

PULSE

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News from the Linnean Society of London – A living forum for biology

In March 1835, when returning from Mendoza to Santiago in Chile, Charles Darwin discovered the remains of a petrified forest at Paramillos de Uspallata, north of Mendoza province in the Argentine Precordillera. This is recorded in his book *A naturalist's voyage* (1845) when he wrote:

"In the central part of the [Uspallata] range, at an elevation of about 7,000 feet, I observed on a bare slope some snow-white projecting columns. These were petrified trees, eleven being silicified, and from thirty to forty converted into coarsely crystallised white calcareous spar. They were abruptly broken off, the upright stumps projecting a few feet above the ground. The trunks measured from three to five feet each in circumference. They stood a little way apart from each other, but the whole formed one group. Mr Robert Brown has been kind enough to examine the wood; he says it belongs to the fir tribe, partaking of the character of the Araucarian family, but with some curious points of affinity with the yew."



The Darwin Monument, Argentina; image courtesy Prof Dianne Edwards

The trees have since been called *Araucarioxylon protoaraucana* and are of Triassic age. A photograph and more detailed accounts can be found in Barry Thomas's recent article, Darwin and Plant Fossils (*The Linnean* vol. 25, number 2, 2009). The site was chosen (in 1959) as a suitable place to commemorate 'Carlos Darwin' on the hundredth anniversary of the publication of *On the Origin of Species*. Sadly the monument has since been badly vandalised and it occurred to Mike Bassett (then Keeper at the National Museum of Wales) and me—we have joint research projects in the area with colleagues from La Plata—that its restoration would be an ideal way to celebrate the 200th anniversary of Darwin's birth and to recognise continuing research collaboration between British and Argentine Earth Scientists. The idea was enthusiastically taken up by Dr Carlos Cingolani from La Plata and Dr Ana Maria Zavattieri from Mendoza, whose organising and fund-raising endeavours laid to rest Darwin's contention that 'the happy doom of the Mendozinos (*sic*) is to eat, sleep, and be idle! Thanks to financial support from a number of Argentine institutions, Welsh friends and the British Embassy in Buenos Aires, whose ambassador at

the time just happened to be Welsh, the magnificent monument shown here was erected close to the original and unveiled with great ceremony on 12 February 2009. The event was attended by the President and researchers of CONICET (the *National Research Council of Argentina*), members of various Argentine academies and universities, local dignitaries and even the province's Chief of the Army. The birthday party continued at the Gran Hotel Uspallata where presentations on Darwin in Argentina and were enjoyed almost as much as the excellent local wine!

Recent fieldwork by Dr M. Brea, Dr A. E. Artabe and L. A. Spalletti has produced more fine examples of *in situ* tree trunks and allowed further inferences on the nature of Mesozoic forests and palaeoclimates based on wood characteristics, but the original Darwin discovery still has a special place in our quest to reconstruct the history of life on land.

Professor Dianne Edwards FLS
National Museum of Wales, Cardiff

Message from the Executive Secretary

As you read this, Darwin200 will be almost at an end. Thank you to all who have supported Darwin-related events that we have held at the Society. It is therefore most appropriate that we begin this final issue of 2009, as the first issue began—with an article on Darwin. We are also delighted that, in this special year, our portrait of Darwin by John Collier has been superbly restored (see p. 7 for more details) and that we have been able to incorporate Darwin into activities in our Education Programme (p. 8).

We end this year with another significant anniversary, the 250th birthday of our Founder, Sir James Edward Smith. As we celebrate this occasion, Janet Ashdown and Lucy Gosnay, our Conservators, are cleaning and conserving the specimens held in the Smith Herbarium prior to their digitisation and they are making some interesting discoveries (pp. 4–5). Our volunteers are also uncovering interesting information; see p. 6 for Alan Brafield's article about the return of the Linnean Society Seal, some 90 years ago.

Many thanks to all those Fellows who have returned the Survey circulated with the October issue of *The Linnean*. We will collate all the responses in the New Year and contact you to follow up your suggestions as appropriate. Many people have offered to give talks to local groups which will help to raise the Society's profile; the recent production of *Arcadia* in London's West End (see p. 3) also drew attention to the Society, alongside Sir Joseph Banks.

As we move forward from 2009 (Darwin200) to 2010 (International Year of Biodiversity) may I, on behalf of all the Society staff, send you our very best wishes for Christmas and the New Year.

Ruth Temple



©Leonie Berwick

President's Greeting

I am delighted to report that the work on developing the Tower Rooms continues apace, and these new and refurbished rooms will prove to be a wonderful addition to the facilities in Burlington House. Yet, in order to make this fine facility accessible to all further funds are required for the installation of a lift.

