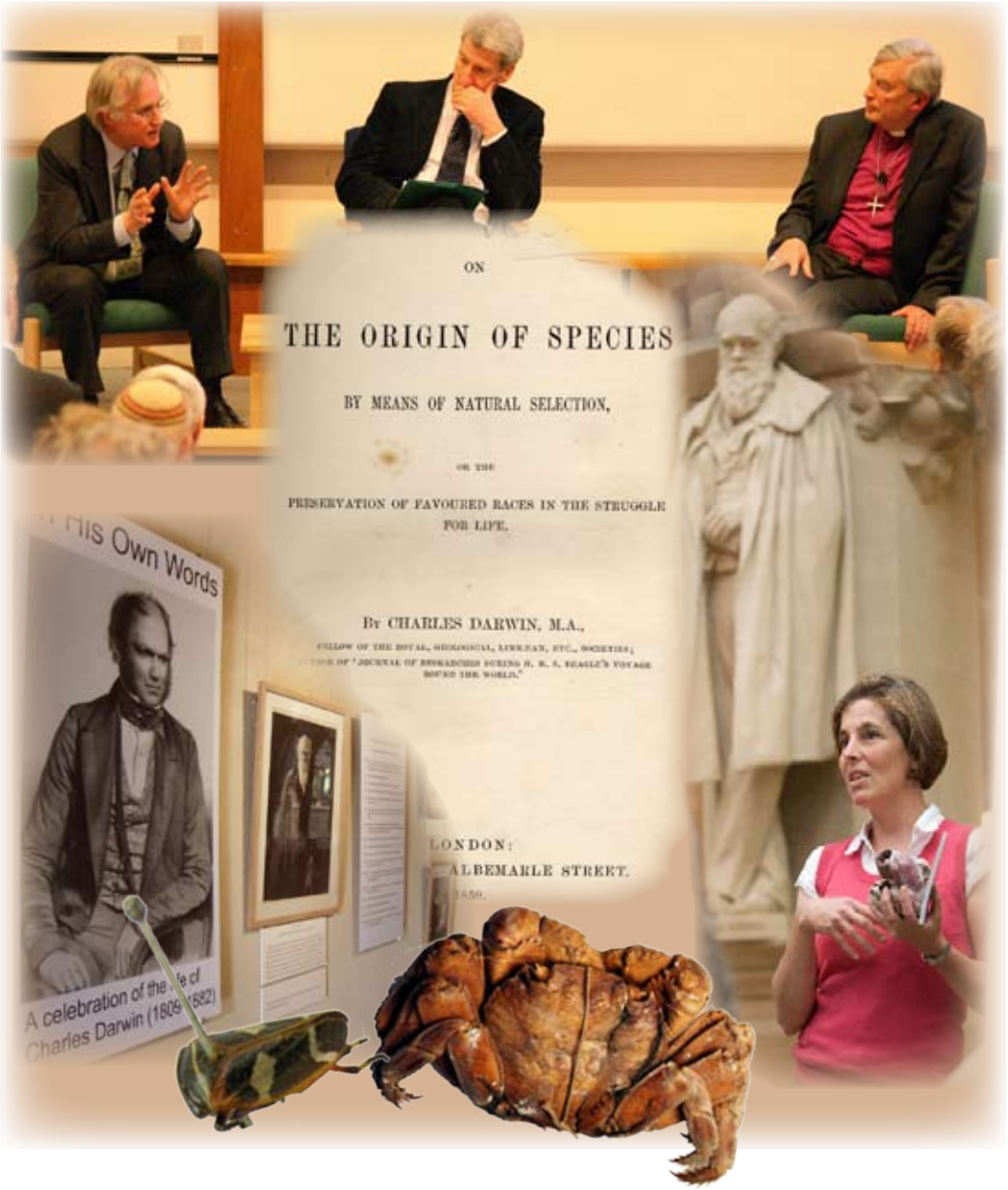
Oxford University Museum of Natural History



Annual Report 2008-2009

Oxford University Museum of Natural History

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Oxford University Museum of Natural History
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Cover photograph shows the title page of Charles Darwin's *On the Origin of Species by means of Natural Selection*, and around it clockwise from top: Professor Richard Dawkins, Mr Jeremy Paxman and Lord Harries in conversation during Darwin's birthday celebrations (picture: Roy and Amanda Pagett Photography); Education Officer Sarah Lloyd teaching school students under the statue of Darwin; two specimens from the collections collected by Darwin; and part of the Museum's temporary exhibition about the life of Charles Darwin.

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OXFORD UNIVERSITY MUSEUM OF NATURAL HISTORY

Annual Report

Part 1.

Summary of the Year 2008-2009

Chairman's Report

The year saw a further increase in visitor numbers, such that the Museum was again the most visited of the University's museums ever, and one of the top visitor destinations in Oxford. New displays and our outstanding education service play their role in attracting visitors, as does the magic of the building, its art and architecture.

Popular as we are with the public, our finances remain problematic. To address this and the need to raise the profile of the services we provide in our forthcoming 150th anniversary year, the Visitors agreed to the establishment of an Advisory Board, drawn from both within and without the University. I am delighted to announce the membership, and look forward to our first meeting in September with: Lady Heseltine (Chair), Sir David Attenborough, Ms Jana Bennett, Sir Hugo Brunner, Mr Robert Campbell, Sir William Castell, Professor Richard Dawkins, Professor Raymond Dwek, Professor Dianne Edwards, Mr Sam Laidlaw, Professor Sir Keith O'Nions, and Lord Oxburgh. Our targets for 2010 are raising funds for a new visitor centre in space to the south of the Museum frontage; the refurbishment of the fabric of the public spaces, and the resolution of our leaking roof. This has been a problem that has been with us since 1860, and we look forward to the submission of the final consultants' report later in the year. Ensuring the survival of our collections for study by future generations is a further priority. They are a unique record of life, past and present, and a key to understanding how living things respond to environmental change and human intervention. We will build on the recent major conservation project to safeguard our spirit collection of vertebrate animals, made possible by the generous support of the E.P.A. Cephalosporin Fund. Our next priority is to re-house more than 1.6 million insects preserved in the historic Huxley Room, replacing the present unsatisfactory cabinets with new pest-proof storage. At the same time the specimens will be conserved and documented so that they are accessible to workers everywhere.

Our collections are not merely a national treasure: we provide a service to the international community. In 2008-9, some 11,350 individual specimens were loaned to scientists worldwide.

John Krebs
Chairman, the Visitors of the
Oxford University Museum of Natural History

Director's Report

The Museum continues to live in interesting times, as do others in the University. The review of the Renaissance in the Regions programme which provides the funding that underpins our education, access and outreach activities, as well as IT, conservation and documentation, led to the extension of support from this source until the end of March 2011. The Higher Education Funding Council extended the core funding previously supplied by the Arts and Humanities Research Council to 2009-10, and a review will take place late in 2009.

Fund-raising continues to be a high priority, with over £379,000 raised from trusts, foundations, and others, to whom we extend our thanks.

The establishment of an Advisory Board to support our activities, as mentioned in the Chairman's Report, will provide welcome external advice and assistance in this and other areas.

The review of the funding of the University's museums by the Services Funding Working Group of the Planning and Research Allocation Committee was approved by the Council of the University. One of their recommendations was the setting up of a review of the University Museum of Natural History and the Pitt Rivers Museum with a view to developing closer collaboration and the possibility of a future merger. This has been completed, and a full report is awaited.

Visitor numbers continued to increase, by 7.3% to 448,704. This figure, and that for 2007-8 were the highest visitor numbers ever achieved by an Oxford museum. 18,781 UK students visited the Museum in school groups, an increase of 13% on 2007-8. Of these, 79% received a taught session from one of our education team, a level of provision without match in the UK. If international students are included, the number of pupils who visited the Museum in booked groups reached 31,201. A further significant visitor this year was a swift, no. SB92647, who returned to nesting box N3A in the tower for the sixth year running.

Insect and plant displays were completed during the year, and our local geology and gemstone displays are almost finished. The final major display challenge is the west gallery. Here, high cases glazed with panes of curved glass appear to have come from the Old Ashmolean, and to date from the early decades of the 19th century. Listed Building Consent to replace them with cases that will protect both contents and visitors has been sought, and if granted, the cases will be stored for future use elsewhere in the University. An award of £100,000 from the E.P.A. Cephalosporin Fund will allow us to begin the renovations.

2009 was the 200th anniversary of the birth of Charles Darwin, and the 150th anniversary of the publication of *On the Origin of Species by means of Natural Selection*. Darwin was a Cambridge man, but in spite of this, we mounted a year-long exhibition that celebrated his life in his own words, with images from his published work and other sources. As ever the new displays were a team effort, and I am grateful to my colleagues for their patience with me on these matters. Darwin was also celebrated by a major event in which the good auspices of Professor Raymond Dwek FRS brought together the Institute of Biology, the Development Office, the Museum, and Oxford Philomusica in a day of celebration in the Sheldonian and the Museum. It culminated with a debate between Richard Dawkins and the former Bishop of Oxford, Lord Harries of Pentregarth, with Jeremy Paxman as referee. This was followed by a dinner for invited guests on the Museum gallery.

The 'Great Debate' on *The Origin of Species* between Thomas Henry Huxley and Samuel Wilberforce, the then Bishop of Oxford, was held in the Museum on 30th June 1860. To mark this a sculpted plinth will be installed on the Museum lawn next year. The design of the plinth will be that of the winner of a competition that has attracted over 50 entries from Oxfordshire schools.

The building figured as the backdrop for a number of television programmes and other events, not least of which was a commercial for Sky TV that improved our finances, and

gave dung beetles and the Director unpaid cameo parts. More significantly, the Museum building was selected as the icon of its time for the forthcoming 175th anniversary of the Royal Institute of British Architects, as one of 'Eight Exemplary Buildings, 1834-2009', to be held at the De La Warr Pavilion, Bexhill-on-Sea.

Two significant events in the sensitive matter of requests for the repatriation of human remains in the care of the Museum took place during the year. On November 17th 2008, representatives of Te Papa/The Museum of New Zealand visited the Museum to collect Maori and Moriori remains. On May 29th 2009, Mr Major Sumner and Mr George Trevorrow visited the Museum to collect the remains of three Ngarrindjeri Old People. The latter transfer was marked by private and public smoking ceremonies.

The year saw the retirement of Richard Dawkins as Simonyi Professor of the Public Understanding of Science: we wish him continued success, and note the generosity of the Richard Dawkins Foundation in providing 5,000 copies of a cartoon version of *The Origin of Species* that we distributed free of charge to schools throughout the county.

We note with sadness the death of Father Alan Bean in June 2009 at the age of 96. Father Bean was an Honorary Associate in the Entomological Collections, and a visitor over many years. His collection is now housed in the Museum.

Jim Kennedy
Director

Darren Mann, Assistant Curator of the Hope Entomological Collections, introduces one of the Museum's live tarantulas to school children during a Bug Quest visit.

The Museum and the community

The Museum is open to the public from 10 am to 5 pm daily and attracts a growing number of visitors both individually and in organised parties. It also reaches audiences worldwide through its website. We are committed to increasing access to our collections to a wide range of audiences.

Our visitors

Once again we have seen a pleasing rise in visitor numbers, with 448,704 visitors during normal opening hours, 30,606 more than last year. This was despite the closure of the Pitt Rivers Museum for several months during redevelopment of their entrance area. Indeed the temporary closure of both the Pitt Rivers and the Ashmolean Museum resulted in a particularly heavy demand for activities and events in the Museum of Natural History.

Website usage has also continued to grow, with more than 1.1 million visits during the year.

Donations from visitors contributed £60,336 to support our work. About 5% of this sum comes as Gift Aid, following the introduction of envelopes at the main donation box in September. The shop continued to yield a healthy profit. The Museum's 300 seat lecture theatre, gallery and court were hired out for a variety of conferences, receptions, recruitment events and lectures. Income raised was boosted for the first time by revenue from student lectures held during term time.

The joint Museum of Natural History/Pitt Rivers Museum visitor centre planned for areas of the old Inorganic Chemistry Building received planning consent. The visitor centre and the Hope Entomology Collections rehousing programme are two major projects receiving the attention of the Senior Development Officer for Museums and Collections. She has been organising a fund-raising campaign with the Director and Chairman of the Visitors, and an Advisory Board has been established to support the Museum's fundraising and future development.

The E.P.A. Cephalosporin Fund has given significant financial support to Museum projects which, in addition to those mentioned elsewhere in this report, included the purchase of a bronze bust of Nobel laureate Dorothy Hodgkin by Anthony Stone, to be unveiled in the coming year. For the eighth year running the Museum received support from the Negaunee Foundation for our core activities with a donation of $65,000. We are very grateful to the Foundation and to other funding bodies and individuals who have supported our work.

A number of improvements were made for visitors. New external signposting was installed prior to the reopening of the Pitt Rivers Museum. Ornamental iron railings were erected around the Giant Sequoia tree to stop people from removing bark. Bollards were installed at either end of the roadway outside the front entrance to prevent service vehicles colliding with children running out to the Museum lawn. Inside the Museum, bright yellow buckets continued to appear around the Museum on rainy days, but the University's Estates Directorate has carried out feasibility studies and costings to remedy the leaking roof, and its report is expected in October 2009.

Safety in the Museum, particularly for evening events, was improved with the installation of a new emergency lighting controller and battery unit.

Keeping the collections secure is a high priority for the Museum. The worn-out door lock system was replaced, and CCTV cameras were installed in selected locations both to protect the displays and allow front-of-house staff to monitor visitors in public areas.

Energy use has become a subject of growing concern, and the Museum now displays an Energy Performance Certificate rating of 'B' for energy efficiency. The Museum's IT staff contributed to a University-wide energy saving initiative jointly organised by the Oxford University Computing Service, the Centre for the Environment, and the e-Research Centre. They gave advice to individual computer users on optimum practices and computer settings.

Celebrating Charles Darwin's birth

Throughout 2009, television and radio programmes, newspaper and magazine articles have all commemorated the 200th anniversary of the birth of Charles Darwin and the 150th anniversary of his ground-breaking book *On the Origin of Species by means of Natural Selection*. Charles Darwin was also the focus of many of the Museum's events starting with a year-long exhibition 'In his own words: a celebration of the life of Charles Darwin (1809-1882)'. Produced in-house, it combined text from his autobiography with images of his life and work.

Darwin's birthday was celebrated on 12th February in a spectacular event run jointly with the Institute of Biology. It began with a performance of excerpts from Haydn's *The Creation* performed by Oxford Philomusica in the Sheldonian Theatre. This was followed by a conversation between Professor Richard Dawkins and Lord Harries of Pentregarth entitled 'Huxley and Wilberforce revisited'. This public debate was held in the Museum lecture theatre and mediated by Jeremy Paxman. It can be viewed at www.ox.ac.uk/itunes. A reception was followed by a dinner for invited guests, including members of the Museum's new Advisory Board.

From left to right: Professor Richard Dawkins, Mr Jeremy Paxton, and Lord Harries of Pentregarth, in conversation (picture: Roy and Amanda Pagett Photography).

The Museum supported other institutions with their Darwin celebrations. Specimens collected by Darwin were loaned for exhibitions, for example a selection of crabs were borrowed by the Australian Maritime Museum, and a number of television programmes about Darwin and his theories were filmed in the Museum.

Throughout the year, education and outreach sessions have had a Darwin theme, including family events 'Storytelling with Darwin', 'Galapagos Adventure', 'Evolution Solution' and 'What's Bugging Darwin?', a variety of schools sessions, and training events for teachers. Throughout 2009, all secondary school students visiting the Museum for science-themed visits were given a free copy of 'Darwin: a graphic biography', generously funded with a £4,000 grant from the Richard Dawkins Foundation.

Some pictures in the Museum's exhibition.

The Museum held a competition called 'Birds, Beetles, Barnacles and the Beagle' for school students to design a plinth commemorating the Great Debate between Samuel Wilberforce and Thomas Huxley that led to the acceptance of Darwin's theories of evolution by many contemporary scientists. Over 50 high quality entries from 14 Oxfordshire schools were received and exhibited in the Museum. The unveiling of the plinth for the 150th anniversary of the Debate in 2010 will ensure the Darwin celebrations continue into another year.

Activities and events

An extensive family programme was held this year to compensate for the closure of the Pitt Rivers and Ashmolean museums. Thirty three days of special events were held in addition to the regular Sunday Family Friendly activities, and more than 20,000 children took part. Half term activities in 2008 included 'Survival on Planet Earth' to complement the Oxford Inspires 'Planet Earth' season, and 'Treasures on Planet Earth' to celebrate the new gemstones display. In 2009, the Darwin bicentenary inspired a variety of activities. Special themed trails were available for all young visitors during school holidays including a sensory sea trail with sounds and smells and four days of 'Seaside Fun' in the summer, a polar trail over the Christmas holidays, and an egg trail during Easter.

In November the Museum participated in 'Winter Light', a city-wide evening opening. Our event, 'Into the Wild Woods', was based on *The Wind in the Willows*, and involved a range of local musicians, craft activities, story-telling, object handling and refreshments. It attracted over 2,000 people. Almost 3,000 visitors attended this year's 'Oxfordshire Goes Wild', an annual event which showcases local conservation and wildlife charities. Equally successful was the 'Wow!How?' family science fair held in March. The majority of the Museum's volunteers assist with the family activities and public events. In particular, the commitment and enthusiasm of the team of Sunday volunteers makes these days hugely popular and brings families back time and time again.

The educational work of the Museum extends into the wider community. Sessions and facilitated guided tours were given to Oxford Night Shelter residents, MIND groups, hospital schools, language and basic skills groups, family centres, libraries and others. The University's museums and collections outreach service is partnering University College, London and other institutions in an Arts and Humanities Research Council (AHRC) funded project to investigate the therapeutic and enrichment potential of object handling in hospitals and other healthcare organisations.

Collections staff also contributed to outreach work, for example giving talks and running identification workshops for special interest groups.

Collaborating with other museums

Uncertainty about the funding of the cross-museums education and outreach services, together with other Museum activities supported by the MLA's Renaissance in the Regions programme, prevailed well into 2009, until the publication of the programme's Report. A further two years funding was secured, ensuring the continuity of these important services until the end of March 2011.

The Renaissance programme funds cross-museums services within the University, and closer cooperation between University museums was just one area recommended for further exploration in the Services Funding Working Group's Report to Council on the financing of the museums. As a result, a review of the Pitt Rivers and Museum of Natural History was held to look at closer collaboration and the possibility of a future merger. A full report is awaited.

Beyond the University, the Museum has supported the Oxfordshire County Museum Service in various ways. Education staff joined those of the Oxfordshire Museum at Woodstock for the opening day of their *Megalosaurus* footprints exhibition. A record number of visitors attended, and enjoyed making plaster casts and dinosaur masks, or examining fossils on a handling table. In another example of cross-museums collaboration, Geological Collections staff have been involved in an on-going project with Abingdon Museum, advising staff on the curation of their geological collections as part of a major redevelopment of their museum building.

Displaying the collections

As the programme to replace the permanent exhibitions nears completion, plant and thematic insect displays were arranged and labelled. More than 1,000 specimens were mounted in the local geology displays by Geological Collections staff, and base panels were prepared on themes showing the relevance of geology to local life. All specimens were prepared for the gemstones

Volunteering in the Museum

The popularity of the Museum and progress in the care of its collections in recent years is in no small measure due to our growing number of dedicated volunteers. The majority help with family activities and public events, and in the past year they contributed 1,775 hours in sessions ranging from secondary school science days and half-term activities to special openings and events. One such event was 'Wow! How?', a family science fair held during National Science and Engineering Week in March. It was staffed by 92 volunteer scientists and science enthusiasts who filled the Museum with live experiments and demonstrations, attracting almost 3,000 visitors.

A volunteer helps a young visitor learn about dinosaurs at 'Wow!How?' 2009

Volunteer recruitment is healthy and there are currently 373 active volunteers. Of these, 181 are Oxford University students and staff; the remainder are young professionals, other students, people seeking work and retired people. Those considering working in museums, in science communication, or with children and young people can gain useful experience. Others may benefit by building confidence and developing communication skills.

Around twenty volunteers contributed to the work of the collections, carrying out tasks such as cleaning specimens, re-pinning insects, and entering catalogue data onto computers. Over the year, they have contributed over 2,000 hours of assistance, improving the long-term preservation of specimens and making collections more accessible.

The title 'Honorary Associate' has been conferred by the Visitors on a small number of other volunteers who have special expertise relating to the work of the Museum. They include freelance scientists, retired academics and curatorial staff, and expert amateur naturalists. Honorary Associates make particularly valuable contributions to curatorial work and research, for example by identifying specimens and reorganising collections of particular groups of organisms.

Volunteers receive training in one-off sessions and courses run by the University's joint-museums Volunteers Coordinator or in specialist sessions provided by Collections staff. In October 2008 the Visitors approved a Volunteer Policy that formalises how the Museum recruits and organises its volunteers, including matters relating to child protection and health and safety. It also explains what volunteers can expect from us.

displays, ready for installation once case preparations have been completed. New, more accessible table cases were installed in the upper north gallery. A grant of £109,136 from the E.P.A. Cephalosporin Fund will, subject to planning consent, replace the display cases housing the British birds. Thin glass and poorly fitting doors make these historic cases hazardous for visitors and specimens alike.

