen, Heidi Kurtz

#### OUM Partnership (OUMP)

Head of OUMP: Lucy Shaw  
OUMP Officer: Jessica Suess  
OUMP Assistant: Rebecca Cardus  
ASPIRE Accounts Clerk: Antigone Thompson

#### Honorary Associates

Mr D. Michael Ackland  
Dr Jonathan Antcliff  
Mr John B. Davies  
Mrs Elizabeth H.M. Cooke  
Mr John Cooter  
Mr Guillaume de Rougemont  
Mr Ray Gabriel  
Mr Paul Gaat  
Mr Richard Gallon

Dr John W. Ismay  
Dr Jeyareney A. Kathirithamby  
Dr Tom S. Kemp  
Professor W. Jim Kennedy  
Dr Stuart Longhorn  
Dr George C. McGavin  
Mr Roy Overall  
Dr Adrian C. Pont  
Mr H. Philip Powell  
Mr Chris A. O’Toole  
Professor Keith S. Thomson  
Dr Kevin Tilbrook  
Dr Yan Wong

## Research Units

#### Environmental Archaeology Unit

Director: Professor Mark Robinson  
DPhil students: Dana Challinor (St Cross), Rachel Hesse (Merton), Lisa Lodwick (St Cross), Erica Rowan (St Cross)

## Appendix 3: Finance

### Grants awarded and donations received

£65,000	DCMS Wolfson Gallery Improvement Fund, Sensing Evolution display
£78,137	E.P.A. Cephalosporin Fund, Contemporary Biomedical Science – Exhibition & DNA workshops
£35,900	Heritage Lottery Fund, Handwritten in Stone Exhibition
\$75,000	Negaunee Foundation, annual project funding
£42,023	The Street Foundation, DPhil Zoology scholarship fees
£51,214	The Street Foundation, two entomology posts
£53,281	The Street Foundation, Lyell Collection and Archive Project
£82,000	BDUK and Oxfordshire LEP, Superconnected Oxford public WiFi
Salary costs	TCV, Natural Talents Apprenticeship
£18,202	Wellcome Trust Provision for Public Engagement Funding from the Investigator Award of Professors Sir Peter Ratcliffe and Christopher Schofield (Biosense)
£50,000	Wellcome Trust Institutional Strategic Support Fund for contemporary science exhibitions

The Museum is extremely grateful to the many individual donors, foundations and trusts who have generously contributed to its work in 2014/15.

## Appendix 4: New Acquisitions

#### Earth Collections

Over 5,400 specimens were received by donation to the department. Notable accessions donated during the year were: A large collection of fossils and rocks, particularly from the Precambrian–Cambrian boundary, from Professor Martin Brasier.

Jim Bennett’s collection of fish, invertebrates, and plant remains from the Silurian and Devonian of Wales; fish and plant remains from the Permian of County Durham.

Gault Clay crustaceans from Folkestone, Kent, and from Wissant, France, from Philip Hadland.

#### Life Collections

A total of 436 accession lots (409 zoological and 27 entomological) of 27,198 new specimens were received by donation to the department.

#### Archive and Library Collections

A total of 275 items of material were received by donation to the department, comprising 258 periodical issues, 7 books, 2 pieces of archival material. Eight books were also donated to the collection. Significant donations were received from Darren Mann.

## Appendix 5: Loans

#### Earth Collections

46 loans of 595 specimens were sent out, 44 to the UK, and one each to France and the USA.

Loans included palaeontological specimens for the new visitor centre at the Ardley Energy Recovering Facility, loans for the William Smith bicentenary exhibition at the Churchill and Sarsden Heritage Centre, loans for Manchester Museum for their Making Monuments on Rapa Nui exhibition and geological specimens for the Langley Academy for a school exhibition about fluorescent minerals.

#### Life Collections

Total of 78 loans, which breaks down to 37 UK; 19 EU (2 Austria, 4 Czech Republic, 1 France, 7 Germany, 2 Italy, 3 Netherlands); 22 non-EU (1 Australia, 2 Brazil, 2 Canada, 1 China, 2 Japan, 1 Mexico, 1 Norway, 1 Peru, 3 Russia, 1 Singapore, 1 South Africa, 2 Switzerland, 1 Taiwan, 3 USA).

#### Archive and Library Collections

12 loans were made from the William Smith Archive: 6 to the Churchill Heritage Centre and 6 to the National Museum of Wales.

## Appendix 6: Enquiries

#### Earth Collections

In total there were 451 enquiries, of which 123 were identification enquiries and 328 were other enquiries.

#### Life Collections

Staff dealt with 2795 enquiries requiring an estimated 1488 hours of staff time.

#### Archive and Library Collections

There were over 348 enquiries to the library and archive this year. 86 were inter-library loan copy requests made from other institutions, the rest (262) were from researchers, students, and members of the public. Dealing with enquiries required an estimated 142 hours of staff time.



## Appendix 7: Official visitors

### Earth Collections

There were 103 official visitors, comprising 69 from the UK, 9 from the EU (Belgium, Germany, Italy, Spain, and Sweden) and 1 from non-EU countries (USA).

### Life Collections

There were 146 visitors in total, 129 of whom came from the UK, 6 from EU countries (Belgium, Germany, Ireland, and Slovakia) and 11 from non-EU countries (Brazil, Japan, Mexico, Peru, South Africa, and the USA).

### Archive and Library Collections

There were 66 official visitors to the Library and Archive this year. The majority of visitors were from the UK and EU.

## Appendix 8: Publications

### 1. Publications by OUMNH staff and honorary associates

#### Staff members are indicated in bold and honorary associates in bold italics

Ashelby, C.W., **De Grave**, S. and Johnson, M.L. (2015). Preliminary observations on the mandibles of palaemonoid shrimp (Crustacea: Decapoda: Caridea: Palaemonoidea). *PeerJ*, **3**, e846.

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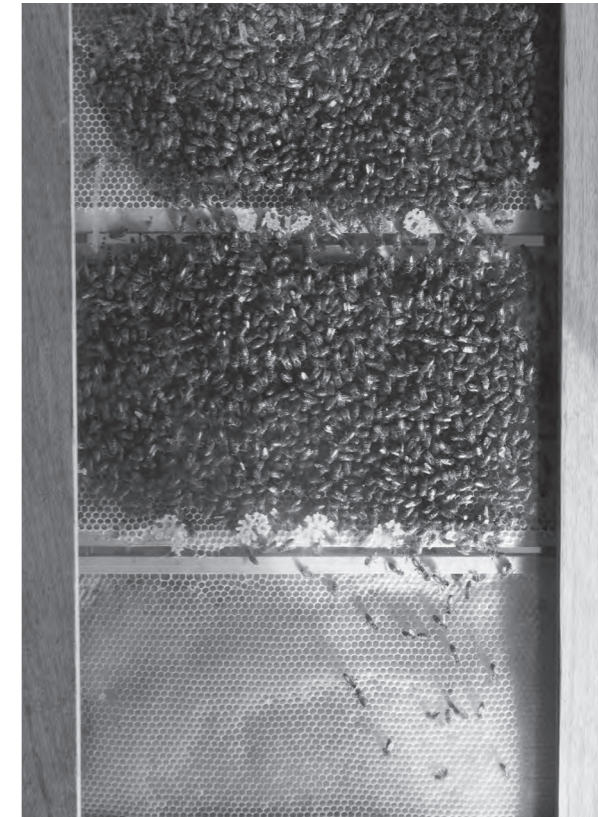
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