During the course of 2009 we are pleased to say that the extra viewing facility in the Library has been used many times when the Meeting Room is full to capacity and is indicative of the increasing popularity of the Linnean Society's meetings. Finally, I and everyone at the Society should like to wish all Fellows a Happy Christmas and prosperous New Year.

Vaughan Southgate



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Jenny Grundy Cards

The Linnean Society of London is pleased to announce that we will be selling cards in three beautiful designs, generously provided by Jenny Grundy FLS. The cards are on sale from the Society's Rooms in Burlington House on Piccadilly, priced at £1.50 each. The proceeds of these sales will contribute to the installation of a new lift which will make all of the Society's rooms fully accessible for the first time. The Linnean Society continues to seek funding for this development and is very grateful to Jenny for her kind support of this important project.



Annual Contribution: Reminder

A reminder to Fellows who have not yet paid their annual contribution: this was due on 24 May so please do send in your payment as soon as possible. Many thanks.

Back stage with botany and the Linnean Society

"... and to take her on her voyage he has not scrupled to deceive the Admiralty, the Linnean Society and Sir Joseph Banks, botanist to His Majesty at Kew."

—— Lady Croom, *Arcadia*, Act 2, Scene 6

Tom Stoppard's play *Arcadia* (1993), widely acclaimed again after another production in London's West End earlier this year, famously and successfully intertwines both the arts and sciences. Since physics and maths dominate the science, it is easy to overlook the small but pivotal role for botany and the Linnean Society. The play also intertwines events nearly two centuries apart, within which there are fascinatingly intertwined plots too, partly fictitious, and partly based on true history and science. This is all woven together, rather like two soap operas or sitcoms in one, but on an epic tragicomic scale. Central to much of the action is an ambitious and flamboyant present-day academic, Bernard, who believes he has stumbled on evidence that a previously unknown duel led to the poet Byron's infamous but mysterious flight from England in 1809. Bernard fashions fragmentary evidence into a convincing story which he also hopes will lead him to media-don glory. However, almost none of the other characters in the play are convinced, least of all his protagonists, the scientist Valentine and the writer-historian Hannah.

So is Bernard vindicated or deluded? I will try not to reveal too much of the storyline for those who do not know the play, but the critical evidence arises from what earlier in the play seems to be merely an entertainingly scandalous side-plot, 180 years earlier. This develops into a love-lust triangle in which Lady Croom's brother Captain Brice R.N., uses his influence in high places (see quotation above), to get his fellow-male appointed, Banks-like, as a naturalist on his Royal Navy ship, but with no evident naturalist experience. Brice also arranges for him to be accompanied by his promiscuous wife, the object of Brice's desire.

At one level, the limelight given by Stoppard to the Linnean Society is admittedly the brief and inglorious one of being deceived (albeit a long time ago, and in good company) into supporting Brice's distinctly

non-scientific ambitions. Nevertheless, the victim in the triangle at least fulfils the Society's good intentions by going on to make a small botanical discovery in Martinique in 1810. And it is this, a dwarf species of dahlia, which seals Bernard's aspirations by turning out to be the smoking gun of the duelling incident, so crucial to his Byron story. More profoundly though, there are many salutary twists and turns for the scientists, biographers and historians who inhabit the play – and indeed for anyone else whose lives revolve around evidence, discovery and proof. And all this is interspersed between a deconstruction of landscape gardening history, and a centre-stage exploration of the relevance of chaos theory and fractal maths to processes in the natural world, which have helped to earn *Arcadia* so much of its renown. As to why the play is called *Arcadia*, this is yet another thread in this virtuoso play, which I leave those who do not already know, to find out for themselves.

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Sir Joseph Banks

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Lucy Gosnay cleans a Smith specimen

herbarium was purchased by the Linnean Society from his widow. The collection now forms part of the Linnean Society's extensive botanical holdings alongside those of Carl Linnaeus.

Improving access to the collection

The Smith Herbarium project to re-house, conserve, catalogue and digitise the collection is now entering its final stages. The catalogue of the Smith Herbarium, published by the former Executive Secretary of the Linnean Society Spencer Savage in 1963, remains a useful tool for accessing the specimens. The reference numbers Savage attributed to each specimen are still used today and his work forms an important part of the extensive electronic catalogue created in 1999. The new catalogue has for the first time made all the information

The collection

The Smith Herbarium is a collection of 27,185 dried botanical specimens mounted on handmade paper. It was assembled by the founder and first president of the Linnean Society, Sir James Edward Smith (1759–1828). The collection holds specimens Smith collected, those sent to him from botanists around the world, and even incorporates specimens from the herbarium of Carl Linnaeus's son. It is a rare example of a personal herbarium that has been kept in its original state. The sheets contain Smith's notes and many include annotations by later botanists.