Once again, many specimens from the Museum were loaned for exhibitions in

other museums. For example, four of Edward Lhwyd's geological specimens were lent to the National Library of Wales for a temporary exhibition in 2009 to mark the 300th anniversary of his death, and several of Darwin's Crustacea were loaned to the Australian National Maritime Museum. The loan of the 'Red Lady of Paviland' to the National Museum Cardiff was extended for a further year.

Temporary displays

The first temporary exhibition of the year showed vibrant images of plankton by artist John Angus. 'Just Drifting Around' explored a microscopic unseen marine world, combining science, textiles and digital art. This was followed by 'Six', an exhibition of the work of six local amateur photographers. Images were exceptional and most were of natural history subjects. In a marked contrast, the next exhibition was 'Seaweeds: science and art'. It was produced by Dr Stephen Harris and depicted specimens which had been dried and preserved for scientific research. Drawing on the rich collections in the Oxford University Herbarium, it revealed the diversity and exquisite beauty of preserved algae collected from around the world.

In the summer, winning entries for a schools' crystal growing competition organised by the Royal Society of Chemistry (Thames Valley Branch) were displayed in the Museum court.

In a departure from the usual programme of short exhibitions, the final temporary display of the year was shown throughout 2009. It was 'In His own Words: a celebration of the life of Charles Darwin (1809-1882)'. Produced in-house, it traced the life and work of Darwin through a combination of text and images. The text came from his autobiography, published in 1876. The images were assembled from sources in Oxford, Cambridge, the National Maritime Museum at Greenwich and elsewhere.

A grant of £5,250 from the E.P.A. Cephalosporin Fund will enable an exhibition of exceptionally preserved fossils from Chenjiang, China to be shown in the Museum in 2010.

Media and publications

It was a busy year for filming at the Museum. The long list of programmes included 'What Darwin Didn't Know', 'The Victorians', 'The One Show', 'Andrew Marr Discovers Darwin', 'Darwin Vs God' and 'The Cell' (all by the BBC), and an advert for Sky nature channel. All raised the public profile of the Museum in a favourable way and brought in welcome income.

Staff also made media appearances. Honorary Associate George McGavin was seen regularly on 'The One Show', and spent time in New Guinea filming for the forthcoming BBC series 'Lost land of the volcano'. Richard Dawkins, who retired from his post as Simonyi Professor for the Public Understanding of Science at the end of September, appeared in television, radio, and electronic media interviews, and published numerous newspaper and magazine letters and articles. His Channel 4 documentary 'The Genius of Charles Darwin' won the 'Best TV Documentary Series of 2008' at the British Broadcast Awards.

Various media interviews were given by Professor Siveter in connection with his paper in *Science* on the chain of arthropods from the Cambrian of China, for example to *New Scientist*, *Science News*, *The Times*, *Beijing News*, and *National Geographic*. These arthropods were the subject of numerous discussion forums on UK and overseas websites.

Schools education

The schools programme has continued to be extremely popular. School students who visited the Museum in booked groups numbered 31,201. They included 18,783 UK students, an increase of 13% on the previous year. Of these, 79% were taught by Education Officers, compared to just 56% in 2007-8, and many sessions were fully booked long in advance. Nearly 8,000 of the UK students attending taught sessions were from secondary schools.

While the main primary school project was 'Bug Quest', new activities for secondary school groups were delivered in the form of 'Dinosaur Days'. They revealed how scientific

‘Bug Quest’ – working with local schools

The main primary school project for the year was ‘Bug Quest’. Thirty six Oxfordshire primary schools worked with museum staff to learn more about the arthropods found in their local environments. The project was a collaboration between the Hope Entomology Collections and the Museum’s IT and Education departments, with administrative help and funding from the Public Affairs Directorate of the University.

Participating schools set special insect traps each month from January until June. They identified the creatures caught using identification keys provided by the Museum, and entered their results monthly into online spreadsheets. Special Bug Quest sessions were held by education staff in participating schools, and at the end of the project in July, children from each school were invited to attend a reception to celebrate the findings. They brought insect models that they had made, and enjoyed a packed morning of insect handling sessions, museum challenges and an excellent lecture from Honorary Associate, Dr George McGavin. He presented prizes to the schools that had collected most bugs; the overall winner being Sunningwell School.

School children on a Museum visit learnt how to identify insects during Bug Quest.

discoveries and techniques provide evidence for new theories about the prehistoric world. Talks, practical workshops and problem solving sessions were run by Education Officers and Geological Collections staff, and there were teacher and volunteer-led activities around the displays. Workshops included investigating how microfossils can date a rock, making plaster casts of trace fossils, a palaeobiology challenge to construct a skeleton and an interactive teaching workshop using a range of museum specimens to recreate the Jurassic world. Although dinosaurs are not explicitly included in the Key Stage 3 science curriculum, the sessions provide much-needed teaching resources for the ‘How Science Works’ and ‘Ideas and Evidence in Science’ sections of the new curriculum. More than 800 students took part through the year, and sessions were oversubscribed. Both student and teacher evaluation have been excellent.

Other educational activities were linked to the Darwin Bicentenary, and included primary school sessions on ‘Darwin and the Valiant Victorians’, ten ‘In Darwin’s footsteps’ study days for Key Stage 4 students, and a schools’ art competition to design a plinth for a plaque commemorating the Great Debate of 1860.

Education Department staff continued to support teacher training activities. A study day for teachers was organised on ‘21st Century Evolution’ at which five University scientists spoke about contemporary science inspired by Darwin’s ideas. In June, the Museum hosted a secondary school science teachers’ evening in partnership with Oxfordshire Independent State School Partnership (OISSP) and Science Oxford.

Caring for the collections

At the heart of all the Museum’s work are its renowned collections, which are international in scope and of scientific and historic importance. They are managed by four departments. The Hope Entomological Collections look after insects and other

terrestrial arthropods, and the Zoological Collections look after other animal groups. Geological Collections look after fossils, while minerals, rocks, meteorites and gemstones are cared for in the Mineralogical Collections. The Museum also has the Hope and Arkell Libraries and significant archives.

Accessions and de-accessions

The Museum's collections have continued to grow with a number of new acquisitions.

For example, Geological Collections were presented with well-documented collections of Cretaceous ammonites and echinoids from France, and Cenozoic molluscs from Europe and Australia. The Museum continued to receive geological specimens transferred from other higher education institutions, a legacy of the Government's Earth Sciences Review of 1988. Some 1,000 miscellaneous specimens were transferred from now-defunct teaching collections of the University of Greenwich. They included rare and interesting items from the Upper Chalk of the UK and the Palaeozoic

Return of the Old People

Mr Major Sumner (in the foreground) and Mr George Trevorrow, at the public smoking ceremony on the Museum lawn marking the return of the Ngarrindjeri Old People.

The repatriation of human remains to indigenous peoples around the world is a very sensitive issue. Body parts that had been acquired by theft or barter by explorers, were deposited in museums around the world in past centuries for study by anthropologists, archaeologists, zoologists and practitioners of phrenology. In response to a growing number of requests for repatriation, Council approved in 2006 a Policy on Human Remains held by the University of Oxford's Museums. In considering requests for repatriation, careful investigation of the authenticity of specimen data would be required, together with evaluation of the potential research importance of the remains, and validation of those requesting repatriation to ensure that remains would be returned to the correct community.

This policy was followed by the Museum in response to requests by the Maori community of New Zealand through Te Papa Tongarewa (The Museum of New Zealand), and the Ngarrindjeri people of Southern Australia through the Australian High Commission. The Museum Visitors sought advice from expert geneticists, archaeologists and anthropologists, and in the light of that and other advice they recommended to Council that the Museum's holding of human remains of individuals from these communities should be repatriated.

Council formally approved the requests, and a private ceremony was held on 17th November 2008, when representatives of Te Papa visited the Museum to collect Maori and Moriori remains. Another private ceremony was held on 29th May 2009, when Mr Major Sumner and Mr George Trevorrow came to the Museum to collect the remains of three Ngarrindjeri Old People. This was followed by a dignified public smoking ceremony on the Museum lawn.

of the United States. Cataloguing of new accessions continues to be a routine part of curatorial staff work.

A core function of the Museum is to preserve its collections for perpetuity, and de-accessions are uncommon. An exception this year was the de-accessioning of some human remains in the Zoological Collections, and their repatriation to the Maori community of New Zealand and the Ngarrindjeri community of Southern Australia.

Curation and conservation work

Conserving collections, and improving their storage and documentation has continued to be a fundamentally important part of the Museum's work. A total of 24,325 specimens were catalogued through the year. Some ongoing projects have made excellent progress, notably the vertebrate spirit collections re-storage project, now in its second year. Natural history conservator Ms Kate Pocklington was engaged on a one year contract and has processed over 4,000 jars of specimens.

The E.P. Abraham Internship Programme was extended for a further two years with a £27,653 grant from the E.P.A. Cephalosporin Fund. This, together with the extension of Hub funding, the recruitment of new collections volunteers, and the employment of school students funded by Nuffield Scholarships, has resulted in extra hands to bolster the work of the Museum's permanent staff, and enabled a number of new curatorial projects to begin.

In the Hope Entomological Collections, Mr Darren Mann is congratulated on his promotion to Assistant Curator. Among projects he has supervised, some 35,000 specimens of the Chvála collection of dance flies were labelled, re-pinned and re-housed, and a £20,000 Preservation of Industrial and

Capturing that image

Entomological specimens can be tiny and very difficult to photograph well, even with the best combinations of camera and microscope, without using special software. This year, the Hope Entomological Collections were able to purchase a Syncroscopy auto-montage system which resolves the problem of poor depth of field by automatically merging a sequence of photographs to generate a perfectly focused image. The system has already been put to good use for a range of curatorial and research projects. For example, an E.P. Abraham Intern, Christopher Michaels, worked with Assistant Curator Darren Mann on the ecology and classification of Bolivian *Onthophagus* dung beetles, and generated images that showed the minute details of genitalia that distinguish each species. Such high quality images have an important added benefit for the preservation of the collections. They can reveal so much detail that in many cases researchers no longer need to borrow specimens. This eliminates the risks of loss or damage to precious type specimens if they are posted around the world.

The auto-montage system was funded from a £50,000 bequest to the Hope Entomological Collections by the late Dr Angus McCrae. A regular visitor to the Museum working on Afrotropical silk-moths, Dr McCrae presented the Collections with his entire collection shortly before his death in 2004. The bequest will also help with the costs of re-housing the historic entomology collections in the Huxley Room.

Megaselia scalaris fly photographed using the new system.

Scientific Material (PRISM) Grant Fund has enabled work to begin on the historic Diptera collections of Hope-Westwood and William Burchell. This has already led to the discovery of several previously unrecognised types. E.P. Abraham Interns have carried out ecological and taxonomic research on Bolivian dung beetles and worked on the re-curation of Burchell's neotropical insects.

The team of Honorary Associates assisting in the Entomological Collections was joined by Mr Ray Gabriel, whose research interests are in the taxonomy and captive care of bird-eating spiders (tarantulas), and Mr Guillaume de Rougemont, whose interests are in the taxonomy and systematics of the rove beetles (Staphylinidae). It is with sadness that the Museum reports the death of a long-standing Honorary Associate, Fr Alan Bean, at the age of 96. He was a regular visitor to the Collections until ill health prevented him from travelling to the Museum. His collection of oriental Lycaenidae butterflies is housed in the Museum.

In Zoological Collections, work has commenced on the curation and reorganisation of the Chelonia collection and the cleaning of avian osteological specimens. In another project, all bird skins, numbering nearly 20,000 specimens, are being inspected and bagged. Freezing to control *Anthrenus*, cleaning and documentation have been carried out as necessary. Interns worked on the curation and conservation of the Tradescant collection and that of plaster busts and casts of human skulls.

Documentation of the gemstones going into new displays and those remaining in the reserve collections was carried out by Mineralogical Collections staff and volunteers, the reserve specimens being transferred to upgraded storage.

The Internship programme gave a welcome opportunity for the development of a joint Mineralogical and Geological Collections database of label and handwriting styles that would help to identify sources of some of the older specimens being catalogued as part of the ongoing retrospective documentation of historic rock and fossil collections.

Other Geological Collections curatorial work has included an E.P. Abraham Internship project to clean, identify and catalogue Eocene specimens from the collections of Brigadier Bomford, presented in 1996 and Admiral Sir John Harvey and his wife Elizabeth, presented to the Taylorian Institute in 1834.

In addition to their curatorial work, Collections staff have answered nearly 3,100 enquiries from academics, amateur specialists and the general public, relating to material in their care or to their areas of special expertise.

Substantial progress in carrying out retrospective cataloguing of petrological and some palaeontological collections depends on the removal of overcrowded collections from the church at Nuneham Courtenay to a new joint museums' off-site store planned for the Bodleian's book depository at Nuneham. Progress was delayed as the Bodleian Library awaited first the outcome of their appeal for a new book depository and then the location of an alternative site. It was felt that the museums' needs had changed, and doubts were expressed with regard to the suitability of the Nuneham site for the museums' store. ASUC commissioned Halahan Associates to carry out a detailed survey of the space needs of each museum. This was carried out in June and a report is expected later in the summer.

The library and archives

The Librarian classified and catalogued new material, retrospectively catalogued reprint and pamphlet collections, managed the conservation of the library and archives, and supplied books and journal articles for staff, students and external visitors in support of their research.

New acquisitions included the entomological archives of Fr A.E. Bean, G.E. Tite and A.W.R. McCrae, and selected books and pamphlets from the private library of mineralogist Mr M.P. Cooper, purchased from his executors. These are mainly on topographical and systematic mineralogy and will be added to the working library in Mineralogical Collections.

Several exhibitions were laid out for visitors to the library. In August, Buckland drawings were displayed for members of the Gordon

Now whose handwriting is that?

This year, Geological and Mineralogical Collections decided to join forces to address a curatorial issue affecting both collections. As retrospective cataloguing of historic fossils and rocks progresses, labels are often found with the same distinctive handwriting, borders, or other stylistic features, either with or attached to specimens. Sometimes the person who wrote the label is identified; for other labels, detective work is needed to find this out. Collections staff devised a database to hold images of the handwriting or label styles, along with biographical information about the label-writer and brief details of the specimens concerned. Populating this database turned out to be an interesting project for two E.P. Abraham Interns, Caroline Halstead-Smith and Helen Spiers, providing them with opportunities to handle historic specimens, develop skills in documentation and photography, and to apply their research skills to finding out more about the people responsible for the labels.

Caroline Halstead-Smith, one of the E.P. Abraham Interns, checking specimens for labels.

A similar database was developed for a substantial collection of dealer labels bequeathed to the Museum together with a large archive of research notes, by the late Mick Cooper. An authority on British mineral dealers, Mr Cooper had made good use of the Mineralogical Collection's archives and old label albums while researching for his book *Robbing the sparry garniture, a 200-year history of British mineral dealers* (2007).

Rock label from a collection supplied by London dealer Francis Butler in the early 20th century.

The databases are already shedding light on the history of some of the Museum's older geological specimens, and are allowing staff to bring together samples from the same collector which had been dispersed into different collections.

family, descendants of William Buckland. The previous day, a blue plaque commemorating Buckland had been unveiled at the Old Rectory in Islip. The event was coordinated by the Director, members of the Museum staff, and the Islip History Group. Archives were also displayed for members of the Museum's new Advisory Board and Trustees of the E.P.A. Cephalosporin Fund.

University teaching and research

The Oxford University Museum of Natural History is a department of the University of Oxford and its staff carry out research and teaching as well as assisting with these activities in other departments.

Student teaching

The Museum has supported University teaching in a number of ways through the year. Museum staff gave a total of 98 lectures to undergraduates and masters degree students, as well as giving tutorials, teaching on fieldtrips, supervising undergraduate research projects, and supervising DPhil students. They also set, invigilated and marked examinations.

Specimens were provided for lecture demonstrations and tutorials. For example

regular use was made of material from the Stanton ore collection and South African petrological collections in an undergraduate course on ore-forming processes taught by the Curator of the Mineralogical Collections. Some 300 specimens were brought out for practical classes organised by Collections staff in the Zoological Collections Laboratory. Nineteen sessions were held for 6 different courses run by the University or Oxford Brookes University, each session attended by between 7 and 50 students.

The Museum's specimen-rich displays were used for tutorials for Oxford students, and visits were made by groups from other further and higher education institutions. Further education visits were made by 387 students in 15 booked parties from 13 different institutions, studying subjects as diverse as the human body, language and tourism, and art and design. There were 1,479 students in 66 parties from 27 different higher education institutions. Again the courses bringing them to the Museum were extraordinarily diverse, and included palaeobiology, environmental sciences, history of science, collections care and management, art and design, goldsmithing, metalwork and jewellery, and architecture. The majority were from UK institutions, but six courses were organised by United States universities, and one by the University of Delhi, India.

Despite initial concern that charging other University departments for use of the Museum's 300 seat lecture theatre might reduce use for student teaching during term time, demand remained high, and 382 hours of mathematics and chemistry undergraduate lectures were accommodated.

Research

Ground and rove beetles, tarantulas, flies, water bugs, shrimps and other decapod crustaceans, Cretaceous ammonites and Himalayan rocks are some of the areas of the Collections which have benefited from academic research by staff and Honorary Associates, many in collaboration with colleagues in other institutions around the world. Their research resulted in the publication of 66 articles as papers in journals or contributions to books. Research funding received from a number of sources enabled staff to carry out fieldwork, attend conferences, and give papers. For example, the Acting Curator of the Geological Collections collected Silurian soft-bodied invertebrates from the Herefordshire Lagerstätte as part of his NERC-funded research project which saw the employment of two new research assistants, Dr Katie Davis and Dr Carolyn Lewis. The research team discovered new arthropods belonging to several of the major groups, together with a new mollusc and an echinoderm with soft parts preserved. Lectures by members of the Oxford-based team were given at the universities of Bonn and Berlin, and at international congresses in Copenhagen, Paris, and Brasilia. Their work was highlighted in an article in *American Scientist*, over 50,000 copies of which were available throughout North American and European outlets.

Historical research was carried out, for example, by Zoological Collections staff on the Chelonia collections purchased by Reverend Hope from Thomas Bell, and on the human remains collection. Conservation methods were also investigated, such as the use of bitumen as a sealant for jars of fluid preserved specimens. The Environmental Archaeology used the Museum's collections for reference in investigating the biological remains found in a Roman sewer at Herculaneum, the Neolithic monument of Silbury Hill and deposits alongside the Thames estuary at Ebbesfleet.

The Museum's collections were used as a research resource by members of other University departments and the academic community worldwide. Exploiting existing collections for undergraduate research projects was particularly welcomed. For example, ultra-high temperature metamorphic rocks from South Africa, collected in the 1980s, were used in a project aimed at understanding the growth and breakdown of the rare mineral osumilite.

There were 143 loans sent out to researchers in other institutions, providing in excess of 11,350 specimens for research. Samples were also sent for destructive analysis, including 49 specimens supplied for DNA or collagen analysis. The Museum hosted several hundred visits from researchers to study the collections.

OXFORD UNIVERSITY MUSEUM OF NATURAL HISTORY

Annual Report

Part 2.

Full reports from the Collections, Sections and Research Units

2008-2009

The Hope Entomological Collections

Professor Rogers was invited to an Experts' Meeting in Rome on mapping the risk in East Africa of Rift Valley Fever, an important disease of livestock and humans in the region. He gave presentations at meetings of EuroBio 2008 in Paris, the World Health Organisation (WHO) in Madrid on the impact of climate change on diseases, the European Space Agency (ESA) in the Netherlands, and the Centre de cooperation internationale en recherche agronomique pour le développement (CIRAD) in Paris on modelling R_0 for infectious diseases. Presentations were also given at a Medical Research Council (MRC) meeting in London on environmental change and vector-borne diseases, at the European Centre for Disease Prevention and Control (ECDC) in Stockholm on preparedness for the spread of exotic diseases into Europe, and at a Society of Chemical Industry (SCI) conference in London.

Locally he talked at a student-organised meeting in the Saïd Business School and at the Oxford Medical Alumni's annual meeting in the Medical Teaching Centre, both on the impacts of global changes on diseases. In connection with the EDEN (Emerging Diseases in a changing European eNvironment) FP6 project, a thesis was examined in Louvain la Neuve, Belgium, and the EDEN Annual General Meeting was attended in Marrakech, Morocco. He also took part in a Gates' Foundation Meeting in Nairobi on establishing the importance of livestock in 'pathways out of poverty' and from there visited both Ethiopia and Mozambique on an inter-governmental mission to establish Ethiopian bio-farming practices in Mozambique. He was a member of the jury panel for the prestigious Francqui Prize in Belgium, 2009.

In September, Mr Mann was appointed Assistant Curator, which has enabled some re-structuring of staff responsibilities and duties. Mr Hogan has been placed in charge of Coleoptera, Lepidoptera and Hymenoptera and Ms Simmons is now in charge of the Diptera, Hemiptera, Arachnida and the small orders collections. Ms Hayes continued as casual payroll support staff until July 2009, when she was appointed for a six month contract to work on the historic Diptera collections under the supervision of Ms Simmons.

We welcomed two new Honorary Associates, Mr Ray Gabriel whose research interests are in the taxonomy and captive care of the bird-eating spiders (tarantulas) and Mr Guillaume de Rougemont, whose interests are in the taxonomy and systematics of the rove beetles (Staphylinidae). This year we are sad to report the death of one of our Honorary Associates, Father Alan Bean, who passed away in June 2009 at the age of 96. Father Bean was a regular visitor in the department until ill health prevented him from travelling to the Museum. His collection of oriental Lycaenidae butterflies is housed in the Museum.

This has been a productive and exceptionally busy year for the department, with 11,025 specimens sent on loan and 15,721 specimens received by donation. We hosted 73 visiting researchers and over 270 other visitors and have answered over 1,500 enquiries. Apart from our

outreach and teaching responsibilities, our main focus has been on the re-housing of the historic collections, and sorting and amalgamating the miscellaneous small collections into the systematically arranged new storage system.

One of our greatest assets has been the large number of superb volunteers who contributed 2,625 hours of work to the curation of the collections. In particular, our sincere thanks go to Amoret Spooner, Ray Gabriel, Steven Williams, Sally Wright, Kathryn Harrold, Russell Payne, Sam Pope, Mareike Dornhege and Tatiana Solovieva, each of whom contributed over one hundred hours of unpaid work. The department was fortunate in receiving three students through the Nuffield Science Bursary Scheme; bursaries were awarded to Year 12 students for a six week project, and Beth Richardson, Elisha Clarke and Steven Williams worked their summers on re-curating the Burchell afrotropical collection, digitising the dragonflies and hawk-moth types and re-housing and re-curating the Smith British bee collection respectively. The E.P. Abraham Internship Scheme enabled Christopher Michaels (Magdalen College) and Hannah Macgregor (Wadham College) to work in the department on the ecological and taxonomic research of Bolivian dung beetles and the re-curation of Burchell's neotropical insects.

The work of the Collections has particularly benefitted from a bequest of the late Dr Angus McCrae. Dr McCrae (1932-2004) was a regular visitor to the Museum working on Afrotropical silk-moths, and shortly before his death he presented the Hope Collections with his entire collection. The Museum received £50,000 from the McCrae estate with the assistance of Janet McCrae and Professor Charles Godfray (University of Oxford). This has funded the purchase of a Syncroscopy auto-montage camera system which will allow us to digitise the smaller insect types and non-type specimens. It will reduce the need to send specimens via the post and will be available for visiting researchers to use. High quality images have already been produced for research and education department use.

The bequest will also help with the costs of re-housing the historic collections in the Huxley Room, and additional funds are being sought to enable this programme to start. An award of £20,000 from the Preservation of Industrial and Scientific Material (PRISM) grant has enabled Collections staff to begin work on the historic Diptera collections of Hope-Westwood and William Burchell, and although this project is in its first month, it has already led to the discovery of several previously unrecognised types.

Collections staff with the help of volunteers continued to re-house the historic collections from the old 'Victorian cabinets' into the new drawers and cabinets. They have also worked through over 250 drawers of the miscellaneous small donations, dealing with the backlog of accessioning and re-housing. In particular, Mr Hogan and Ms Amoret Spooner have processed over 60 drawers of the miscellaneous beetle material, which is now re-curated and put into new storage. Ms Simmons has made great progress with the aid of volunteers on the re-curation of the spirit spider collections.

Hope Collections staff were involved in numerous outreach and education projects with the Education staff, ranging from behind-the-scenes tours, to live bug handling sessions during events such as Winterlights and 'Wow!How?'. Mr Mann co-organised 'Bug Quest 2009', a project for forty Oxfordshire Primary Schools to learn about arthropods. This culminated in a bug day at the Museum at which 150 children attended.

Mr Mann continued to assess the historic collections, and re-curate and re-house the world Scarabaeoidea collection. He continues to serve on the editorial panel for *The Coleopterist* and *Cockroach Studies,* and sit on the committee for the Blattodea Culture Group and the Library committee of the Royal Entomological Society. He also continues as the organiser for the National Scarabaeoidea Recording Scheme. He was elected Vice-President of the British Entomological and Natural History Society, and attended the Insect Collections Management Group annual meeting in London, and the ScarabNet meeting in New York.

Two Amateur Entomologists Society Bug Club events were organised by Mr Mann. The first in September on insect collecting was also a drop-in bug handling and identification day for the general public. The second in February on 'how to make a collection' was attended by members only, and curation techniques were demonstrated. Mr Mann ran a one day identification workshop on British terrestrial bugs at the Hill End Residential and Field Study Centre. He hosted the British Dragonfly Society annual meeting and the British Entomological and Natural History Society AGM.

Mr Mann taught on the first year Oxford undergraduate biology field course and

entomology module. He supervised five Oxford undergraduate final honours projects, and advised two DPhil students in dung beetle taxonomy and ecology. He taught a day course on entomology for the Diploma in Environmental Conservation, and trained two master's degree students, Ms P. Ramirez (Imperial College, London) and Mr S. Phelps (University of East Anglia) in dung beetle taxonomy and ecology as part of their Masters' dissertation project. Mr Mann also advised students (graduate and post graduate) from several countries (Colombia, Belgium, Sri Lanka, Indonesia, Pakistan, U.K., USA) on dung beetle taxonomy and ecology. He gave talks on British Scarabaeoidea for the British Entomological and Natural History Society 'beetle day', and on British Beetles for the Ashmolean Natural History Society.

Mr Hogan continued to manage the loans and accessions for the department. He trained several volunteers in Coleoptera identification in order to help with the sorting and re-curation of the extensive miscellaneous Coleoptera and other insect collections.

Ms Simmons trained and supervised volunteers for the re-curation and amalgamation of the bird-eating spider (Theraphosidae) and scorpion spirit collections, and supervised Ms Hayes for the PRISM funded project to re-curate and re-house the historic Diptera collections. She visited the National Museum and Galleries of Wales and the Natural History Museum, London to discuss spirit collection conservation and care. She continued the re-curation of the Erotylidae and Endomychidae collections, and commenced the re-curation and amalgamation of the miscellaneous Hemiptera collections, supervising an Oxford Brookes University placement student for 6 weeks.

Ms Simmons continued to manage the public displays, completing the final text and layout of the new thematic insect displays.

Ms Hayes re-curated a major part of the Chvála collection of dance flies, which involved labelling, re-pinning and re-housing the contents of 50 drawers, some 35,000 specimens. She started a 6 month contract to re-curate the historic Diptera from the Westwood collection comprising of 60 drawers of mixed families, which include many important types.

Other curatorial projects were continued this year. Mr Ackland has been re-curating, sorting and identifying the world Anthomyidae collection, Mr Cooter has nearly finished cataloguing and transfering the Dale insect collection in to its new storage, and Mr Lansbury has worked on the aquatic bug collections, re-identifying and transferring material into the new storage system.

Mr Cooter visited the 'International Inseckten Börse', Prague during October 2008 and March 2009 where he promoted the collections to entomologists from the Czech Republic, Slovakia, France, Germany, Italy, Poland, Ukraine and received several donations of beetles identified by colleagues. He visited Shanghai Entomological Museum, Chinese Academy of Sciences, P.R. China; where he spent time working on the Coleoptera collections; presented a talk on modern curatorial methods, and spent eleven days carrying out field work in the West Tianmu Shan UNESCO designated Biosphere Reserve by invitation of the Reserve Management.

Mr Gabriel continues the re-curation, remedial conservation, re-housing, amalgamation, incorporation and cataloguing of the Theraphosidae collections. He has also worked on the Rognes Palaearctic Diptera collection, sorting to family and incorporating into the main collection and re-housing 60 drawers of the Dacie Palaearctic Lepidoptera collection.

Dr Ismay curated British and Palaearctic Diptera. This included sorting and identifying Palaearctic Diptera accessions to family level, and identifying Chloropidae and some other families to species level. Dr Ismay, Mr Harvey and Mrs Ismay conducted a one day workshop at the British Entomological and Natural History Society called 'Why and how to collect insect specimens', which included techniques for pinning, mounting and labelling insects, from a variety of different orders as well as curating specimens.

Having completed his term as Chairman of Dipterists Forum, the national society for the study of flies, during the year, Mr Ismay became Vice-Chairman. He attended several indoor and outdoor meetings of Dipterists Forum, including the summer meeting at Swansea, Wales. He also participated in a workshop on Picture Winged Flies at Preston Montford Field Studies Centre.

Dr McGavin has been a regular wildlife reporter for 'The One Show' (BBC1) and filmed for 6 weeks in Papua New Guinea for a forthcoming BBC series. He gave numerous radio interviews (BBC and Radio Norway) about various topics, including Charles Darwin. He continued to serve on the Council of The Linnean Society, and was a member of the judging panel for the

Oxford heat of Famelab (NESTA). He won the Earthwatch Debate 'Irreplaceable' and chaired the Earthwatch event 'Conserving biodiversity in the Americas'.

A large number of talks were given by Dr McGavin to school and student groups through the year. They include talks at Downe House, Berkshire; Barley Hill Primary School, Thame; Lord Williams's School, Thame; St Helen & St Katharine, Abingdon; St Bartholomew, Eynsham (as part of the Oxford University Science Road Show); Braemore Primary School, Hampshire; and Suckley Primary School, Worcestershire. He gave a Christmas Lecture at the Museum, and student and public lectures at Plymouth University and Derby University. Other talks and demonstrations were given at the School Biologist of the Year ceremony in the Museum, the Oxford Alumni weekend, the OxFringe Festival, family fun days run by the Royal Institution, and the Alderney Wildlife Week.

Work setting up the collection of World Muscidae was continued by Dr Pont. The British Muscidae have been transferred to the new cabinets, and the process of incorporating the other separate collections continues: the Palaearctic Collection, the Bigot Exotic Collection, the Verrall-Collin main and duplicate Collections, the Rognes Collection, and his personal collection.

Dr Pont continued to be on the editorial board of *Zoology in the Middle East*, *Fauna of Arabia*, *Studia Dipterologica* and as Secretary/Treasurer of the Council for International Congresses of Dipterology. He continues to be one of the four co-ordinators of the Biosystematic Database of World Diptera, an on-line database of some 250,000 Diptera names (www.diptera.org). During a private visit to Brazil in February 2009, he visited the Instituto Nacional de Pesquisas da Amazônia (INPA) in Manaus, to view the collection of Muscidae (Diptera).

At the 3rd International Simuliidae Symposium, Vilnius, Lithuania, September 2008, Dr Pont read a paper (together with Dr Doreen Werner) on the results of fieldwork in South Africa in 2006. He visited the National Museums and Galleries of Wales, Cardiff, November 2008, during the Dipterists Forum annual meeting, and atended the annual meeting of the German Dipterists Group (Arbeitskreis-Diptera) at Waldsieversdorf, Germany, in June 2009. Dr Pont made a study-visit to the Muséum National d'Histoire Naturelle, Paris, France, in May 2009.

Mr de Rougemont has started sorting, mounting and identifying the Museum's oriental Staphylinidae.

Geological Collections

Professor Siveter continued his curatorial oversight of the Palaeozoic collections, particularly the Herefordshire (Silurian) soft-bodied material, a large part of which is now ready for formal incorporation into the main collections. He acted as assessor for undergraduate examinations in the Department of Earth Sciences. He also acted on behalf of the China Oxford Scholarship Fund in the selection of Chinese students, who had already been accepted by various academic departments in Oxford, for the receipt of grants to support their studies. Lectures on the Herefordshire Lagerstätte, by members of the research team working on this Oxford-based project, were given at the universities of Bonn and Berlin, and at international congresses on invertebrate morphology, on zoology, and on ostracods, in Copenhagen, Paris, and Brasilia respectively.

Mr Jeffery continued his work on the local geology displays, collaborating with Professor Kennedy on a series of baseboards demonstrating the relevance of geology to local life. An E.P. Abraham internship on the curation of Cenozoic material proved to be a great success. Over a 4-week period, Sean McMahon managed to clean, identify and catalogue a total of 432 Eocene specimens, taken from two different collections: that of Brigadier Bomford, presented in 1996 and still very much in field state, and that of Napoleonic-era ship's commander Admiral Sir John Harvey and his wife Elizabeth, presented to the Taylorian Institute in 1834 and then somewhat overlooked ever since. Enquiries continued to occupy a significant amount of time, with more than 400 received in person, by letter, email and telephone. Mr Jeffery and Ms Howlett have also been involved in an on-going project with Abingdon Museum, advising staff on the curation of their geological collections as part of a major redevelopment of the museum building. Mr Jeffery participated in a number of question and answer sessions for the series of 'Dinosaur Days' organised by the Education department. He continues as one of the associate editors of

Caenozoic Research, and has acted as referee for a number of papers.

Professor Kennedy provided preliminary identifications for 360 specimens, mainly from the Cretaceous of the UK and France, prior to their documentation by Mr Ashington. He has also been heavily involved in the local geology displays.

Ms Howlett worked with Professor Kennedy and members of the Islip History Group on the formal unveiling of a Blue Plaque commemorating William Buckland at The Old Rectory, Islip. She continued her cataloguing of the M.R. House archive, listing some 40 items of correspondence, and also continued her recording of material relating to the historic collections, upgrading the records of all specimens in Phillips' 'Middle Palaeozoic Series' (Devonian – Permian) to include details of old labels. She has also completed the documentation of published specimens from the Herefordshire Lagerstätte. With Miss Price, she co-supervised two E.P. Abraham internship students, Caroline Halstead-Smith (Geology) and Helen Spiers (Mineralogy), working on a shared database of historic collectors/dealers linked to images of their labels. She arranged the loan of four Lhwyd specimens to the National Library of Wales for a temporary exhibition in 2009 to mark the 300th anniversary of Lhwyd's death, and continues to liaise with Dr William Poole (New College, Oxford) about a possible loan for a Bodleian exhibition in 2010. She is currently working with Ms Phibbs and Mr Walsh on an illustrated database of Oxford fossils to go on the Museum website.

Ms Hay made a cast of a Devonian trace fossil slab from Pembrokeshire to be sent to Stacey Gibb (University of Alberta), and also produced 25 moulds of 5 different trace fossils to be used in casting sessions with school groups as part of the Education department's 'Dinosaur Days'. With Mr Jeffery, she made a visit to the National Museum Cardiff to inspect the 'Red Lady' and ensure that there were no conservation issues. The loan of the skeleton has subsequently been extended for a further year. She answered a number of conservation enquiries, including one from an artist wishing to make a sculpture from bird bones, and also advised Alexander Liu (University of Oxford) on materials for field-casting of Ediacaran material at Mistaken Point, Newfoundland. Since January she has been working full-time on the mounting of local geology specimens, a process that is now nearing completion. She has manufactured the mounts for around 350 specimens and installed in the cases some 1,000 specimens including several that were very large and heavy; for these, the assistance of Mr Richey is gratefully acknowledged.

Mrs Irving has continued with the long-term conservation programme for ammonia-treated pyritic specimens, including associated environmental monitoring. She has completed the photographic records of the historic, mostly unregistered, pyritic specimens from the Cretaceous Speeton and Gault Clay formations, and discarded those beyond any conservation help. Having previously re-organized the Carboniferous plants, Mrs Irving has designed and produced drawer and cupboard labels in order to reflect the changes that she has made. She has also completed the registration of any unregistered Permian plants in the Collection, including the re-housing of specimens that had been wrongly attributed to the Permian. She is currently in the process of registering Carboniferous plants from Radstock, Somerset, part of the J. Huxtable Collection.

Mr Ashington has again split his time between Geological and Mineralogical Collections. In Geology, he has catalogued some 1,700 specimens, including Palaeozoic material from the Parker Collection, purchased by the Museum in 1913, and Cretaceous material from France, presented by A.S. Gale. He has transferred 113 Purbeck records from the Jurassic database to the Cretaceous, in order to reunite them with those of other Purbeck specimens, and has continued to update records in all the geological databases, converting group records into individual records so as to make searching easier. He has also worked with Abingdon Museum staff, explaining the process of data entry. He collaborated with Seymour James on the creation of a photographic studio full of horrors for the 'Halloween Beasties' event, and also took part in 'Winter Light' 2008 (entitled 'Into the wild wood'), spending the evening greeting visitors whilst dressed as Mole. He has contributed to a number of Family Friendly activities, providing a handling table on adaptations to extreme conditions for 'Survival on Planet Earth', and another on crab diversity for the Darwin-themed 'Galapagos Adventure'. He has also been involved in the series of 'Dinosaur Days', giving talks on dinosaurs and the plants and animals that lived alongside them.

The Oxford Geology Group has been run again by Mr Powell who arranged 7 indoor meetings and 4 field meetings. He also made further

progress on the curation of parts of the Jurassic collections, and proof-read all new Jurassic cataloguing.

In other on-going projects, Mr Clasby worked on the Cenozoic collections, transcribing old labels and adding curatorial comments, and Dr Mark Ebden continued the cleaning and re-traying the Baden-Powell collection of Pleistocene and Holocene material. He has completed a total of 50 drawers.

Dr Carolyn Lewis began voluntary work in the collections in September, taking on the Triassic cataloguing begun by Ms Christine Lipkin. In January, along with Dr Katie Davis, she joined the Museum as a paid member of staff, working with Professor Siveter on material from the Herefordshire Lagerstätte.

Miss Leigh Sneade began voluntary work in October, working with Ms Hay on the cleaning and conservation of a 19th century cast of the sea cow *Halitherium*. She has also worked with Ms Howlett on the M.R. House archive, and done some cataloguing of Cenozoic material transferred to the Museum from the University of Greenwich in August 2008.

Mineralogical Collections

Miss Price was Acting Director until the beginning of September, deputizing for the Director while he was on sabbatical and sick leave. Through the year, she assisted the Director with matters including Designation, Accreditation, inter-departmental loans, off-site storage, and disaster planning. She edited the Museum's Annual Report preparing a new illustrated summary of the year format. She was invited to rejoin the Collections Advisory Committee of the British Geological Survey and attended the Committee's meeting in May. She is on the Editorial Board of the *Journal of the Russell Society*. Miss Price gave lectures on decorative stones to the Belfast Geologists' Society and the north-London based Amateur Geological Society, and she hosted visits by members of the Bath Geological Society and the Open University Geological Society. She continued her researches on decorative stones, studying the collections of local stones at Torquay Museum.

Dr Waters' academic activity this year continued in areas of focus for the Petrological Collections: the Himalayan system, African petrology, and high-pressure rocks. Much effort has gone into completing a petrological study of migmatites from a 1994 collection by M.P. Searle at Nanga Parbat, NE Pakistan, that are revealing some of the most rapid rates of recent uplift and erosion on Earth. A paper with J.L. Crowley of Boise State University, USA, and others is currently under revision after review. Another Himalayan collaboration with M.P. Searle and J.M. Cottle has extended to studies of the South-East Asian shear zone systems active in Himalayan extension. This has involved chemical characterisation of the accessory minerals (mainly monazite and zircon) in samples to be used for dating movement on the Red River and Ailo Shan shear zones in Vietnam and southern China. Work has also continued on rocks from the South Tibetan Detachment System in the Mount Everest area. Other Himalayan activity has involved seeing the results of earlier studies through to publication, notably the investigation of deep-crustal nodules beneath southern Tibet begun by former D.Phil student Gavin Chan. Four other Himalaya-Karakoram papers are currently in press or at stages of the review process.

Ultra-high temperature metamorphic rocks from South Africa, collected in the 1980s, were used in a supervised undergraduate research project by Max Wigley aimed at understanding the growth and breakdown of the rare high-temperature mineral osumilite. Alistair White began a D.Phil project on gold mineralization at Damang in Ghana, and two further undergraduate projects on the mineralogy and petrology of African gold deposits were undertaken, one also in Ghana (Will Brownscombe), the other at Driefontein Mine in South Africa (Ruth Brooker), all under the joint supervision of Dr Waters and Professor L.J. Robb.

Dr Waters participated in an Alliance project (British Council Franco-British Research Partnership Programme) on subduction zone metamorphism in the Alps and other mountain belts, with colleagues from Oxford and the Université Pierre et Marie Curie (Paris VI). This culminated in a field workshop in the Western Alps, allowing the collection of eclogite and blueschist rock suites from numerous localities between Zermatt (Switzerland) and Monviso (Italy), including rare manganiferous assemblages from Val St Marcel, Aosta.

In collaboration with Terry Hardaker, an archaeologist attached to the Ashmolean Museum, Dr Waters made a reconnaissance study of the petrology of hand tools and related material from Namibia. Of particular interest was the chemistry of desert varnish, a laminated coating on certain artefacts, that may have application in dating them. Last year's collaboration with Dr Antonio Alvarez-Valero (Granada) on xenoliths from the Neogene Volcanic Province of SE Spain has been submitted for publication and is currently under revision after review.

In March Dr Waters gave an invited lecture at the University of Durham entitled 'Building Mount Everest: a view from the inside'.

Mr Walsh was on the Organizing Committee of the Fifth International Symposium for the Preservation of Mineral Diversity, to be held in October 2009 in Sofia, Bulgaria. He continued to serve on the committee of the Oxford Geology Group and organised their fieldtrip to Cornwall in April.

A considerable amount of curatorial work this year has been devoted to the gemstone collections and the preparation of new gemstone displays in the upper gallery. Miss Price worked with Mr Walsh in the design of the displays. She wrote the labels, selected suitable specimens, and worked with Mrs Irving who had distinguished gemstones and decorative minerals used in previous displays, and documented those going into the new display. The remaining gemstone collection was reorganised, and Mrs Jean Allen, a new volunteer who joined us in May, has started the processes of weight-checking, re-labelling, and transferring these stones to new storage containers. As soon as security arrangements are completed, the display specimens will be installed.