The oldest specimen is dated 1708, but most date from the late 1760s to the 1820s. Not only was this perhaps Smith's most prolific collecting period but it was also a time of great global exploration when many of the plants featured in the collection were discovered. As one of the most eminent botanists of his day Smith would have been the ideal candidate to identify these new species whilst incorporating the specimens into his collection. Owing to this the herbarium spans all major plant groups from across the world and contains a large number of type specimens.

Upon Smith's death in 1828 his

contained on the sheets searchable and accessible, including geographical origins and collectors names.

Conservation

All of the 27,185 sheets which make up the herbarium needed treatment. For over 150 years poor storage conditions and inadequate housing had provided little protection from the environment and pollutants from coal fires inside the building and smog outside had caused weakening of the specimens and the paper supports. Due to the extent of the damage the collection was in serious need of repair, cleaning and re-housing in order to guarantee its survival. The historical and scientific significance of the collection was taken into consideration when deciding on a treatment plan for the material. Preservation of the sheets was essential due to the information they held, so a wholesale replacement of the damaged sheets was out of the question. Damage to the sheets and specimens varies hugely and is largely dependent on the type of paper used, the size and fragility of the specimen and the amount of exposure to pollutants. Much of the paper is stained from the chemicals that were used to preserve the

Conservation Smith Herbarium



Helianthus tubaeformis, before treatment



Helianthus tubaeformis, after treatment

plant material but no attempt has been made to remove these as the stains also represent part of the collection's history.

It was decided to remove the surface dirt from each sheet using brushes, smoke sponges and plastic erasers, and to repair any tears to the paper supports using Japanese papers. Loose specimens would

ion of the erbarium

be re-attached using EVA or Methyl Cellulose adhesives or Japanese paper straps, with fragments placed alongside in small paper envelopes. The sheets would then be placed in individual acid-free paper wrappers and stored in new sturdier acid-free genus folders, whereas previously they were housed together in a paper folder. The new genus folders are then placed in Solander-style boxes (an archival quality book-style box) and housed in a purpose built, environmentally controlled herbarium. Treatment can take anything from 15 minutes for a lightly soiled sheet up to three hours for a heavily soiled sheet with many tears and damage to the specimen.

Points of interest

Not all plant species are represented by a dried specimen and occasionally drawings or prints have been used in addition to, or instead of a dried specimen. One such recent discovery was a representation of a member of the genus *Glechoma*. We think this offset print was made from the impression of a specimen and the sheet has then been folded in half to make a second impression, then hand-coloured. We do not know exactly why there is a print of a specimen rather than actual plant material, but it could be due to the rarity of that particular species and could serve as an indication of the good working relationships Smith may have held with his contemporaries in order to obtain such an item. Pencil drawings have also been found, alongside certain specimens. As well as adding historical interest to the specimen this also underlines the working nature of the herbarium, and the typification and identification work that has been carried out over the years.

Another recent find saw the overlap of botany and zoology. Attached to the leaf of a *Phlomis* specimen, collected in 1798 from North Africa, was a snail approximately 1mm wide. Jonathan



Offset print of the genus *Glechoma* © The Linnean Society of London

Ablett, Mollusca Curator at the Natural History Museum, London, was able to identify the snail as a juvenile *Cochlicella* (*Prietocella*) *Barbara* (Linnaeus, 1758).

the reverse. We are so far unsure whether it is a print or if they have been hand drawn, where it may have come from and whether it is a small part of a larger image.

Sometimes the discoveries we make create more questions than they answer. We are used to seeing letters or other papers re-used as labels on the sheets; re-using paper was a common practise in the 18th and 19th centuries as it was relatively expensive. One recent discovery falls into this category—the label on a *Draba cochlearia* specimen sheet has lots of near-microscopic flowers in black ink on



Reverse of label from *Draba cochlearia* specimen

© The Linnean Society of London

The conservation of the herbarium will be finished by mid-2010 with

the digitisation of the specimens completed by the end of the same year. The specimens will then be added to the Society's fully searchable collections online. The aim of this extensive project is to make this invaluable resource accessible to a wider range of people whilst furthering understanding of Smith's collection.

Janet Ashdown and
Lucy Gosnay, Conservators



Cochlicella (*Prietocella*) *Barbara* (Linnaeus, 1758), (x) 40 magnification

Image by Mary Spencer-Jones (NHM, London)

Lost and Found

In November 1802 the Linnean Society asked the College of Arms for a grant of Arms and this was rapidly agreed to. As a result, a meeting of the Council in January 1803 'resolved that a steel seal with the arms of the Society be immediately ordered'. The original seal mysteriously disappeared, presumably stolen.

Over a hundred years later one John Slade, of Worthing, wrote on 10 May 1919 to the Secretary of the Linnean (at that time the redoubtable Dr B. Daydon Jackson) as follows: 'On winding up the estate of an elderly gentleman we found in his possession a beautifully engraved steel die – the seal of your Society. It is in excellent preservation. It would be interesting to know how it passed from your Society, and if there is any value attached to it'.