The documentation of radioactive minerals was completed early in the year, and the more active specimens were returned to the Controlled Area in March when refurbishment of the room was completed and the Museum's new emergency lighting system had been installed. Revised Local Rules were drawn up by Mark Bradley (University Radiation Protection Officer) and Miss Price (Senior Radiation Protection Supervisor for the Museum) to ensure all laws are complied with and documentation is kept up-to-date.

Miss Price prepared a report on the 2007-8 Internship scheme for the E.P.A. Cephalosporin fund trustees, and successfully obtained funding for a further two years' Internship programme. This year, Mineral Collections and Geological Collections ran a joint project to develop a shared database of handwriting and label samples that would help the collections provenance historic specimens of fossils, minerals and rocks. Miss Price and Ms Howlett developed the database and the two interns, Helen Spiers (for Mineral Collections) and Caroline Halstead-Smith (for Geological Collections) each spent four weeks producing profiles of more than 100 collectors, dealers and individuals working in the Museum, with images of their handwriting and label styles.

In the autumn the Museum was offered the mineral collection of Charles Jesse Catch, a former member of the Oxford Mineral and Lapidary Club, which included specimens suitable for cataloguing, exchange and teaching, and we are grateful to his executors Jane Sharman and Fiona Shaw for this generous gift. Our second 4-week E.P. Abraham internship taking place in August 2009 will be the curation of this collection.

It was with great sadness that we learnt of the death of Mick Cooper, a knowledgable mineralogist and a museum professional. His books *Minerals of the English Lake District: Caldbeck Fells* (co-authored by Dr C.J. Stanley of the Natural History Museum, 1990) and *Robbing the Sparry Garniture, a 200-Year History of British Mineral Dealers* (2007) are authoritative and exceptionally well researched. He had made good use of our specimens, archives and original label albums during his researches, and we were delighted to learn that he had bequeathed his research papers and a collection of mineral dealer labels to the Museum. We were also able to purchase a substantial part of his mineralogical library, which includes a number of important works on topographical and systematic mineralogy. Sorting, cataloguing, imaging and re-storing the label collection began in June with the welcome and very capable assistance of Miss Sarah Beggs on a work experience placement from Cherwell School, and was continued by intern Helen Spiers.

Miss Beggs also assisted Miss Price with the arrangement of a display of winning entries of the Royal Society of Chemistry's schools' crystal growing competition, which were placed on show in the Court over the summer.

Further mineral specimens were transferred from the University of Reading during the year and

Miss Price has continued unpacking, sorting and evaluating the specimens. She attended the Oxford Mineral Show and was presented with minerals by collectors attending the show. We would like to thank all the donors to the collections through the year.

Mrs Irving has continued with the long-term conservation programme for previously ammonia-treated pyritic and related specimens, associated environmental monitoring, and maintenance of the FT-IR spectrometer dessicants. With the purchase of a heavy-duty heat sealer at the end of June, she has started constructing bags made from thick laminate barrier films, which will enable vulnerable pyritic specimens to be stored in oxygen-free micro-environments. This should enable a far longer storage life than is currently achieved using conditioned silica gel. Priority is being given to ammonia-reactive species, and their conservation needs are now being reviewed after a prolonged period of microclimate storage.

Much-needed replacement of the Abraham and Lower Miers Room flooring was carried out in January. This caused considerable disruption, requiring clearance of both rooms. We are grateful for the use of the Arkell Library to enable Mr Ted Smith to continue his work during this time. He has worked on the historic rock collections, researching and updating locality information and investigating geological contexts of specimens. Hub-funded documentation officer Mr André Ashington spent from December to March cataloguing the Historic Rocks Collection, completing nearly 1,500 specimens including the Krantz, Jervis, Coolidge and Gregory, Bottley & Co. collections. The replacement of the display cabinets on the upper north gallery required the temporary relocation of much of the historic rock collections to the Lower Phillips Room. New storage furniture for the lower Abraham Room, which uses existing spare drawers, was designed and costed. This will be installed in the coming year when a one year Hub-funded cataloguing and curatorial assistant will be able to transfer the historic rocks into Mineralogy space again.

Professor David Vincent continued to catalogue the archives until the spring, when he decided that he was no longer able to continue coming to the Museum. We thank him warmly for all the help he has given us over the years since his retirement from the Earth Sciences Department. He catalogued mineralogical apparatus, historic thin sections, photographic glass plate slides, and worked on the MacCulloch rock collection before he embarked on cataloguing our archives. His knowledge of the people and work of the Department in past years, and his ability to read French and German meant he had particular insight into the materials he was working on, and it was a real pleasure having him work with us. Miss Nina Phipps continued to scan Mineral and Geological Collections annual reports until ill-health intervened, but we look forward to her return in the coming year. Mrs Jane Randle has come in weekly to catalogue the historic Daubeny collection of rocks and made excellent progress towards the completion of this task. Miss Lucy Martin continued photographing specimens formerly displayed in the 'crystal properties' and 'minerals and light' displays until she left Oxford at Christmas to begin studies for a PhD.

We would again like to thank all our volunteers for their hard work and huge enthusiasm, helping us progress our various cataloguing projects.

Zoological Collections

The Curator, Dr Kemp presented research papers on the early diversity of therapsids to the Palaeontological Society of Southern Africa; on the evolution of the mammalian brain to the Symposium on Vertebrate Paleontology and Comparative Anatomy in Dublin; and on the 'Cambridge School' of vertebrate palaeontology to a conference in Street, Somerset. He also presented his annual set of six specialist lectures on the origin of mammals in Cambridge, and gave one of the contributions to a day of lectures to school children held in the Museum in celebration of Charles Darwin. During March and April he was on sabbatical leave, working on therapsid evolution in the Bernard Price Institute of Palaeontology of Wits University, Johannesburg. He gave his annual undergraduate series of lectures on the 'Origin and evolution of mammals, fossils and evolution', and 1st year 'Mammals', and continued as Biology Tutor, Tutor for Admissions, and Keeper of Bagley Wood for St John's College.

In the invertebrate section, curatorial work by Dr De Grave and Ms Goulding focused on the crustacean collection. All printed labels in the wet collection were replaced using a more proven archival method, and a

considerable quantity of specimens were added to the collection. Once again a considerable amount of effort was devoted to the backlog of unaccessioned material, which has accumulated as a result of a heavy field work commitment. Routine, but vital, curatorial activities by Ms Conyers, included pest management, environmental monitoring, display monitoring, the ongoing remedial conservation of the wet collection, and accessioning of the backlog of molluscs. Mr Davies continued to assist with the curation of the mollusc collection.

Mrs Nowak-Kemp visited and inspected the vertebrate collections and displays in the Dublin Museum including the large collection of Blaschka glass models of invertebrates. She also visited the hominin collection of the University of Johannesburg. She was asked to provide advice to the Director Dr Francis Thackeray and Collections Curator, Dr Bernhard Zipfel, on conservation and curation of hominid and modern human material.

In the vertebrate section, much use continued to be made of the collections for university teaching, and Mrs Nowak-Kemp organized and managed 19 practical sessions on 6 different topics in the Zoological Collections laboratory, for University of Oxford and Oxford Brookes University courses. The number of students in each session ranged from 7 to 50.

Several curatorial projects running in the vertebrate section were planned and managed by Mrs Nowak-Kemp.

In the Chelonia collection, shells and dry tortoises of Thomas Bell (author of the fifth volume of Darwin's *Zoology of HMS Beagle*) and other collectors were united for the first time with the osteological material. Cupboards were designed and fitted. All specimens, except the very large ones, were moved from their dispersed storage areas to the Zoology Laboratory to be cleaned, checked with the aid of a UV lamp, and re-housed in conservation quality boxes. Spreadsheets were created and the collection was moved the new stores. Work has started on the electronic database and during the year nearly 600 specimens were entered.

The work on data input for the Human Remains collection was completed with the help of a group of three anthropology students cross-checking the collection catalogues' information.

Ms Conyers continued her work in the vertebrate section. She has been developing her expertise of different sections of the Collections by working on three projects involving a range of specimens that require different methods and techniques for their conservation.

Firstly, she continued her work on the dry amphibia and reptile specimens housed in the Tank Room. All specimens were removed to allow new shelving units to be fitted and the room decorated,. The specimens were cleaned using wet and dry methods, and then they were placed in conservation quality museum boxes lined with plastazote to protect them from abrasion. Temporary labels with old identification were attached to the specimens and various electronic lists created to indicate the extent of the holding. Over 550 specimens were processed and arranged in a systematic order in the newly refitted stores.

In her second project, Ms Conyers started inspecting and bagging all the bird skin specimens in the Wilberforce Room as part of an Insect Pest Management programme which was designed and introduced to the vertebrate section three years ago to deal with growing problems of pest infestation. She was trained to apply the protocols for handling, detailed inspection, bagging, primary and secondary freezing, cleaning and documenting the procedures. The collection numbers nearly 20,000 specimens and Ms Conyers dealt with over one third of the specimens occupying over 456 drawers.

The third, new, project was the cleaning of the avian osteological collection. Many of these specimens were not identified or accessioned in the Zoological Collection's catalogues and before taxonomic work could commence, they had to be cleaned. Dry cleaning with conservation-quality brushes was followed by wet cleaning. High-grade deionised water was used to protect the specimens from contamination by foreign DNA etc. So far, Ms Conyers has cleaned well over 400 specimens from the Turner, Wilson, Burchell and other collections.

The vertebrate spirit store project continued with the employment in August 2008 of Ms Kate Pocklington on a one year conservation contract. After a survey of the collection, she agreed an order of work with Mrs Nowak-Kemp. The priority was given to specimens or jars at risk of immediate damage, either because of an inappropriate concentration of the preserving

medium, or because of its low level due to evaporation.

Ms Pocklington started the project with the treatment of the mammalian specimens, marsupials and placentals housed in the first room of the stores. Unfortunately, she was off work for three months on sick leave, but returned to her duties in March, conserving the birds, reptiles and amphibia collections.

The work required ascertaining the pH and concentration of preservative to determine an appropriate treatment plan; the recording of details in electronic format; remedial action, for example a gradual introduction of higher concentrations of preserving fluid until adequate densities are reached, and the replacement of discoloured preservative to prevent further deterioration.

Treatment of badly deteriorated specimens included rehydration, and treating fungal attacks and inadequately fixed specimens. New lids were ground and sealed. Top-up holes were drilled to treat unopened and historically sealed jars, such as those sealed with pig's bladders. Certain specimens were resuspended to retain their historic aesthetic appeal and optimise their display value.

Larger specimens were rehoused in more suitable jars; in particular the specimens of *Thylacine cynocephalus*.

A big part of Ms Pocklington's work was to transfer the many specimens that were kept in big tanks, sometimes up to ten in each, into their individual jars, so they could be much more easily accessed for research or advanced teaching.

So far over 4,000 jars have been conserved and work on the last room housing the fish collection was started at the beginning of July.

Eliana Tacconi completed her E.P. Abraham internship in August 2008, curating and conserving anatomical models. Two internships were run in July 2009. Klara Wanelik carried out curation and conservation of the Tradescant collection, and Felix Day curated and conserved plaster casts of human heads.

Under the training and supervision of Mrs Nowak-Kemp, new volunteers worked on a variety of vertebrate curatorial programmes.

In its 4th year, the annual intensive anti-*Anthrenus* programme was greatly expanded to cover detailed inspection of the mammal skins collection. As a response to a very significant insect pest attack in the early spring, the contents of two display cases in the Court were removed and put into the freezer for a primary freezing of 6 months. Encapsulation of mammal skin specimens in zip lock bags was undertaken and completed. We are grateful to the team of student volunteers, including Leslie Kadane, Eliana Tacconi, Fiona Rowe, Martha Swales, Richard Moore, Julia Eales, and Lilia Benatte, for doing the detailed inspection, primary freezing, cleaning, secondary freezing and returning the mammal specimens to stores.

Equally indispensable was the work of other volunteers. Klara Wanelik, Stewart Jennings and Rosamond Odling-Smee worked on the bird skin collection with Ms Conyers. Curation and listing of dry fish specimens was carried out by Camilla Moeller Holm, John Matkin and Kate Moise, and tortoises were cleaned by Tamara Avada, Iris Droscher, Martina Victoria Anandam, Alice Brindle, Carrie Stengel, Katie Foley and others. Felix Day, Elizabeth Eldridge and Erica Nitsch carried out checking of human remains, and databasing was done by Ishbal Campbell, Kelly Tang and Hannah Byrd. Ros Odling-Smee made casts of hominids. Birds nests were curated by Diane Jones-Parry. Stuart McGuiness and others checked the pH and specific gravity of preserving media in the vertebrate spirit collections.

The Hope and Arkell Libraries

The Libraries were managed with the principal objective of supporting the taxonomic and curatorial work of Museum staff and associated researchers, but also of meeting the needs of students and researchers from other departments, or from outside the University wherever possible. The Librarian aimed to fulfil users' requests and to anticipate future needs. Material for acquisition was selected under the guidance of the curators.

She assisted readers coming to the library in person and remote users wanting information or copies sent to them.

New material was classified and catalogued, journal subscriptions and standing orders maintained, and material for staff acquired by inter-library loan or photocopying. Photocopies of material requested by other libraries were

supplied via the British Library. As usual, journals were sent to an external binder for binding, or books for re-binding. The Librarian liaised with the Paper Conservator over conservation priorities.

During Michaelmas Term, the Librarian attended courses on the 'Oxford Research Archive' and the new Oxford University Library Services' (OULS) e-resources' platform: 'Oxlip +'. Leaflets on these and other changes were circulated to staff. She attended the 'Emergency Response Training Day' at the Pitt Rivers' Museum on 15th October, and assisted at the 'Winter Warmer' event on 28th November. She continued her membership of the History of Geology Group (HOGG) of the Geological Society of London, representing the Museum.

Cataloguing has continued to be the main project other than day to day running of the Libraries.

Three new entomological archives have been listed, boxed and added to the Library: those of Fr A.E. Bean, G.E. Tite and A.W.R. McCrae. The addition of a further 2,340 entomology offprints concluded the cataloguing of those acquired from the former Classey booksellers. Work continued on the retrospective cataloguing on to OLIS of the substantial monographs and original publications stored in the entomology offprints and pamphlets collection. Work commenced on cataloguing the books and pamphlets purchased in 2008 from the executors of the late M.P. Cooper's estate. They are mainly on minerals and mining.

Several exhibitions were laid out in the archive room. Buckland drawings were displayed for members of the Gordon family (descendants of William Buckland) on the 11th August. Their visit followed the unveiling of a blue plaque to commemorate Buckland at the Old Rectory in Islip. The event was attended by several staff members including the Librarian.

A selection from all the archives was put out on 5th March for Sir Hugo Brunner, a member of the Museum's Advisory Group, and again for others members of the Group later in the month.

Similarly, a selection of treasures, including Darwin letters, was put out on 2nd July for the E.P.A. Cephalosporin Fund trustees and left out for Professor Chris Gosden and other members of the Museums' Review Panel to see.

Museum staff and honorary associates of all the Collections have again regularly used the libraries, the entomologists and geologists especially, both in support of their research on the collections and to answer queries sent in to them. This year too, Dr De Grave has been a regular user, carrying out research for his published paper: 'A classification of recent and fossil genera of decapod crustaceans' and compiling, in association with Charles Fransen, a catalogue of valid names and synonyms of shrimps, with a complete bibliography.

Some examples of the way staff have used archives this year are as follows.

Professor Kennedy selected items for the preparation of large posters from published 19th century images of the Museum, for the lecture theatre; he also selected images for use in the 'Darwin 200' anniversary displays, and looked at various historic photographs, some of them newly-purchased, to help plan landscaping of the area in front of the Museum in the context of the Science Area Master Plan.

Mr Mann has been using the archives to find out more about Kirby and Hope type specimens and Dr Pont has used the Westwood archives, and others, for his own research on Diptera or to answer queries sent to him by others.

Ms Simmons has been working on the Asa Fitch material in the Hope Entomological Collections (HEC), which involved looking at the correspondence in the archive between Fitch and Westwood, as they exchanged a lot of letters with lists of what was sent.

Intern, Hannah Macgregor and Nuffield Bursary student Beth Richardson have been using the W.J. Burchell archive to extract data about his insect specimens, to provide more information on the specimen labels. Nuffield Bursary student/ volunteer Steven Williams has been using the Frederick Smith archive to find out more about the man and his collection.

A loan of Lens Aldous' coloured lithograph of a highly magnified head of a flea, with accompanying leaflet was made for the temporary exhibition 'Endless Forms: Charles Darwin, Natural Science and the Visual Arts', staged at the Yale Center for British Art (12th February-3rd May 2009) and the Fitzwilliam Museum, Cambridge (16th June - 4th October 2009).

Material was selected by the organizers and arrangements put in place for the loan, of certain historic photographs of the Museum from our archives, for an exhibition later this year at the De La Warr Pavilion, Bexhill-on-Sea, entitled

'Mind into Matter: Eight Exemplary Buildings, 1834-2009'.

Paper conservator, Mr Hall, reports that he hung two exhibitions: 'Seaweed: science and art' by Stephen Harris and 'Darwin 200'. He made a set of 60 frames which were used for both exhibitions and can be reused in the future.

Mr Hall has continued the conservation programme with work mainly on Buckland and Donovan drawings and items from the archive relating to the history of the Museum building, and he has repaired various books. He continued to act as the Museum's photographer, carrying out work both for Museum staff and to fulfil external requests.

Environmental conditions have been monitored throughout the Museum's display and storage areas and at the off-site store at Nuneham Courtenay, and Mr Hall supplied a monthly report to each of the Collections. He has continued to carry out COSHH assessments for the chemicals used in the Conservation Studio and is Deputy Chemical Officer for the Museum.

Information Technology

The ongoing work of upgrading hardware and software, and supporting users continued. New computers purchased over the last year have run the Vista operating system, and this has required higher levels of user support than usual. Dr Painter has continued to ensure that all Museum computers are protected with anti-virus software, and that staff can all use the external backup system administered by OUCS. IT staff have worked closely with collections staff in specifying and ordering a number of pieces of specialist equipment. These include A3 printers and scanners and a printer for spirit collection labels. This year the University financial system has also required a number of specific updates to be installed by IT staff.

Throughout the year IT staff have continued to update and maintain the Museum website, and Ms Phibbs has re-structured the site to accommodate the addition of fund-raising pages. This was done at the request of Ms Amy Sewell, the Museums' Development Officer.

The number of visits to the Museum website continues to rise with over 1.1 million visits for the year from August 2008 to July 2009.

The Museum Intranet was launched in September 2008. It is an online resource for all Museum staff comprising a series of web pages with administrative information and downloadable resources. The pages are only accessible by Museum staff and include health and safety regulations, the minutes of committee meetings, Museum logos and sickness and absence forms.

From October 2008 Ms Phibbs has represented the University museums' IT staff on the Committee for the Museums and Scientific Collections. This entails co-ordinating the termly IT reports from the four University museums, presenting IT issues at committee meetings, and reporting back to other museum IT staff.

In January IT staff worked with Professor Kennedy proof-reading and preparing display texts for the Museum's Darwin anniversary celebrations. An online 'Darwin diary' was also created - a list of events and related information amalgamated as part of the Darwin 200 anniversary celebrations.

In March IT staff worked with Howard Noble from the Computing Services on a University-wide energy saving initiative jointly organised by OUCS, the Centre for the Environment, and the e-Research Centre. The project has developed tools and advice to support colleges and departments in reducing IT-related electricity costs and greenhouse gas emissions. It was agreed that the Museum was a suitable case study for the project and all users were individually advised on appropriate practices and computer settings to maximise energy saving.

The IT team was heavily involved with the Museum's 'Bug Quest' project, which ran from January to June 2008. Over 40 Oxfordshire primary schools took part this year. Each month insect traps were set in three locations within each school, and the results were entered into spreadsheets in 'Google Docs' – a system set up and maintained by Dr Painter. She also created the web pages to support this project and amalgamated and posted the results on the web on a regular basis.

The University has a rolling programme to install wireless hubs in all departments. These hubs are to provide a service, 'Eduroam', for staff and for members of the wider academic community. In June 2009 IT staff worked alongside network

technicians from the Computing Services to install wireless hubs in three locations within the Museum.

As in previous years, IT staff assisted with the open days for science PGCE students from Oxford University in February, and Oxford Brookes University in May. This year Ms Phibbs gave each group an introduction to the electronic resources the Museum provides for schoolteachers and students.

It was the second summer for the new swifts webcam, and the new cameras and video server have continued to give excellent images of the nesting swifts, both on the screens in the Museum court and online. Health and Safety issues somewhat affected the information available on a week by week basis, but IT staff managed to maintain the online swifts diary for the season.

Work has continued with collections staff on electronic cataloguing projects. Ms Phibbs has worked with Ms Simmons in Entomology on the Wollaston and spider databases, and with Mrs Nowak-Kemp on tortoises and human remains.

Education and Outreach Department

Over the last year the Education Department has seen continued growth and development in all areas. The Darwin bicentenary celebrations have provided the dominant theme for the department, with a full range of special programmes for schools and families.

For most of the year, the Pitt Rivers Museum and the Ashmolean Museum have been closed to the public. In order to allow the University Collections to continue to offer a wide range of events to schools and families during this time, the Education department has run an increased number of activities. Ms Guthrie's post was extended to April 2009 to support these activities, and her post along with those of other education and outreach staff funded under the Renaissance in the Regions programme was, after a prolonged period of uncertainty, further extended to March 2011.

Ms Crook returned from maternity leave in November. Ms Bain has covered for Mrs Todd's maternity leave which began in November. Dr Cheeseman has been appointed as Volunteers and Outreach Assistant. Miss Birch has, following her marriage, become Mrs Griffiths.

This year the education team have attended and given presentations at several national and international conferences. Mrs Griffiths, Mr Jarvis and Mrs Stott all spoke at the University Museums and Collections (UMAC) 8th International Conference in Manchester. Mrs Griffiths spoke about the 'Behind the Façade' project carried out in 2007 and the ways in which the project brought staff and new audiences together. Mr Jarvis spoke about University Museums working in partnership with local conservation groups using the example of 'Oxfordshire Goes Wild'. Mrs Stott spoke about University Museums as motivators for science engagement with secondary school students.

Mrs Stott spoke about teaching evolution at the 6th Biennial Scottish University Museums conference 'The Contentious Museum' in Aberdeen in November.

In December, Mr Jarvis attended a week long course in Munich funded by Comenius. 'School and Science Museum: Cooperation for Improving Teaching, Learning and Discovery' involved a week of lectures, tours and activities at the Deutches Museum in Munich to exchange good practice and investigate the state of educational provision in museums across Europe.

Ms Lloyd spoke about the contribution that scientific collections can make to science education through using a historical perspective to understand how scientists work, at the International Ecsite conference in Milan in June.

Mrs Griffiths presented a case study at the 'Opening Up: Minds and Collections' mental health study day at Surrey History Centre. The case study focused on the work carried out with users of mental health services, particularly the work at Mind at the Mill in Oxford.

Mrs Stott spoke at a science training day for primary teachers on 'Using Insects to bring Science to Life'.

As part of the South East Hub, members of the education department continue to support the SLIME (Science Links in Museum Education) network, which aims to support and encourage museums in the South East to promote science. Mrs Sharon Bristow (SE Hub Learning Manager) co-ordinates the network and has worked

closely with the education team. In October Ms Guthrie demonstrated and spoke about the microfossil practical workshop for KS 4 students. Mrs Stott assisted with the development of a SLIME advocacy publication for teachers and she assisted Mrs Bristow in running a stand at the national ASE (Association of Science Education) conference for teachers in Reading in January. Ms Lloyd also ran a stand representing the Museum at the conference as part of an Oxford Science Group involving the LEA Science Advisory Team, Science Oxford and the Museum of the History of Science.

On July 1st Mr Brooks (on behalf of OUMC) organized and hosted an art conference, to launch a network similar to SLIME called MADNet (Museums Art and Design Network). The aim was to promote excellence in the delivery of art and design education to secondary and post-16 students in museums. Over 60 educators attended from museums and schools in the South East region. It was supported by Mrs Bristow and financed by the 'Renaissance in the Regions' programme.

Much work has been carried out over the past year to re-develop the joint museums' website, which can be found at www.museums.ox.ac.uk. For the first time, the website highlights the work the joint museums' education service, drawing together the fields of art education, family activities, volunteering and community outreach. Members of the public can now access the Family Friendly leaflet online, download secondary art resources, register as a volunteer and view the community outreach programme.

The website also has a wide range of downloadable art resources including worksheets, the Art Teachers' Newsletter, Making Connections and 16 Art Resource packs for art groups. Other online art resources continue to develop with more schools submitting work to the Artefact Student Gallery.

Schools Education

The schools programme continues to be extremely popular and education officer facilitated sessions are frequently fully booked more than half a term in advance.

18,783 UK students have visited the Museum in school groups, an increase of 13% on 07-08, 79% of these students were taught by education officers, (compared to 56% in 07-08).

When international student visits are included, a total of 31,201 school students in booked groups visited the Museum.

The core primary school teaching programme comprising sessions on skeletons, dinosaurs and fossils, rocks and minerals, animal adaptations and insects, and keys and classification continues to be very popular. New sessions this year have included 'Darwin and the Valiant Victorians' and 'Climate Change'. A total of 6,824 primary students received taught sessions in the Museum.

The 'Making Museums' project was run jointly with Pitt Rivers Museum despite its closure. It took place first in October with primary schools in Headington, and then in June with the Blackbird Leys primary schools. This latter project has now been running for six years with the same schools, making it ideal for longitudinal educational research.

The main primary school project for the year was 'Bug Quest'. The project involved 36 Oxfordshire primary schools working with Museum staff to learn more about the arthropods found in their local environment. The project was a collaboration between the Hope Entomological Collections, the IT department and the Education department, with administrative help and funding from the Public Affairs Directorate of the University. Participating schools set special insect traps each month from January until June. They identified the creatures caught, using identification keys provided by the Museum, and entered their results monthly into online spreadsheets. Mr Jarvis ran special 'Bug Quest' sessions for participating schools. At the end of the project in July, children from each school were invited to attend a reception to celebrate the findings. Students brought insect models that they had made and enjoyed a packed morning with insect handling sessions, museum challenges and an excellent lecture from Dr McGavin. He also presented prizes to the schools who had collected most bugs; the overall winner was Sunningwell School.

The number of secondary school students visiting the Museum has continued to rise significantly due in part to the new Key Stage 3 programmes developed by Ms Lloyd, and in part because Ms Guthrie has been teaching extra University Access groups. Education officers gave taught sessions to 7,976 students.

Ms Lloyd has developed a format for a visit for up to 100 KS3 students on a dinosaur theme.

During a 'Dinosaur Day' students explore the stories of early dinosaur discoveries. The theme provides a context to understand the scientific process, particularly the way in which new discoveries and techniques provide evidence for new theories about the prehistoric world. The Dinosaur Days involve talks, practical workshops and problem solving sessions run by education officers and collections staff, as well as teacher and volunteer-led activities based on the displays. In order to accommodate the large numbers of students in small enough groups to provide a high quality teaching experience we have used the Museum lecture theatre and two laboratories in the Earth Sciences Department as well as the Seminar Room and Court.

Workshops include investigating microfossils in a rock sample to date the rock, making plaster casts of trace fossils, a paleobiology challenge to construct a skeleton and an interactive teaching workshop using a range of museum specimens to recreate the Jurassic world. All members of the Museum education staff have been involved in the teaching, and Mr Ashington has regularly run an excellent workshop. Ms Hay created a class set of trace fossil moulds so that all students can make a plaster cast in a workshop.

Although dinosaurs are not explicitly included in the Key Stage 3 science curriculum, the approach is through 'How Science Works' and 'Ideas and Evidence in Science', both of which are key ideas in the new curriculum which teachers need resources to deliver. As a consequence the sessions have been oversubscribed. More than 800 students took part in Dinosaur Days in this academic year over 11 separate visits. Student and teacher evaluation has been excellent.

As part of the Darwin bicentenary celebrations Ms Lloyd and Ms Guthrie ran ten 'In Darwin's footsteps' study days for up to 90 KS4 students. As with the Dinosaur Day format, students had a full day comprising lectures, practical workshops and guided activities in the Museum. Throughout 2009 all secondary school students visiting the Museum for a science themed visit have been given a free copy of 'Darwin: a graphic biography'. This has been made possible thanks to funding from the Richard Dawkins Foundation.

As the majority of secondary school art groups visiting the Museum also visit the Pitt Rivers Museum, the closure of the Pitt Rivers was expected to reduce the number of art groups visiting. However Mr Brooks encouraged schools to combine their visit with one to the Museum of the History of Science, and bookings during the year have been stable. Sketchbook and handling introductions were delivered to 47 school groups covering 1,197 secondary and post-16 art students, some of which were given by Ms Guthrie and Ms Crook who had been co-opted to help deliver these sessions. A series of digital cameras and printers have proved a very useful teaching tool in the Museum, and have been shared by all members of the Education department.

As part of the Darwin bicentenary year celebrations the Museum organized an art competition called 'Birds, Beetles, Barnacles and the Beagle' for KS3-5 students. The aim was to design the plinth which will support a plaque commemorating the Great Debate. Over 50 high quality entries were received from 14 Oxfordshire schools. An exhibition and award ceremony will be held in September.

The department continues to work with initial teacher training courses, both at Oxford University Department of Educational Studies and Oxford Brookes University and has taught over 350 student teachers over the last year.

To mark the start of the year of Darwin celebrations in January, Ms Lloyd organized a study day for teachers on 21st Century Evolution. Five University scientists spoke about contemporary science inspired by Darwin's ideas. Dr Kemp spoke about 'What fossils really tell us about evolution'. Feedback indicated a very enthusiastic response from teachers.

A secondary school science teachers' evening was held in June in partnership with Oxfordshire Independent State School Partnership (OISSP) and Science Oxford. All the local providers of science enrichment activities ran stalls and Ms Lloyd, Mr Jarvis and Mr Mann gave behind the scenes tours. The event was very successful and was attended by over 70 educationalists.

Families

The family programme has been more extensive than usual this year, to compensate for the closure of the Pitt Rivers and Ashmolean museums. We have run 33 days of specific family events in addition to the regular Family Friendly Sunday activities, making a total of 83 days of staffed family activities throughout the year, attended by over 20,000 children. We have also increased the length of time of family activities to reduce overcrowding.

In the Michaelmas term there were two days of insect-themed family activities run with the Hope Entomology Collections, one as part of the Alumni weekend and the other for Oxford Open Doors. In October the half term activity was 'Survival on Planet Earth' to complement the Oxford Inspires' 'Planet Earth' season. The volunteers service also ran a very successful Halloween day with many spiders and bats. In November 'Treasures on Planet Earth' was designed to celebrate the new gemstones display.

The overriding theme for our family events during 2009 has been the Darwin bicentenary. Mr Jarvis took on the costumed role of Darwin for 'Storytelling with Darwin' in January and a full week of 'Galapagos Adventure' in February. In May we ran two days of 'Evolution Solution' and two days of 'Museum masterpiece' (as part of Oxfordshire Artweeks). In June we asked 'What's Bugging Darwin?' and were fortunate to be able to borrow some of Darwin's entomology specimens to base this family event on; children studied the specimens and then made their own museum cabinet with specimens.

During each of the school holidays, special themed trails have been available at all times. During the summer, it was a sensory sea trail with sounds and smells, as well as four days of 'seaside fun' activities. A polar trail was available during Christmas and an egg trail during Easter was accompanied by four days of 'extraordinary egg' activities.

In May the education team supported the Oxfordshire Museum at Woodstock on the opening day of their *Megalosaurus* footprints exhibition. The museum recorded their highest ever visitor figures, with families enjoying making plaster casts and dinosaur masks, or examining a range of our fossils on a handling table.

We remain indebted to our dedicated team of volunteers whose work allows the Museum to run such a large number of excellent family activities. We are also very grateful to Mr Andy McLellan and Ms Melody Vaughan from the Pitt Rivers Museum who helped to staff our half term activities this year despite the closure of their museum.

Community Outreach

Over the past 12 months, Mrs Griffiths has delivered over 150 outreach sessions and facilitated guided tours at all of the University Museums (OUMC) to a wide range of adult and family community groups. These groups have included: Oxford Night Shelter, MIND groups across the county, Family Language, Literacy and Numeracy groups, Oxfordshire Hospital School, Oxford Centre for Enablement, Kidlington Extended Schools, ESOL and Basic Skills groups, Family Centres, Libraries, and the John Radcliffe Hospital

Alongside these regular outreach and museum visits, other projects undertaken this year have included Heritage in Hospitals. Mrs Griffiths put forward OUMC as partners for this Arts and Humanities Research Council (AHRC) funded project, led by UCL. It will investigate the therapeutic and enrichment potential of object handling in hospitals and other healthcare organisations. It will also research and fully evaluate the psychological and physical impact of object handling on patients. Mrs Griffiths has been involved in running specific handling sessions at the Oxford Centre for Enablement. Research Assistants will then collect, analyse and evaluate data obtained from these handling sessions. The final results of the project will be announced in 2010-11.

Following on from work previously carried out by Ms Jude Barrett at the Ashmolean, Mrs Griffiths has taken on the provision of Family Learning sessions at libraries across the county during the Summer Holidays. To tie in with the Summer Reading theme of 'Questseekers', she, and Dr Cheeseman, have delivered 'Explorers and Adventurers' at eleven different libraries across the county. Drawing on collections from all the University museums, these sessions looked at the people who collected the museum display specimens, their lives and experiences.

Volunteering

The majority of volunteers at the museums assist with family activities and public events. Across the University collections, volunteers contributed over 2,700 hours this year on 208 separate family, community and school events. Volunteers gave a total of 1,775 hours of support for 96 events in the Museum of Natural History. This amounted to 238 opportunities which ranged from assisting at the big half term events like 'Survival on Planet Earth' to volunteering at 'Winter Light' and other special events. Volunteers also enjoyed assisting the Museum's education team on 16 of the secondary school science days organized by Ms Lloyd.

The team of Sunday volunteers continued to run Family Friendly events throughout the year. It is their commitment and enthusiasm that makes these days so popular and brings families back time and time again to enjoy them.

A small but significant number of volunteers have found placements helping in the Collections. Over this year, a total of 20 volunteers have supported the work of the Collections giving over 2,000 hours.

Volunteer recruitment is healthy and there are currently 373 active volunteers. Of these, 181 are Oxford University students and staff. The others come from the local population and include young professionals, other students, people seeking work, and retired people. They like the opportunity to get involved with the local community. Those considering working in museums, in science communication, or with children and young people, gain relevant experience in this field. Many also find it helps them build confidence and develop communication skills.

The Volunteers Coordinator has worked with University student volunteers to set up a Museums Volunteers' Society. Members will help with recruitment activities both at Freshers Fair and throughout the year, and provide social opportunities for student volunteers. The Society will start work in the next academic year.

One-off training sessions and the annual volunteers' training course have taken place this year. In October 2008 the Visitors approved a Volunteer Policy which formalises how the Museum recruits and organises its volunteers, including matters relating to child protection and health and safety. It also explains what volunteers in turn can expect from the Museum.

Central Services

Public services

There were 448,704 visitors to the Museum this year, 30,606 more than in 2007-8.

New signage for the Museum of Natural History and the Pitt Rivers Museum was installed in April 2009, incorporating the new Museum logo. It now directs wheelchair users and child buggies to the southwest lift entrance.

Mr Goulbourne joined the weekend front-of-house staff in August 2009.

Exhibitions and events

The permanant exhibition programme continued through the year, managed by the Director and Mr Walsh. Thematic insect displays were completed, and displays of gemstones and local geology are nearly complete. Mammal displays are in hand. A grant of £109,136 was received from the E.P.A. Cephalosporin Fund to replace the historic but unsafe cases housing the British birds display. The existing cases are manufactured with thin display glass requiring the use of exterior unsightly plastic sheeting to provide a level of protection for visitors. The doors being poorly fitting, leave specimens on display particularly vulnerable to *Anthrenus* infestation.

During 2009 we joined in the celebrations for the 200th Anniversary of Charles Darwin's birth. Our temporary exhibition for the year was 'In his own words: a celebration of the life of Charles Darwin (1809-1882)'. It traced the life and work of Darwin, the author of *On the Origin of Species by means of Natural Selection*, through a combination of text and images. The text came from his autobiography published in 1876. The images were assembled from sources in Oxford, Cambridge, the National Maritime Museum at Greenwich and elsewhere. The exhibition opened to coincide with the birthday celebrations on the 12 February 2009. Organised in conjunction with the Institute of Biology, they began with a performance of excerpts from Haydn's *The Creation* performed by Oxford Philomusica in the Sheldonian Theatre. This was followed in the Museum lecture theatre by 'Huxley and Wilberforce revisited', a conversation between Professor Richard Dawkins and Lord Harries of Pentregarth. The debate was mediated by Jeremy Paxman. A reception was followed by a dinner for invited guests. The event was very well received and the debate is available for all to view at www.ox.ac.uk/itunes.

Other temporary exhibitions during the year began in August 2008 with vibrant images by artist John Angus called 'Just Drifting Around', an exhibition about plankton. It explored a microscopic unseen marine world in an exhibition combining science, textiles and digital art. In October the Museum hosted a delightful photographic exhibition by six local amateur photographers. 'Six' ran till the end of November.

In a marked contrast, the next exhibition 'Seaweeds: science and art' depicted seaweeds which had been dried and preserved for scientific research. Drawing on the rich collections in the Oxford University Herbarium, this exhibition by Dr Stephen Harris revealed the diversity and beauty of preserved algae from around the world; perhaps presenting seaweeds in a new light.

In the summer, winning entries for a schools' crystal growing competition organised by the Royal Society of Chemistry (Thames Valley Branch) were displayed in the Museum court.

Events this year repeated the successes of similar themed events in previous years. In November the Museum participated in 'Winter Light', a city-wide late night evening. Our event was 'Into the Wild Woods', based on *The Wind in the Willows*. We were fortunate to be able to borrow wonderful costumes from the River and Rowing Museum in Henley. The evening involved a range of local musicians, craft activities, story telling, object handling and a bar and refreshments. It was attended by over 2,000 people.

This year's 'Wow!How?' family science fair was coordinated by Ms Bain and Dr Cheeseman, and attracted almost 3,000 visitors. Ninety-two volunteer scientists and science enthusiasts filled the Museum with live experiments to educate and entertain children and their families.

The annual event to showcase local conservation and wildlife charities, 'Oxfordshire Goes Wild', was run in March (rather than June) so that the Museum could host two very large events during National Science and Engineering Week. Mr Jarvis co-ordinated the event, which attracted another huge audience of nearly 3,000 visitors. Over 20 local organisations participated with a remarkable range of exhibits. They ranged from a full sized tree from Shotover, to live snakes and bats, and opportunities to examine life in a bucket of soil.

Finance

The University General Board made a grant towards recurrent costs totalling £659,000 with additional support from ASUC Strategy Funding for the replacement of locks, and staff grant funding support. A Minor Works allocation of £14,000 allowed amongst other things, the refurbishment of the entomology collections working area, replacement of tiles, minor redecoration and provision of shelving.

The Museum also made exceptional payments from reserves to fund Collections storage area refurbishment and consumables, digital cameras and a binocular microscope. External support for core activities was provided by the AHRC amounting to £324,000.

Core running costs were again supplemented by trading activity from the shop, and fees from letting and filming. This vital income was boosted for the first time by revenue from student lectures held in our lecture theatre during term time by the Maths and Chemistry Departments. The gross trading activity for the year amounted to £277,571. For the eighth year in succession the Museum received support from the Negaunee Foundation for our core activities. The 08-09 donation of $65,000 brings their total support to £174,790. Donations from the public, augmented by Gift Aid since the introduction in September of envelopes at the main donation box, raised £60,336.

Essential funding for the Education and Outreach activity from the Museums, Libraries and Archives Council's 'Renaissance in the Regions' programme was extended in March 2009 for a further two years until March 2011. It provided £277,941 and enabled the Museum to extend contracts for the education and outreach staff and maintain the current opening hours of the Museum. The uncertainty over the funding beyond March 2011 remains, and the Museum is acutely aware of the anxiety this causes staff and the difficulty it imposes on the planning process.

The Higher Education Active Community Fund (HEACF) gave a grant of £41,234 to fund the Cross Museums Volunteer Coordinator for a final year; this post will be funded by the Hub from the beginning of August 2009. A further grant was also received under the Strategic Commissioning Project, coordinated by the Natural History Museum in London, to fund the secondary schools' programme.

As a result of the success of the internship programme for 2007-2008, the E.P.A. Cephalosporin Fund Trustees agreed to provide a further two years funding for the Museum internship programme. This amounts to £27,635 and enables the Collections to employ students on short-term contracts for specific collections-based projects. The project reports, written by staff and interns, clearly demonstrate the mutual benefit of this initiative. The E.P.A. Cephalosporin Fund also financed temporary exhibitions and permanent displays at the

Museum. The new Darwin and bird displays on the Upper North Gallery will complete the permanent display programme initiated in 1998. Temporary exhibitions will include a display of Chenjiang Fossils, curated by Dr Siveter. An award of £5,250 will allow for the transport and display of the fossils for the first time outside China. A £10,000 grant enabled the museums' Art Education Officer Mr Brooks to coordinate a secondary schools art competition to design a plinth to commemorate the Great Debate of 1860. The award will provided the limestone, and pay for the sculptor to interpret the winning design to create a permanent feature outside the Museum.

Darwin 200 celebrations were also backed by the Van Houten Fund who provided much needed support for both the year long exhibition on the upper galley 'In his own words: a celebration of the life of Charles Darwin (1809-1882)', and for the exhibition planned for 2010 to commemorate the 150th Anniversary of the Museum. A publication 'Acland's Amazing Edifice' will be produced to celebrate both the Museum's anniversary and the 350th Anniversary of the Royal Society. Created and illustrated by Mr Jarvis, it is funded with a Royal Society 'Local Heroes' grant.

Focusing on the collections, the Angus McCrae bequest of £72,725 received in October 2008 has paid for equipment and staffing within the Hope Entomological Collections. An auto-montage system for the production of digital images of small objects was purchased to enable staff to obtain high quality photographs of insects, vital for identification and loans. Cabinets will also be purchased and internships have been funded from this bequest.

Trading activities

The architecture and the displays in the Museum court and gallery, together with the large lecture theatre, attracted conferences, company recruitment evenings, dinners on the gallery, receptions and charity events, and generated almost £67,800 revenue, with some 60 functions held this year. Bookings mostly came directly to the Museum, involving numerous emails and phone calls with Ms Andrews-Speed; just five were introduced by Conference Oxford.

Fixed Point Foundation held a debate with Richard Dawkins and John Lennox entitled 'Has Science buried God?' attended by 500 people in October. A three-day conference for the 19th Eye Complication Study Group (EASDec) was held in the lecture theatre and gallery in May and TED (Technology, Engineering and Design) held a large reception for 600 in July. Three seated dinners were held on the gallery during the year. The annual Oxford Kumon Maths and English awards ceremony was held in November and the Artweeks Forum in May. Regular receptions were held with Keble College for Biomet and PLA (Public Litigation Association). A fundraising evening was held in the court by Maggie's Centre, and 'Young Art Oxford' exhibited their pictures for two days in aid of Cancer Research UK.

The eight 2009 Slade Lectures, given by Professor Richard Thomson on 'Style versus the State: Naturalism and Avant-guardism in Third Republic France, 1880-1900' were held in Hilary Term, and in Trinity Term the five Lyell Lectures were given by Dr Chris De Hemel entitled 'Fragments in book bindings'. Other University memorial lectures were held here for W.F. Warburg, Bernard Tucker, Rodney Porter, Monica Fooks and Dorothy Hodgkin. The lecture theatre continued to be used daily throughout the academic terms for some 382 hours of mathematics and chemistry undergraduate lectures for which, for the first time, we received payment.

It was a busy year for filming at the Museum. A long list of programmes included 'What Darwin Didn't Know', 'The Victorians', 'The One Show', 'Andrew Marr Discovers Darwin', 'Darwin Vs God', and 'The Cell' (all by the BBC); and an advert for Sky nature channel. Charges made for filming provide valuable unrestricted revenue to the Museum.

The Museum's shop also continued to provide a very welcome unrestricted revenue stream as well as being a very popular visitor facility. Although it had been a very tough financial year for the retail industry the shop held its own, with gross sales of £150,519. The net profit for the year was a very healthy £33,929. The busiest months of the year were April 2009 and July 2009 with gross sales of £21,928 and £16,937 respectively.

Throughout the year the shop was staffed by the two full time sales assistants, Ms Puspitasari and Mrs Wright, with part time much valued flexible help from Mr Abinett, Ms Boughton and new assistant Ms Genevieve Moffa. Mrs King, the Museum's accountant, played a considerable role throughout the year in streamlining and

developing systems and ensuring that best practice was adhered to. She also oversaw the updating of the ASTEC software during the year.

The Shop has responded to the Darwin's 200th anniversary celebrations by stocking related books both for adults and children, in addition to diaries and other related merchandise. The shop staff continued to adapt product lines and displays to respond to seasonal changes and Museum initiatives, particularly the free family events.

We thank all the staff connected to the success of the shop, and to our colleagues in the Pitt Rivers next door for their occasional cover. We look forward to working in a more formal collaborative way in the future.

Buildings and maintenance

Investigations into the causes of leakage of the roof, and accurate costings for repairs were carried out through the year by the University's Estates Directorate, funded by a PRAC feasibility study grant of £25,000.

Work began on the decontamination of areas of the former Inorganic Chemistry Department, prior to their transfer to the Museums for the new visitor centre.

Progress on a joint museums' off-site store was further delayed as the Bodleian Library awaited first the outcome of their appeal for a new book depository and then the location of an alternative site. It was felt the museums' needs had changed and doubts were expressed at the suitability of the Nuneham site for the museums' store. ASUC commissioned Halahan Associates to carry out a detailed survey of the space needs of each museum.

Inside the Museum, building maintenance was managed by Mr Burras and routine work was carried out by Mr Johnson.

The huge increase in visitor numbers has placed a heavy burden on the historic floors, and extensive repairs were carried out by contractors to secure loose floor tiles in the galleries and southwest entrance areas. As with the flooring, the main steps take the brunt of our visitor numbers and are showing significant signs of wear. Following a number of falls down these stairs, the Estates Directorate will be replacing the entrance lighting and fitting edge strips to each step.

Good practice dictates that all lock systems should be replaced about every 15 years, and a combination of lost keys and failures of locks due to wear and tear indicated that the Museum's internal lock system required replacement. This work was carried out with ASUC Strategy Funding. Security was also improved with the installation CCTV at selected locations.

Because the emergency lighting had been troublesome for some time, the Estates Directorate replaced the controller and batteries with a refurbished updated unit from the Pitt Rivers Museum. This also enabled the wattage of the bulbs to be increased providing better illumination in the event of an evening evacuation.

The staff common room was redecorated and refurbished, with the replacement of kitchen units, fridge, tables and flooring. ASUC Minor Grants funding was used largely in the Hope Entomology Collections for redecoration, sonic cleaning and repair of blinds, and replacement of flooring tiles, and in Mineral Collections for the replacement of flooring.

Outside, removable bollards were installed at both ends of the access road in front of the Museum. This was to reduce risk of collision between children running onto the lawn, and service vehicles that were observed to drive very fast along the road.

It was noticed that people were removing bark from the Giant Sequoia tree, and the Superintendent of the University Parks warned that this could lead to the tree dying. The University's Estates Directorate erected iron railings around the tree to protect it. Damage to the lawn was made good by the University Parks Department who also carried out repairs to other damaged areas of the Museum lawn.

Environmental Archaeology Unit

A new fieldwork project was begun at Pompeii on the House of the Gladiators. The unusual layout of the house is enabling the investigation of early deposits without damage to the standing ruins. So far, evidence has been found of the ornamental planting of the garden of the house in AD79, and the occurrence of Bronze Age remains beneath prehistoric ash deposits of Vesuvius has been confirmed. A visit was made to the University of Cincinnati excavations at the Porta Stabia, Pompeii, with a view to collaboration on the analysis of biological remains and the early deposits.

First year practical classes and third year Archaeology and Anthropology/MSt Archaeology classes were given in the Museum, making use of the collections. An MSt student undertook a pilot study of biological remains from a Roman sewer at Herculaneum for a dissertation. Students were employed in the Museum during the vacations to sort samples from Herculaneum and Silbury. Professor Robinson continues to serve as Dean of St Cross College.

The Swifts

Following a 'Work area risk assessment' carried out for this area in June 2008, a number of health and safety issues where highlighted as requiring urgent action. These included boarding in exposed floor edging on the first level, highlighting all trip and head bump hazards for when low intensity 'red' lights are used during the nesting season, and providing emergency lighting in case of mains light failure. This work, together with the installation of the remaining new nestboxes, was completed before the return of the Swifts in the early summer. Under new health and safety legislation the tower was considered too dangerous to allow access for parties of visitors. New formal procedures were introduced in which only named staff are allowed up into the tower. All others need specific permission from the Director or Administrator and must be accompanied by an approved member of staff, and a risk assessment must be carried out before each visit.

Mr George Candelin, who has been monitoring the Swifts through the year, reports that the first swifts were reported flying around the Museum tower on 27 April 2009, and by 2 May the first nestboxes had been occupied By late June the breeding birds had been joined by prospecting young birds from elsewhere taking the tower occupancy up to 74 nestboxes.The last fledgling left on 3rd September.

It turned out that 2009 was not a very successful breeding season in comparison to recent years; only 67 chicks were ringed, 19 new adults ringed and a further 23 adults were re-identified. There may be several factors that affected the season, but the most noticeable of these was the wet cold weather in June and July. Nest occupancy was normal but most pairs raised only one chick, some raised two, but only two pairs raised three young; behaviour believed to be weather-related.

The fact that adult birds return to breed in the same box year after year was shown on a number of occasions. An adult with ring number SB91826 from box W2A was first ringed in this same box in July 2000, and has bred in the same box for the past 9 years. Number SB92647 in box N3A has returned to the same box since July 2003. One of the very few birds ringed as a chick that has ever returned to the tower was again recorded this year. SB92686 was first ringed on 19th July 2003 and has been recorded in 2006, 2008 and 2009.

Simonyi Professor for the Public Understanding of Science

Richard Dawkins retired from his academic posting on 30 September 2008. Simultaneously, he stepped down from his 10 year position as The Charles Simonyi Professor for the Public Understanding of Science, presenting his final Simonyi Lecture on 23 October.

He appeared in television, radio, and electronic media interviews, and published numerous newspaper and magazine letters and articles. His work on the Channel 4 documentary 'The Genius of Charles Darwin' won the 'Best TV Documentary Series of 2008' at the British Broadcast Awards.

Appendices

Appendix 1: Visitors of the Oxford University Museum of Natural History at 31 July 2009

The Vice-Chancellor J.A. Hood, BE, M.Phil., Ph.D.
Lord Krebs, MA, D.Phil., FRS (Chairman)
Pro-Vice Chancellor Professor E.G. McKendrick, LLB, MA
The Proctors: Professor M.S. Williams MA, Ph.D; Dr P. Robins, MA, Ph.D.
Professor P.C. England, MA, D.Phil., FRS
Professor R. Fortey, BA, MA, Ph.D., Sc.D., FRS, FGS, FLS
Professor C. Gosden, MA, Ph.D., FSA, FBA
Dr L. Gilmour, MA, Ph.D., FSA, AMA
Professor A.N. Halliday, B.Sc., Ph.D.
Professor P.H. Harvey, MA, D.Phil., D.Sc., FRS
Professor P.W.H. Holland, MA, Ph.D., D.Sc., FRS
Professor J. Michie, M.Sc, MA, D.Phil.
Dr M. O'Hanlon, MA, Ph.D.

Professor W.J. Kennedy, MA, B.Sc., Ph.D., D.Sc., FGS (Secretary)
Dr T.S. Kemp, MA, Ph.D. (in attendance)
Professor D.J. Rogers, MA, D.Phil. (in attendance)
Professor D.J. Siveter, MA (status), B.Sc., Ph.D., FGS (in attendance)
Dr D.J. Waters, MA, D.Phil. (in attendance)

Appendix 2: Staff of the Museum at 31 July 2009

Director: Professor W.J. Kennedy, MA, B.Sc., Ph.D., D.Sc., FGS
Administrator: Ms W. Shepherd, MA (status), B.Sc.
Assistant to the Director: Mr K.L. Walsh, MA, PGCE, FGS

The Hope Entomological Collections

Curator: Professor D.J. Rogers, MA, D.Phil.
Assistant Curator: Mr D. Mann, B.Tec., FRES, FLS.
University Support Staff: Mr J. Hogan, B.Sc., Ms Z. Simmons, B.Sc., Ms S. Hayes, B.Sc.

Geological Collections

Acting Curator: Professor D.J. Siveter, MA (status), B.Sc., Ph.D., FGS
Assistant Curator: Mr P.A. Jeffery
Curatorial Officer: Miss E.A. Howlett, BN
University Support Staff: Mr A. Ashington; Ms J. Hay, BA; Mrs E.J. Irving, BA, M.Sc.
Research Assistants: Dr K.E. Davis, B.Sc., M.Sc., Ph.D.; Dr C.A. Lewis, B.Sc., M.Sc., Ph.D.

Mineralogical Collections

Curator: Dr D.J. Waters, MA, D.Phil.
Assistant Curator: Miss M.T. Price, MA (status), B.Sc., M.Sc.
University Support Staff: Mrs E.J. Irving, BA, M.Sc.

Zoological Collections

Curator: Dr T.S. Kemp, MA, Ph.D.
Assistant Curator: Dr S. De Grave, B.Sc., M.Sc., Ph.D.
Curatorial Officer: Mrs M.B. Nowak-Kemp, B.Sc., M.Sc.
University Support Staff: Ms L. Conyers; Ms L. Goulding, BA; Ms K.C. Pocklington, BA

Hope and Arkell Libraries

Librarian: Ms S.M. Brecknell, BA, Dip.Lib.
Conservator: Mr R. Hall, NDD, B.Tec.

Information Technology

IT Officer: Ms S. Phibbs, BA
IT Assistant: Dr R. Painter, BA, M.Sc., D.Phil.

Education Officers

Head of Education: Mrs J. Stott, BA, PGCE
Secondary School Officer: Ms S. Lloyd, B.Sc., PGCE
Primary School and Family Officer: Mr C. Jarvis, BA, PGCE
Community Officer: Mrs S.J. Griffiths, BA, MA
Art Education Officer: Mr A. Brooks, BA, PGCE
Volunteers Co-ordinator: Mrs J. Todd, M.Sc. (maternity leave)
Volunteers Co-ordinator: Ms F. Bain, BA (maternity cover)
Volunteer and Outreach Assistant: Dr C.J. Cheeseman, MA, Ph.D.
Education Assistants: Ms A.C. Crook, BA; Ms R. Guthrie, MA, M.Phil.

Central Services

Administrator's Assistant and Director's Secretary: Ms K.A. Andrews-Speed
Accounts Clerk: Mrs K. King
Front of House Manager: Mr A. Archer
Deputy Front of House Manager: Mr I. Hussain
Front of House Staff: Mr C. Goulbourne, B.Sc; Mr S. James, MA; Mr Ł. Kowalski
Shop Supervisors: Ms F. Puspitasari; Mrs J. Wright
Shop Assistants: Mr C. Abinett; Ms R. Boughton, BA; Miss G. Moffa, BA
Head of Technical Services: Mr C. Burras
Cabinet-maker: Mr W. Richey
Workshop and maintenance: Mr P. Johnson
Cleaners: Mr C. Abinett; Mr G. Coates

Honorary Associates (Curation)

Mr M. Ackland
Mr J. Cooter, B.Sc.
Mr R. Gabriel
Mr I. Lansbury, M.Phil.
Mr H.P. Powell, MA
Mr P.S. Clasby, BA
Mr J.B. Davies, MA, M.Sc.
Dr J.W. Ismay, B.Sc., Ph.D.
Dr A.C. Pont, MA, D.Sc.

Honorary Associates (Research)

Mrs E.M.H. Cooke, MA
Dr J. Kathirithamby, B.Sc., Ph.D.
Dr G.C. McGavin, MA (status), B.Sc., D.I.C., Ph.D
Mr R. Overall
Mr G. de Rougemont, BA
Professor K.S. Thomson, MA, B.Sc., Ph.D.

Research Units

Environmental Archaeology Unit

Director: Professor M.A. Robinson, MA, Ph.D., FSA

Volunteers and temporary staff

E.P. Abraham Interns

Entomology: Hannah Macgregor (Wadham College)
Entomology: Christopher Michaels (Magdalen College)
Geology: Sean McMahon (St Edmund Hall)
Geology & Mineralogy : Caroline Halstead-Smith (Trinity College)
Geology & Mineralogy: Helen Spiers (Magdalen College)
Mineralogy: Helen Ashcroft (Hertford College)
Zoology: Felix Day (St Catherine's College)
Zoology: Klara Wanelik (St John's College)

Education and outreach services

Education and outreach volunteers are too many to name here individually. We are grateful to them all for giving so much time and unfailing enthusiasm to the Museum over the past year. Both the family programme and collections have benefited greatly from their support. Thank you especially to the Sunday Volunteers Team who have enabled our popular weekly activities for families to continue throughout the year.

The Hope Entomological Collections

Georges Abi Aoun (King Alfred's Community and Sports College); Lucie Bland (University of Oxford); Tom Clare (King Alfred's Community and Sports College); Elisha Clarke (Wallingford, Sixth Form School); Jason Davis; Mareike Dornhege (University of Oxford); Alexandra Embiricos (Cheltenham Ladies College); Ray Gabriel; Miranda Gardener; Jack Gill (King Alfred's Community and Sports College); David Gormley; Brian Harding; Kathryn Harrold (Oxford Brookes University); Peter Hughes (University of Exeter); Rosemiranda Hibbert; Harry Jackson (Magdalen College School); Jessica Law (University of Oxford); Emily Mason (Wychwood School); Zia Mehrabi (University of Oxford); Michael Orchard, Russell Payne (Oxford Brookes University), Sam Pope, Beth Richardson (Oxford High School); Tatiana Solovieva (Wychwood School); Amoret Spooner; William Stevens; Tatiana Solovieva (Wychwood School); Steven Williams (home taught student); Kirsty Wheeler (John Mason School); Sally Wright (Oxford Brookes University).

Geological Collections

Ewan Boyd (The Cotswold School, Bourton-on-the-Water); Daniel Calvo Gonzáles (Universidad de Alcalá); Mark Ebden; Mike Frampton (Chipping Norton School); Carolyn Lewis; Janine Rankin; Leigh Sneade; Ceileigh Syme (University of Oxford); Will Truscott (The Commonweal School, Swindon).

Mineralogical Collections

Mrs Jean Allen; Sarah Beggs (Cherwell School); Miss Lucy Martin; Miss Nina Phipps; Mrs Jane Randle; Mr Ted Smith; Professor E.A. Vincent.

Zoological Collections

Martina Victoria Anandam (Oxford Brookes University); Tamara Avada (Oxford Brookes University); Alice Brindle (Oxford Brookes University); Hanna Byrd (Oxford Brookes University); Ishbel Campbell (Newcastle University); Camille Coudrat (Oxford Brookes University); Felix Day (University of Oxford;

Iris Dröscher (Oxford Brookes University); Julia Eales (University of Oxford); Elizabeth Eldridge (Oxford Brookes University); Katie Foley (Oxford Brookes University); Stewart Jennings (University of Oxford); Leslie Kadane (Oxford Brookes University); Mark McGranaghan (University of Oxford); Stuart McGuiness; John Matkin (Oxford Brookes University); Camilla Moeller Holm (Oxford Brookes University); Kate Moise (Oxford Brookes University); Richard Moore (Oxford Brookes University); Erica Nitsch (University of Oxford); Rosamond Odling-Smee; Fiona Rowe (Oxford Brookes University); Carrie Stengel (Oxford Brookes University); Martha Swales (Oxford Brookes University); Eliana Tacconi (University of Oxford; Kelly Tang (Oxford Brookes University); Klara Wanelik (University of Oxford).

Environmental Archaeology Unit

Imogen D'Arcy (Royal Grammar and Alice Ottley School, Worcester); Sarah Jones (University of Oxford); Flavia Palmer (Rugby High School) and Chris Turner (University of Oxford).

Appendix 3: Finance

General

The University's General Board made a grant towards recurrent costs totalling £659k for the financial year ending 31 July 2009. In addition we received this year's instalment towards recurrent costs from AHRC amounting to £324,000.

Grants awarded and Donations received

This year we again raised considerable amounts through external grants and awards:

For displays and special events:

£109,136	E.P.A. Cephalosphorin Fund	Upper North Gallery Displays
£5,250	E.P.A. Cephalosphorin Fund	Chenjiang Exhibition
£10,000	E.P.A. Cephalosphorin Fund	Dorothy Hodgkin Bust and Plinth
£19,626	Van Houten Fund	Darwin 200 and Museum 150th
£4,000	Richard Dawkins Foundation	Darwin Graphic Novel
£2,500	The Royal Society	Local Heroes Project

Research Funding:

£335,912	NERC	Hertfordshire Lagerstätte Project

Education & Collections Support:

£277,941	Hub (MLA Renaissance in the Regions Programme)	Education, IT, Collections Support
£72,755	Angus McCrae Bequest	Entomology Special Projects
£27,635	E.P.A. Cephalosphorin	Extended Internship Programme
£20,000	PRISM Fund	Entomology Diptera Collections
£41,234	HEACF	Volunteer & Outreach Salary
£20,000	Strategic Commissioning	Secondary school salary support

Museum Core Funds:

£47,101.49	Negaunee Foundation

Entomological Collections:

The Hope Entomological Collections were awarded a PReservation of Industrial and Scientific Material (PRISM) Grant Fund of £20,000 to employ a part-time conservator and a part time technician for the re-curation and re-housing of the historic Diptera (fly) collections of Hope-Westwood and William Burchell. The collections received from the estate of the late Dr Angus McCrae a bequest of £50,000.

Mr Mann received funds to attend the ScarabNet meeting in New York. He was funded by the CanaColl grant to curate the cockroach collections at the Canadian National Insect Collection, Ottawa with Esteban Gutiérrez (Museo Nacional de Historia Naturale, Cuba).

Dr Pont spent one week at the Hungarian Natural History Museum, Budapest, 12-16 January 2009, to study Palaearctic and Oriental species of the shoot fly genus *Atherigona* (Diptera: Muscidae), supported by the EU Synthesys programme. He visited Novosibirsk in Russia, 16 June to 6 July 2009, with the support of an International Travel Grant from the Royal Society. This was for fieldwork in the Altai Mountains, where two weeks were spent at two centres together with Dr Vera Sorokina, the eminent dipterist Dr Anatoly Barkalov, and four black fly workers, Drs Ludmila Petrozhitskaya and Vera Rodkina (Novosibirsk) and Drs Jozef Halgos and Daniela Illesova (Bratislava, Slovakia).

Geological Collections:

Professor Siveter continued, together with colleagues from Leicester, London and Yale universities, and newly appointed OUMNH based colleagues Drs Katie Davis and Carolyn Lewis, the NERC funded £336K research grant on 'Reconstruction of the Herefordshire Lagerstätte biota', a project currently in its first year.

Zoological Collections:

Dr De Grave received funding from various sources, channelled through the Smithsonian Tropical Research Institute for fieldwork in Panama (August 08). He also received funding from Smithsonian Marine Science Network and NSF for fieldwork in Belize (February 09), and for Taiwan (July 09), funding from Taiwanese National Science Council.

Environmental Archaeology Unit:

Professor Robinson received a grant of £350 from the Department of Classics, University of Cincinnati to visit their excavation in Pompeii.

We are very grateful for the support of all our donors and funders.

Appendix 4: Research Projects

The Hope Entomological Collections

As in previous years, Professor Rogers continued his research on infectious disease risk mapping.

Mr Mann continued his work on historic types housed in the collection. He continued his work on the taxonomy and distribution of the British Meloidae and Scarabaeoidea and on the ecology, distribution and taxonomy of World dung beetles (Scarabaeidae: Scarabaeinae), with particular emphasis on the Bolivian, Honduran and Southeast Asian faunas. He visited the Natural History Museum, London and spent one week in the Czech National Museum in Prague as part of his research on the Scarabaeinae.

Mr Mann also continued his work on the taxonomy of Blattaria. He began a collaborative project with Dr F. Ellwood (Research Associate, University Museum of Zoology, Cambridge) on cockroach communities in Bird's Nest Ferns of Borneo.

Mr Hogan continues his part time PhD studies on the evolution of ground beetles, and reviewed manuscripts on ground beetles for researchers and the journal *Zootaxa*. He identified ground beetles from the Santa Barbara Museum, USA, as part of the California Beetle Project, and visited the Natural History Museum, London several times to work on the Coleoptera collections. He continues to develop the use of auto-montage digital photography system.

Ms Simmons began a research project with Dr Mike Wilson (National Museum and Galleries of Wales) on the American entomologist, Asa Fitch (1809-1879) and the true bug types in the collections.

Mr Ackland commenced identification of material in the Museum collections, including unnamed Anthomyiidae from Newfoundland, donated by K. Rognes in 2008. He is also collaborating with Dr Verner Michelsen (Copenhagen) in a revision of species of *Pegomya maculata* group in Western Europe.

Mr Cooter continued his taxonomic studies on Palaearctic Coleoptera: Leiodinae with species new to science to describe amongst loan material

from Siberian Zoological Museum (Russian Academy of Sciences), Novosibirsk and from Professor Michel Perreau, Paris. He met with Dr Z. Švec examining and discussing new species of Leiodinae from East Palaearctic for a future publication.

Mr Gabriel worked on taxonomic re-descriptions of some Central and South American Theraphosidae, and continues his research on the ecology, reproductive husbandry and taxonomy of the Panamanian theraphosinae. He visited the Natural History Museum, London to study material and catalogue the theraphosid collection.

Dr Ismay continued his collaborative research on Palaearctic, Australian and African Chloropidae as well as the surveys, with Mrs B. Ismay, of Diptera in Burnham Beeches NNR. A revision of the Chloropidae of Madagascar has continued in collaboration with Mrs Ismay, Dr F. Menzel (Deutsches Entomologisches Institut) and Dr M. von Tschirnhaus (University of Bielefeld); this study is expected to reveal many species new to science due to the high level of endemism in Madagascar. Dr Ismay and Mrs Ismay continued their collaboration with Dr B. Merz at the Muséum d'histoire naturelle, Geneva on Swiss Chloropidae, and continued their collaboration with RSPB on conservation of invertebrates. They identified Diptera trapped at Richmond Park for the Royal Parks.

Mr Lansbury started a project on the Pleidae of Australia, and continued his research on the Veliidae and Microveliidae of New Guinea.

Dr Pont in addition to a number of solo projects, gave priority to several collaborations: with Dr Neal Evenhuis (Honolulu), Dr Jim O'Hara (Ottawa) and Dr Thomas Pape (Copenhagen) on the Diptera genera described by A.J.B. Robineau-Desvoidy; with Dr Marcia Couri (Rio de Janeiro) on the Muscidae of Fiji, New Caledonia and Vanuatu; with Dr Vera Sorokina (Novosibirsk) and Nikita Vikhrev (Moscow) on Russian Muscidae; and with Dr Constantin Grach (Tel-Aviv) and Dr Najla Dsouli (Montpellier) to describe new species of Muscidae.

Mr G. de Rougemont continues his research on the taxonomy of the rove beetles (Staphylinidae).

Geological Collections

The research of Professor Siveter and colleagues on the Silurian fossils of the Herefordshire Konservat-Lagerstätte continues, with the discovery of new arthropods belonging to several of the major groups, together with a new mollusc and an echinoderm, with soft parts preserved. These will be investigated further and written up over the next 12-18 months. Work on the Herefordshire Lagerstätte was highlighted in an article in *American Scientist*, over 50,000 copies of which were available throughout North American and European outlets. Professor Siveter visited Yunnan University, Kunming, China, to research Lower Cambrian arthropods of the Chengjiang Lagerstätte. This resulted, together with colleagues from Yunnan and Leicester universities, in two publications including one paper in *Science*, on a unique chain of crustacean-like arthropods from this exceptionally preserved Lower Cambrian biota.

Mr Jeffery's work on the earliest record of marine bivalves in terrestrial amber proceeds in co-operation with Dr Eduardo Mayoral Alfaro (Universidad de Huelva, Spain). Following an unsuccessful submission to *Science*, a rewrite for *Palaeogeography, Palaeoclimatology, Palaeoecology* is now underway.

Professor Kennedy completed a number of research projects, the results of which are now in press. These included: a revision of the classic cephalopod fauna of the 'niveau rouge' of the Selva de Bonansa, Huesca Province, northern Spain, in collaboration with Professor M. Bilotte (Toulouse); an integrated study of Cenomanian sequence stratigraphy and sea level fluctuations in the Tarfaya Basin (SW Morocco) with colleagues in the UK, Germany, and Morocco; a taxonomic and morphometric analysis of species discrimination in the ammonite genus *Knemiceras* Von Buch, 1848, with Professor R.A. Reyment (Uppsala), and colleagues at the Natural History Museum, London; further studies of heteromorph ammonites from KwaZulu, South Africa, with Dr H.C. Klinger (Cape Town) and Professor M.V.A. Kakabadze (Tbilisi); a monograph of the Campanian – Maastrichtian inoceramid bivalves from KwaZulu, South Africa, with Professor I. Walaszczyk (Warsaw) and Dr H.C. Klinger (Cape Town); the first part of a revision of scaphitid ammonites from the Upper Cretaceous Pierre Shale and Bearpaw Formation of the Western Interior of North America with colleagues from the American Museum of Natural History, the US Geological Survey in Denver and the Black Hills Institute of Geological Research.

Mineralogical Collections

Dr Waters was engaged in a number of continuing research projects with local and external collaborators:

Metamorphic and microstructural history of the South Tibetan Detachment system in the Everest area, with M.P. Searle (Oxford), J.M. Cottle (UC Santa Barbara), R.D. Law (Virginia Tech), and M.J. Jessup (Knoxville, Tennessee);

Pleistocene melting and rapid exhumation of the Nanga Parbat massif, Pakistan, with J.L. Crowley (Boise State), S.A. Bowring (M.I.T) and M.P. Searle (Oxford);

Pressure-temperature-time paths in the Karakoram Metamorphic Complex, with M.P. Searle, M.J. Streule, R. Palin (Oxford) and R.J. Phillips (Edinburgh);

The Red River – Ailo Shan shear zone system in South-east Asia, with M.P. Searle (Oxford), J.M. Cottle (UC Santa Barbara), M.S.A. Horstwood (NIGL, Keyworth);

Partial melting of restitic xenoliths from the Neogene Volcanic Province of SE Spain, with A. Alvarez-Valero (Granada), L.M. Kriegsman (Leiden) and B. Cesare (Padua);

Nature and origin of the gold deposits at Damang Mine, Ghana, with L.J. Robb and A.J. White (Oxford), a D.Phil project funded by Gold Fields Ltd.;

'Deep into the Subduction Channel', an *Alliance* project (British Council Franco-British Research Partnership Programme) between Oxford University and Université Pierre et Marie Curie (Paris VI) on high-pressure metamorphism in the Alps and elsewhere, involving P. Agard, E. Burov and S. Angiboust (Paris), C-J De Hoog, D.J. Waters, M.P. Searle and A.B. Watts (Oxford).

Miss Price continued research on decorative stones, and particularly on stones quarried in Devon.

Zoological Collections

Dr Kemp commenced a research collaboration on FEA analysis of cynodont jaw mechanics with Professor Chinsamy-Turan and Dr Janoski of South Africa. He signed a contract to write a book provisionally titled *The origin of major new taxa* for Oxford University Press.

Dr De Grave, assisted this year by Ms Goulding, devoted much time to identifying the ever growing collection of Caridea. Although the backlog is not fully cleared, it is estimated that the in-house material amounts to nearly 20% of all known species of Caridea, a not inconsiderable amount after 10 years of externally funded collecting. Other research strands, as usual, focused on the systematics and taxonomy of various shrimp families.

Mrs Nowak-Kemp continued her research into the history of the University's zoological specimens in general and Chelonia material purchased by Reverend Hope from Thomas Bell in particular. She also continued her research into the Human Remains Collection history covering the period from the second part of the nineteenth century until the middle of the twentieth century, including the Van der Kolk pathological collection assessing the various conditions the individual specimens.

Mrs Nowak-Kemp and Ms Pocklington experimented with a range of specialist papers to find the most suitable one for the use in spirit preserved collections. Ms Pocklington has also been researching the method and use of bitumen as a sealant for jars of fluid preserved specimens. The cold application use of the researched bituminous product is a safer alternative to the previous heated technique. By using this method it allows the historic values of the jars to be retained.

Environmental Archaeology Unit

Laboratory work has concentrated on three projects: biological remains from a Roman sewer at Herculaneum, insects from beneath the Neolithic monument of Silbury Hill and insects from organic deposits alongside the Thames estuary at Ebbesfleet. The abundance of olive stones from some of the Herculaneum samples raises the possibility that olive pressings were being used as fuel in the kitchens while the occurrence of mineralised small ungulate droppings suggested that domestic animals were kept in the properties. The results from Silbury show a grassland insect fauna associated with the small mounds which preceded the main structure of the hill. The Ebbesfleet sequence reflected the first agricultural clearances of woodland with a rich fauna of Coleoptera associated with ancient woodland including taxa which are now very rare or extinct in Britain. This was occurring against a background of rising sea level.

The project with the Research Laboratory for Archaeology and the History of Art measuring the stable isotopes of carbon and nitrogen of Neolithic to Roman animal bones from the Thames Valley is beginning to deliver useful

results. It appears that Neolithic pigs had a major component of woodland fungi in their diets whereas in later periods pigs had a diet that was largely plant-based.

Appendix 5: New Acquisitions

The Hope Entomological Collections

By donation

This academic year we received 66 donations of 15,721 specimens. This is far below previous years and is in most part due to the lack of fieldwork by departmental staff.

The most significant donations were:

200 specimens of identified Muscidae from Central Siberian region (from V. Sorokina).

195 specimens of Coleoptera, 7 paratypes of Carabidae, 724 specimens of Palaearctic Coleoptera and Diptera, (from J. Cooter).

88 specimens of Carabidae from the collection of J. Schmidt, including paratypes of 11 species (from J. Cooter).

1200 specimens of pleasing fungus (Endomychidae) beetles (from P. Chechovsky).

2 syntypes of British beetle described by J.H. Keys (from Plymouth City Museum and Art Gallery).

13 specimens of the butterfly genus *Acraea* (Nymphalidae), (from J. Pierre) all new to the collection.

Geological Collections

By donation

Casts of Precambrian trace fossils from Newfoundland (from Mr A. Liu)

Cryptoclidus vertebrae from the Oxford Clay of Charlton-on-Otmoor (from Mr W. North)

Slab with gastropods and bivalves from the Great Oolite of Somerset (from Mr S. McMahon)

Cretaceous ammonites and echinoids from France (from Professor A.S. Gale)

Pliocene molluscs from Italy (from Professor Diego Zancani)

Cenozoic molluscs from Europe and Australia (from Dr D. Long – c. 1,200 specimens)

Miscellaneous material from now-defunct teaching collections of the University of Greenwich, including rare and interesting items from the Upper Chalk of the UK and the Palaeozoic of the United States (c. 1,000 specimens)

By fieldwork

Silurian soft-bodied invertebrates from the Herefordshire Lagerstätte

Frog bone and dinosaur tail vertebra from the Great Oolite of Woodeaton, Oxfordshire

Jurassic invertebrates from Oxfordshire, Buckinghamshire, Gloucestershire and Somerset

Eocene invertebrates from Barton-on-Sea, Hampshire

Eocene foraminifera from Spain

Mineralogical Collections

By donation

(Minerals marked * are new to the collections)

Collection of mainly British minerals of the late Mr C.J.Catch (from Mrs J. Sharman and Mrs F. Shaw)

Portoro marble worked samples with colour slides of the old quarries; samples of Russian decorative stones, (from Mrs E. Clifford)

Research notes on the minerals of the Caldbeck Fells and on British mineral dealers, and collection of dealers labels (bequest of the late Mr M.P. Cooper through his executors Ms C. Foley and Mr D. Hacker)

Items made from English alabaster and decorative stones from Pakistan (from Mr P.C. Ensom)

Rhodochrosite from Somerset (Mr C. Finch)

Vimine breccia from France (from Mr M. Halliday, Grants Marble Works)

Calcioancylite-(Ce)*, edingtonite and harmotome from Highland; epistilbite from Slovakia; and dickthomssenite* with metarossite* from the USA (from Mr N. Hubbard)

Rosso Albania and Turkish breccia polished slabs (from Mr I. MacDonald, McMarmilloyd Ltd)

Calcite 'oriental alabaster' cup (from Mr H.P. Powell)

Italian pietre dure tablet with butterfly design (from Dr J. Preston)

Hemimorphite from Derbyshire (from Mrs J. Randle)

Dolomite var. caymanite from the Cayman Islands (from Professor M. Robinson)

Ilmenite, lithiophorite and magnetite from Gwynedd; magnetite from Anglesey; epidote, prehnite and scolecite from Argyll & Bute; kyanite and staurolite from Angus; ; garnet from Grampian region; and garnet, muscovite and tourmaline from Highland (from Mr R. Starkey)

By purchase

Carved serpentinite rhinoceros from southern Africa; corundum var. padparadscha from Sri Lanka and unlocalised, corundum var. ruby from Burma, and moissonite (synthetic silicon carbide) faceted stones; books from the library of the late Mr M.P. Cooper.

Zoological Collections

Collection of casts of hominins from the Transvaal Museum in Pretoria (from Dr F. Thackeray)

Small collections of bird eggs from various donors.

With the aid of external funding, a considerable number of marine invertebrates from Panama, Belize and Taiwan were added to the collection. Minor acquisitions include marine and freshwater Decapoda from Australia, as well as a steady stream of donations (including type material).

The Hope and Arkell Libraries

Library accessions, by purchase and donation, totalled: 112 books, 30 periodical volumes, and 360 periodical parts. 2,338 pamphlets/offprints were added to the collections and to the *Access* database. This brings the total number of books (titles) and journals (titles) in the libraries to 13,369, with a further 72,868 entomology pamphlets/offprints and 13,870 geology ones (exclusive of discrete collections, such as those of T.M. Harris (5,740 items), M.R. House and Hull University).

There were 121 current journal titles.

A further 1,660 significant pamphlets/offprints, etc. (both new and retrospective) were added on to OLIS during the year, besides the 112 new books and a few special issues of journals, etc. needing an individual record.

By purchase

The following items were significant acquisitions for the archives:

Four photographs, all albumen prints, were purchased from Sanders (High St.), January 2009:

A view of the Museum from the NW (1866);

A view of the Museum from the SW, showing the old Clarendon Physics Laboratory (c. 1880);

A view of the north side of the court, looking east (c. 1880);

A view of the east side of the court, looking north (c. 1880).

The last three are all attributed to Hill and Saunders.

The following were the most significant book purchases by price:

Catalogue of the insect type specimens deposited in China. Vol. 1 (2007)

Grozeva, S. and Simov, N. (2008) *Advances in Heteroptera research*.

Klausnitzer, B. (2009) *Insecta: Coleoptera: Scirtidae*. (Süsswasserfauna von Mitteleuropa, Bd. 20/17)

Krantz, G.W. and Walter, D.E. (ed.) *Manual of acarology*. 3rd ed.

Krupp, F. (ed.) (2009) *Fauna of Arabia*. Vol. 24

Landman, N.H. (et al.) (2007) *Cephalopods present and past: new insights and fresh perspectives*

Neild, A.F.E. (2008) *Butterflies of Venezuela. Part 2. Nymphalidae II*.

Royal Entomological Society (2005-2009) *Handbooks for the identification British insects* [various volumes and parts]

Royal Entomological Society (1998-2008) [*Symposia volumes*], nos. 19-20, 22-24.

Schintlmeister, A. (2008) *Notodontidae* (Palaearctic Macrolepidoptera, v. 1)

Tindle, A.G. (2008) *Minerals of Britain and Ireland*

Topchishvili, M.V. (ed.) (2005) *Atlas rannemelovoi fauny Gruzii = Atlas of early Cretaceous fauna of Georgia*

Zhou, Z. and Zhen, Y. (2008) *Trilobite record of China*.

The most significant journal purchases by price were:

Australian journal of entomology, **48** (2009); *Crustaceana*, **82** (2009); *Invertebrate systematics*, **23** (2009); *Journal of systematic palaeontology*, **7** (2009); *Palaeontographical Society monographs,* [for 2008] (2009); *Palaeontology*, **52** (2009); *Systematic entomology*, **34** (2009)

By donation

The following were significant donations of journals made to the library during the course of the year:

British Dragonfly Society publications for 2008-2009 (Mr D. Mann)

Acta zoologica (Budapest), **54**, suppl. 2 (2008)

Studia dipterologica, suppl. 15-18 (2008-2009);

Zoology in the Middle East, **45** (2008) and **46** (2009) (Dr A. Pont)

Appendix 6: Loans

Hope Entomological Collections

In total 90 loans of 11,025 specimens were made, which comprised 135 types, and 10,890 non-type. 35 and 55 loans were made to UK and overseas researchers respectively.

Geological Collections

Fourteen loans were sent out (12 to the UK, 1 to the Czech Republic, and 1 to the United States). A total of 135 specimens were sent, including microfossils from the Precambrian-Cambrian boundary, Cambrian trilobites, material from the Herefordshire Lagerstätte, and Jurassic and Cretaceous invertebrates. Also, the jaw of *Stereognathus* (a rare Jurassic mammal), which was sent to the Natural History Museum for scanning, and 4 specimens from the Lhwyd Collection, to be included in an exhibition at the National Library of Wales to mark the 300th anniversary of Lhwyd's death.

Mineralogical Collections

There were 8 loans of minerals and meteorites administered in the past year, supplying a total of 82 specimens mainly for University teaching and educational activities. Three samples were supplied for destructive research. Regular use was made of material from Stanton and South African collections in a taught undergraduate course given by Professor Laurence Robb and Dr Waters (Earth Resources 2: Ore-forming processes).

Zoological Collections

Eleven loans of over 80 specimens were made from the vertebrate collections. They included 10 whole articulated skeletons. One of the most interesting loans was made to the Nuffield orthopaedic research team working on the evolution of a knee joint. Over 40 individual bones, articulated limbs or parts of limbs and whole articulated skeletons were moved to the Radcliffe Hospital to be CT scanned. The scanning had to be performed in the evening so not take any valuable time from the NHS patients and as a thank you, the team scanned our *Plesiorycteropus* specimen (a mysterious fossil Aardvark-like creature).

Six requests were made for samples for DNA or collagen analysis involving 49 specimens from the vertebrate collections.

Twenty loans were supplied this year from the invertebrate collections. A particular highlight was the loan of several of the Darwin Crustacea to the Australian National Maritime Museum.

Appendix 7: Enquiry and Identification Services

Hope Entomological Collections

Staff and Honorary Curators have, as usual have provided a free identification and entomological information service to University staff and students, as well as other entomologists and the general public. In total there were over 1,500 enquiries requiring an estimated 600 hours of staff time.

Geological Collections

This year, staff dealt with 495 enquiries, of which 330 were identification enquiries and 165 were other enquiries. The scope of enquiries ranged from discussion of the validity and status of the unique Quaternary bear, *Ursus anglicus*, to images of bird-like fossils in strata in New South Wales, Australia, forms which were best interpreted as artefacts of iron-rich subsurface sediments being exposed by erosion.

Mineralogical Collections

The Assistant Curator dealt with 11 requests for identifications of specimens by members of the public, in excess of 120 specimens, and answered more than 140 other enquiries.

Zoological Collections

The Vertebrate Collections received over 400 enquiries covering topics ranging from the history of individual collectors or collections, individual species and specimens, requests for information about the vertebrate holdings, their care and about the possibility of visiting the collections.

Staff identified 34 specimens brought in by the public and 7 specimens for one of the Oxfordshire Museums. The majority of public enquiries were brought into the Museum and were of an osteological nature; others were identification based on photographic images and verbal descriptions over the phone.

The Invertebrate Collections received no enquiries or requests for identification other than research-related ones about shrimps.

The Hope and Arkell Libraries

There were a total of 103 recorded queries from remote 'users', of which 78 involved exchanges of correspondence or e-mails and 30 reprography in some form. Sixty-eight of the queries related to the archives, of which 50 involved an exchange of e-mails or letters.

The Hope and Arkell are not lending libraries, but the Librarian supplied 8 requests for photocopying mainly via the British Library.

Appendix 8: Official Visitors

Hope Entomological Collections

Over 350 visits were made to the collections by entomological researchers, students and artists. Seventy three of these were of entomological researchers, from home and countries abroad such as Australia, Costa Rica, France, Hungary, Ireland, Russia, USA and Ukraine.

Staff conducted over 50 tours of the department for undergraduate and postgraduates of University of Derby, Oxford Brookes University and University of Oxford and also for various natural history and art groups such as the British Dragonfly Society, British Entomological and Natural History Society, Bournemouth University School of Conservation Sciences, Sutton Trust summer school and the Watlington Environmental Group. The department was visited by several undergraduate students for training in invertebrate identification for their final honour projects. Mr Lloyd Garvey visited the department for training in the identification and mounting of British Coleoptera, for his work on biological recording in Berkshire. Charlotte Kinnear (Oxford) visited the department several times for training in ground beetle identification for an RSPB survey of the Otmoor reserve. Chris Redstall (MSc, Oxford Brookes) made several visits to learn Syrphidae identification for his masters' project. Ivan Wright made several visits to use the British Collections for identification of Oxfordshire Hymenoptera.

The most significant visit from collection researchers include Professor Roland Gerstmeier, Technische Universitaet Muenchen, Germany to study Cleridae; Dr Helen Smith, Australian Museum, Sydney, Australia to study arachnida, Mr Justin Bartlett, University of Queensland, Australia, to study Australian Cleridae, Dr Zoltan Korsos, Hugarian Natural History Museum, Budapest, Hungary to study Myripods, Dr Chris Hamilton, University of Texas, Arlington, U.S.A. to study Theraphosidae, Dr Angel Solis, Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica, to discus student dung beetle projects in Costa Rica. Dr Farnon Ellwood, Research Associate, University Museum of Zoology, Cambridge spent several days conducting research on a collaborative project with Mr Mann on cockroach communities in Bird's Nest Ferns of Borneo. Mr P. Schoolmeesters (Belgium) visited for three days to work on the dung beetle literature digitisation project with Mr Mann. Dr Vera Sorokina from the Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Novosibirsk, visited the Department of Entomology from August to October, to study Russian Muscidae with Dr Adrian Pont. Dr Alexander Shatrovskiy, Kharkiv National V.N. Karazin University, Ukraine spent one month working on his Hydrophilidae beetle research funded by the Oxford Hospitality Scheme. Dr Philip Nyeko Makerere, University, Uganda visited Mr Mann for one week of training in dung beetle taxonomy, identification and specimen curation.

Geological Collections

There were 66 scientific visitors, from the UK, the Czech Republic, Canada, and the USA. Material examined included a variety of Palaeozoic invertebrates; Jurassic ammonites and crinoids; Cretaceous nautiloids; crocodiles; dinosaurs; Cenozoic corals; Pleistocene bones and palaeoliths.

There were 41 other visitors, including 37 individuals in organised parties, and 4 other individuals.

Mineralogical Collections

There were thirteen official visitors to the collections. In addition Collections staff hosted visits by a party of members of the Bath Geological Society, the Open University Geological Society, and by six natural history illustration students and their tutors Rosemary Wise and Barbara McLean.

Zoological Collections

A total of 131 visits were made to the Vertebrate Collections by visitors from a number of countries including: South Africa, Australia, USA, Denmark, France, Japan, Madagascar, Sweden and India.

Additionally, there were a number of organised group visits, including the annual visit of Harvard University students and their teachers, employees from various European branches of HSBC attending an environmental awareness course organised by Earthwatch (twice), attendees of an international conference on mammals, the Ashmolean Natural History Society of Oxfordshire, Human Sciences students and various other organised groups.

16 day visits were made to the Invertebrate Collections by various collaborators and scientists studying material. Ms Shanmin Chen (Hong Kong City University) worked in the section for nearly four months, a most memorable visit.

The Hope and Arkell Libraries

There were 353 visits made to the libraries of which 148 were by Museum staff and honorary curators. There were 137 visits by external visitors. The remaining visits were by non-Museum University staff and students.

Appendix 9: Publications

The Hope Entomological Collections

Ackland, D.M. (2008). Anthomyiidae. *In:* Ziegler, Joachim [editor] Diptera Stelviana. A dipterological perspective on a changing alpine landscape Vol. 1. *Studia dipterologica supplement*, **16**(1), 107-166.

Chandler, P.J., **Ismay, J.W.**, Ismay, B. and Rotheray, G.E. (2008). *Scaptomyza adusta* (Loew, 1862) (Diptera, Drosophilidae) at the Durham University Botanic Garden. *Dipterists Digest* (ser 2), **15**(1), 5-12.

Chen, P-p., Nieser, N. and **Lansbury, I.** (2009). Notes on aquatic and semiaquatic bugs (Hemiptera: Heteroptera: Nepomorpha, Gerromorpha) from Malesia with description of three new species. *Acta Entomologica Musei Nationalis Pragae*, **48**(2), 269-279.

Cooter, J. (2008). Recent records of uncommon Staphylinidae (Coleoptera). *Entomologist's Monthly Magazine,* **144**, 254.

Cooter, J. (2008). New geographical records of Leiodidae (Coleoptera). *Entomologist's Monthly Magazine*, **145**, 105.

Cooter, J. (2008). *Dianous coerulescens* Gyllenhal (Col., Staphylinidae) in Kazakhstan. *Entomologist's Monthly Magazine*, **145**, 106.

Evenhuis, N.L., Pape, T. and **Pont, A.C.** (2008). The problems of subsequent typification in genus-group names and use of the *Zoological Record*: a study of selected post-1930 Diptera genus-group names without type species designations. *Zootaxa*, **1912**, 1-44.

Gabriel, R. (2008). Some notes on the captive care and breeding of *Aphonopelma crinirufum*. J*ournal of the British Tarantula Society*, **23**(3), 75-79.

Gabriel, R. (2008). Mites, artificial incubation and the first successful breeding of a new species of Asian spider. *Exotic Pet magazine*, **5**, 42-44.

Gabriel, R. (2008). *Psalmopoeus reduncus* Karsh 1880, a new species to Panama. *Newsletter of the British Arachnological Society*, **112**, 8–10.

Gabriel, R. (2008). Keeping *Nephila* sp free range in captivity. *Amateur Naturalist,* **7**, 74-79.

Pérez-Miles, F., **Gabriel, R**., Miglio, L., Bonaldo L., Gallon, R., Jacobo Jimenez, J. and Bertani, R. (2008). *Ami*, a new Theraphosid genus from Central and South America, with the description of six new species (Araneae: Mygalomorphae). *Zootaxa,* **1915**, 54-68.

Gallon, R. and **Gabriel, R.** (2008). *Maraca cabocla* (Perez-Miles, 2000) a spider new to the hobby. *Journal of the British Tarantula Society*, **23**(4), 123.

Gabriel, R. (2009). Captive breeding and notes on the colour changes during growth of *Avicularia* sp "*fasciculata*". *Journal of the British Tarantula Society*, **24**(1), 4-11.

Gabriel, R. (2009).Some Spider Observations from a Recent Trip to Panama. *Newsletter of the British Arachnological Society*, **114**, 5-6.

Gabriel, R. (2009). Changes to the nomenclature of some *Grammostola* species in the Natural History Museum Paris (Araneae: Theraphosidae). *Exotiske Insekter,* **73**, 7-13.

Gabriel, R. (2009). Notes on the taxonomic placement of *Eurypelma guyanum* Simon, 1892 and *Eurypelma panamense* Simon, 1892 (Araneae: Theraphosidae). *Journal of the British Tarantula Society*, **24**(3), 87-90.

Gabriel, R. (2009). Darwin's Tarantula. *Journal of the British Tarantula Society*, **24**(3): 90-93.

Haenni, J.-P. and **Pont, A.C.** (2008). Muscidae and Fanniidae (Diptera) from the Alp Flix area (Swiss Alps, Grisons), with special reference to species from the alpine level. *In*: Müller, J. P. and Briner, T. [editors], Schatzinsel Flix. Ergebnisse von Forschungsarbeiten der Jahre 2000 bis 2007. *Jahresbericht der naturforschenden Gesellschaft Graubündens*, **114**, 99-106, 2 figs.

Hayes, L., **Mann, D.J.**, Monastyrskii, A.L. and Lewis, O.T. (2009). Rapid assessments of tropical dung beetle and butterfly assemblages: contrasting trends along a forest disturbance gradient. *Insect Conservation and Diversity,* **2**(3), 194–203

Ismay, J.W. (2008). Memorandum submitted by Dr John Waland Ismay, pp. 317-320. In: *Systematics and taxonomy: follow up 5th report of session 2007-08 report with evidence*. Lord Sutherland of Houndwood (chairman), Great Britain Parliament House of Lords Science and Technology Committee, House of Lords papers 162 2007-08. The Stationery Office.

Ismay, J.W. and Ismay, B. (2009). *Melanochaeta pubescens* (Thalhammer) (Diptera, Chloropidae) new to Buckinghamshire and Oxfordshire. *Dipterists Digest* (Ser. 2), **16**(1), 20.

Kutty, S.N., Pape, T., **Pont, A.C.**, Wiegmann, B.M. and Meier, R. (2008). The Muscoidea (Diptera: Calyptratae) are paraphyletic: evidence from four mitochondrial and four nuclear genes. *Molecular Phylogenetics and Evolution*, **49**, 639-652, 2 figs, 1 table.

Mann, D.J. and **Simmons, Z.** (2008). The Hope Entomological Collections. *Antenna*, **33**(1), 34-38.

Penny, D. and **Gabriel, R.** (2009). Feeding behaviour of trunk-living jumping spiders (Salticidae) in a coastal primary forest in the Gambia. *The Journal of Arachnology*, **37**,113-115.

Pont, A.C. (2008). Muscidae. *In:* Borges, P.A.V., Abreu, C., Aguiar, A.M.F., Carvalho, P., Jardim, R., Melo, I., Oliveira, P., Sérgio, C., Serrano, A.R.M., and Vieira, P. *Listagem dos fungos, flora e fauna terrestres dos arquipélagos da Madeira e Selvagens. A list of the terrestrial fungi, flora and fauna of Madeira and Selvagens archipelagos.* Direcção Regional do Ambiente do Governo Regional da Madeira, Funchal, etc, 334.

Pont, A.C. (2009). 13. Superfamily Muscoidea. Pp. 242-251. *In*: Gerlach, J. [editor], *The Diptera of the Seychelles Islands*. Pensoft, Sofia-Moscow, 431 pp., 3 coloured plates.

Pont, A.C. (2009). 4.3.14. Fanniidae. Pp. 175-177. *In*: Ziegler, J. [editor], Diptera Stelviana. A dipterological perspective on a changing alpine landscape. Results from a survey of the biodiversity of Diptera (Insecta) in the Stilfserjoch National Park (Italy). Volume 1. *Studia dipterologica, Supplement*, **16**, 395 pp.

Pont, A.C. (2009). 4.3.16. Muscidae. Pp. 185-197. *In*: Ziegler, J. [editor], Diptera Stelviana. A dipterological perspective on a changing alpine landscape. Results from a survey of the biodiversity of Diptera (Insecta) in the Stilfserjoch National Park (Italy). Volume 1. *Studia dipterologica, Supplement*, **16**, 395 pp.

Pont, A.C. and Cole, J.H. (2008). Two West European species of *Lispe* Latreille (Diptera, Muscidae), new to the British list, found in England. *Dipterists Digest* (Ser. 2), **14**, 99-101.

Pont, A.C. and Gregor, F. (2008). A new species of the genus *Coenosia* Meigen, 1826 (Diptera: Muscidae) from the Sierra Nevada, Spain. *Boletin de la Asociacion Española de Entomologia*, **32**, 305-313, 12 figs.

Pont, A.C. and **Ackland, D.M.** (2009). The types of Anthomyiidae (Diptera) in the Museum für Naturkunde Berlin, Germany. *Zoosystematics and Evolution*, **85**, 5-56.

Pont, A.C. and Vikhrev, N.E. (2009). A new species of *Fannia* Robineau-Desvoidy (Diptera: Fanniidae) from the Altai Mountains, Western Siberia, Russia. *Russian Entomological Journal*, **17**, 321-323, 1 fig.

Skidmore, P. and **Pont, A.C.** (2008). *Muscina pascuorum* (Meigen, 1826) (Diptera, Muscidae) in Britain. *Dipterists Digest* (Ser. 2), **15**, 20-22.

Thompson, F.C. and **Pont, A.C.** (2008). Systematic Database of *Musca* Names (Diptera): publication date and proper name for the Carrot Rust Fly (Diptera: Psilidae). *Studia dipterologica*, **14**, 269-270.

Werner, D. and **Pont, A.C.** (2008). New results on Diptera predators in the black fly plague areas of South Africa. Pp. 54. *In*: Buda, V. and Petrašiunas, A. [editors], *The 3rd International Simuliidae Symposium, including the 29th meeting of the British Simuliid Group, the 7th European Simuliidae Symposium and EMCA Blackfly working group. Abstract book*. Vilnius, 58 pp.

Geological Collections

Briggs, D.E.G., **Siveter, Derek J.**, Siveter, David J. and Sutton, M.D. (2008). Virtual fossils from a 425 million year old volcanic ash. *American Scientist*, **96**, 474-481.

Hou, X-G., **Siveter, Derek J.**, Aldridge, R.J. and Siveter, David J. (2008). Collective behaviour in an Early Cambrian arthropod. *Science*, **322**, 224.

Hou, X-G., **Siveter, Derek J.**, Aldridge, R.J. and Siveter, David J. (2009). A new arthropod in chain-like associations from the Chengjiang Lagerstätte (Lower Cambrian), Yunnan, China. *Palaeontology*, **52**, 951-961.

Ensom, P.C., Clements, R., Feist-Burkhardt, S., Milner, A., Chitolie, J., **Jeffery, P.** and Jones, C. (2009). The age and identity of an ichthyosaur reputedly from the Purbeck Limestone Group, Lower Cretaceous, Dorset, southern England. *Cretaceous Research*, **30**, 699-709.

Gale, A.S., Voigt, S., Sageman, B.B. and **Kennedy, W.J.** (2008). Eustatic sea level record for the Cenomanian (Late Cretaceous)-extension to the Western Interior Basin, USA. *Geology*, **36**, 859-862, 5 figs.

Kennedy, W.J., King, C. and Ward, D.J. (2008). The Upper Albian and Lower Cenomanian succession at Kolbay, eastern Mangyshlak, southwest Kazakhstan. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre,* **78**, 117-147, 8 pls, 5 figs.

Kennedy, W.J., Gale, A.S., Ward, D.J. and Underwood, C.J. (2008). Early Turonian ammonites from Goulmima, southern Morocco. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre,* **78**, 149-177, 9 pls, 9 figs.

Kennedy, W.J. and Klinger, H.C. (2008). Cretaceous faunas from Zululand and Natal, South Africa. The ammonite subfamily Lyelliceratinae Spath, 1921. *African Natural History*, **4**, 57-111, 31 figs, 9 pls.

Kennedy, W.J. and Klinger, H.C. (2008). Cretaceous faunas from Zululand and Natal, South Africa. The ammonite family Forbesiceratidae Wright, 1952. *African Natural History*, **4**, 117-130, 2 pls, 7 figs.

Kennedy, W.J. and Klinger, H.C. (2008). Hypermorphosis in *Salaziceras*, a Cretaceous ammonite, from Madagascar. *African Natural History*, **4**, 113-116, 2 figs.

Kennedy, W.J. and Bilotte, M. (2009). A revision of the cephalopod fauna of the 'niveau rouge' of the Selva de Bonansa, Huesca Province,

northern Spain. *Bulletin of the Moscow Society of Naturalist, Geological Series*, **8**, 39-70, 8 pls, 3 text-figs.

Klinger, H.C. and **Kennedy, W.J.** (2008). *Mkuzeiella andersoni* gen. et sp. nov. (Cephalopoda, Ammonoidea) from the Albian Mzinene Formation of KwaZulu-Natal, South Africa. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre,* **78**, 179-191, 3 pls, 1 fig.

Mineralogical Collections

Chan, G.H.-N., **Waters, D.J.**, Searle, M.P., Aitchison, J.C., Horstwood, M.S.A., Crowley Q., Lo C.-H. and Chan J.S.-L. (2009). Probing the basement of southern Tibet: evidence from crustal xenoliths entrained in a Miocene ultrapotassic dyke. *Journal of the Geological Society, London,* **166**, 45-52.

Cottle, J.M., Jessup, M.J., Newell, D.L., Horstwood, M.S.A., Noble, S.R., Parrish, R.R., **Waters, D.J.**, and Searle, M.P. (2009). Geochronology of granulitized eclogite from the Ama Drime Massif: Implications for the tectonic evolution of the South Tibetan Himalaya. *Tectonics*, **28**, TC1002, doi:10.1029/2008TC002256.

Love, D. and **Walsh, K.L.** (2009). Geological evidence does not support suggestions of mining in the Nyanga upland culture. *Prehistory Society of Zimbabwe Newsletter*, **140**, 1-6.

Streule, M.J., Carter, A., Searle, M.P., Cottle, J.M., Horstwood, M.S., and **Waters, D.J.** (2008). Quantifying Relationships Between Mid-Crustal Metamorphism and Exhumation-Erosion. A Case Study From the Greater Himalayan Sequence of the Everest-Makalu Massif, East Nepal. *Eos Transactions of the AGU*, **89**(53), Fall Meet. Suppl., Abstract T23C-2046.

Zoological Collections

Anker, A. and **De Grave, S.** (2008). *Zuzalpheus* Rios and Duffy, 2007: a junior synonym of *Synalpheus* Bate, 1888 (Decapoda: Alpheidae). *Journal of Crustacean Biology*, **28**, 735-740.

Ashelby, C. and **De Grave, S. (**2009). A new species of *Palaemon* (Crustacea, Decapoda, Palaemonidae) from West Africa, with a re-description of *Palaemon maculatus* (Thallwitz, 1892). *Zootaxa,* **2085**, 27-44.

Bracken, H., **De Grave, S.** and Felder, D.L. (2009). Phylogeny Of The Infraorder Caridea Based On Mitochondrial And Nuclear Genes (Crustacea: Decapoda). *In*: Martin, J.W., et al, *Decapod Crustacean Phylogenetics*, CRC Press, 281-308.

De Grave, S. (2008). A new species of *Periclimenes* (Crustacea: Decapoda: Palaemonidae) from Guarapari, Espirito Santo, Brazil. *Zootaxa,* **1925**, 14-22.

De Grave, S. and Mentlak, T. (2008). A record of an unusual rostrum in *Palaemon longirostris* H. Milne Edwards (Decapoda: Palaemonidae). *Crustaceana*, **81**, 1403-1406.

De Grave, S. (2009). A further sponge-dwelling species of the *Periclimenes iridescens* complex from the western Atlantic (Decapoda, Caridea, Palaemonidae). *Crustaceana*, **82**, 829-836.

De Grave, S. and Anker, A. (2009). A new species of *Periclimenes* Costa from Utila, Honduras (Crustacea, Decapoda, Pontoniinae). *Annalen des Naturhistorischen Museums in Wien*, **110B**, 139-148.

De Grave, S., Ahyong, S. and Bruce, N. (2009). Editorial. Special Issue on the occasion of the 80th birthday of A.J. (Sandy) Bruce – 50 years of shrimping in the Indo-West Pacific. *Crustaceana*, **20**, 771-773.

Fransen, C.H.J.M. and **De Grave, S.** (2009). Evolution and Radiation of Shrimp-like Decapods: an Overview. *In*: Martin, J.W., et al, *Decapod Crustacean Phylogenetics*, CRC Press, 281-308.

Thomson, K.S. (2008). *A Passion for Nature: Thomas Jefferson and Natural History*. Thomas Jefferson Memorial Foundation and University of North Carolina Press.

Thomson, K.S. (2009). *The Young Charles Darwin: the origin of the Origin*. Yale University Press.

Thomson, K.S. (2009). How Darwin changed art. Review of *Endless Forms*: *Charles Darwin, Natural Science, and the Visual Arts,* Diana Donald and Jane Munro (eds). *The Art Newspaper*, **203**, 49.

Thomson, K.S. (2009). Darwin's Enigmatic Illness. *American Scientist*, **97,** 198-201.

Willerslev, E., Gilbert, M.T., Binladen, J., Ho, S., Campos, P.F., Ratan, A., Tomsho, L.T., da Fonseca, R., Sher, A., Kuznetsova, T.V., **Nowak-Kemp, M.**, Roth, T.R., Miller, W., and Schuster, S.C. (2009). Analysis of complete mitochondrial genomes from extinct and extant rhinoceroses reveals lack of phylogenetic resolution. *BMC Evolutionary Biology,* **9**, 95.

Environmental Archaeology Unit

Campbell, G. and **Robinson, M.** (2009). Plants and invertebrate remains. *In:* Audouy, M. and Chapman, A., eds, *Raunds, the origin and growth of a Midlands village AD450-1500*. Oxford: Oxbow, 222-247.

Levey, T.E., Higham,T., Bronk-Ramsay, C., Smith, N., Ben-Yosef, E., **Robinson, M.**, Münger, S., Knabb, K., Schulze, J., Najjar, M. and Tauxe, L. (2008). High-precision radiocarbon dating and historical biblical archaeology in southern Jordan. *Proceedings of the National Academy of Sciences*, **105**, 16460-16465.

Robinson, M. (2008). Carbonised plant remains, 228-229. *In:* Coles, S., Ford, S. and Taylor, A. An early Neolithic grave and occupation site, and an early Bronze Age hearth on the Thames foreshore at Yabsley Street, Blackwall, London. *Proceedings of the Prehistoric Society,* **74**, 215-233.

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