John Slade replied on 18 June: 'I can assure you the generous gift of two guineas from your Society will be highly appreciated by the committee of the Memorial Fund. I am also pleased to have rescued your seal from a possible abiding place such as a pawn shop, or antique dealer, as one so often comes across strange relics in these places. Please convey my best thanks to your Society'.

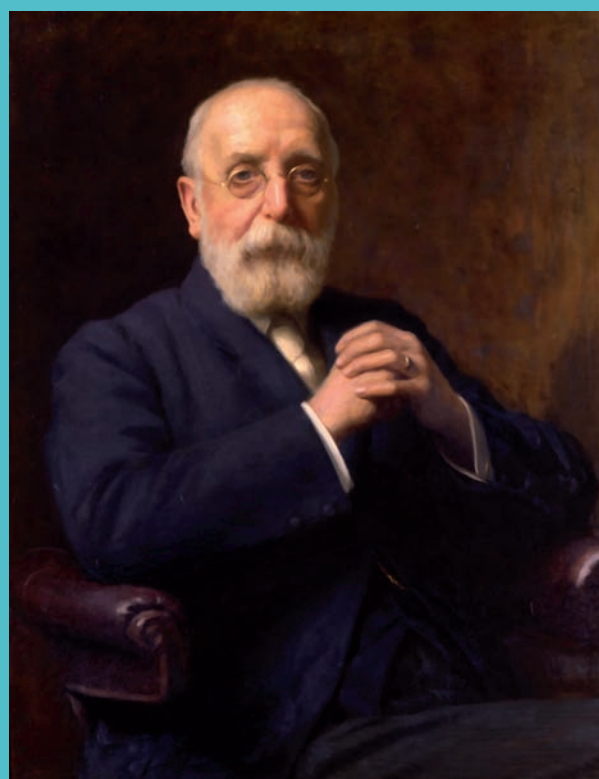


This 'old' seal is now secure in our strongroom and the 'new' 1803 one is also in a safe place.

Alan Brafield FLS

He must have had a prompt reply (though there is no record of it) for he wrote again on 15 May: 'Being an obscure and not particularly proficient naturalist it gives me great pleasure to be the vehicle in finding and returning your original seal. I regret the case is slightly damaged but I suppose that is not to be wondered at after 130 years of use. The poor old fellow from whom I obtained it was past 90 years of age, and quite illiterate. How it came into his possession is as much a puzzle to me as the fact that your Society in the remote past did not take more care of it. I have much diffidence in adding the following – if you consider your Society would like to give a small reward for the find I have a War Memorial church organ fund in hand, but I am not in the least pressing this with anticipation. The fact that it is your property is quite sufficient for me'.

The Council met on 5 June 1919 and among the minutes is the following item: 'Some correspondence with Mr John Slade in regard to the finding of the old Seal of the Society, in use from 1789 – 1803, was laid before the Council, together with the Seal. It was ordered that the thanks of the Council be returned to Mr Slade for this interesting relic, and that a cheque for two guineas be sent to him for application to the War Memorial Fund mentioned by him'.



Dr Benjamin Daydon Jackson

Conservation Corner

Portraits of the Linnean Society

Building work is frequently the reason for conservators to be called in, as was the case with the Linnean Society's Library renovations in 2008, which meant that the portraits of Sir James Edward Smith, Aylmer Bourke Lambert and Daniel Solander could receive attention. Much of what we do is 'house-keeping' or preventative conservation which, although rather unglamorous, is very effective for the long term preservation of paintings. As with many London institutions the city environment is a major enemy; in only ten years an appreciable coating of sooty dirt can build up on the surface of a painting and rolls of dust can collect on the back. During onsite work paintings are surface cleaned with saliva, as with Smith's portrait, and dust is cleaned from the back. Smith's portrait was noticeably brighter after this process, in preparation for the 250th anniversary of his birth in December 2009. The portraits are then re-varnished (if necessary) and re-fitted in the frame with a protective backing to keep the dust from the reverse.



Amanda Paulley and colleague examine the Smith portrait

© Leonie Berwick

This year, being Darwin200, was also an appropriate moment to reassess the condition of the portrait of Charles Darwin by John Collier. The unlined canvas had become extremely weak and, despite edge repairs, had developed a strong and

noticeable buckle. In order to support the canvas the painting had to be lined, which meant that a new canvas was adhered to the reverse of the original. A method of lining, using minimal heat and pressure, was chosen so as to preserve the surface quality of the painting. The removal of a relatively recent waxy varnish considerably improved the clarity of the portrait. It was a genuine pleasure to work on this important portrait which has such historical ties with the Linnean Society and the biological community.

Amanda Paulley,
Paintings Conservator



Working on Darwin

© Amanda Paulley

New Archivist for Smith Correspondence

We would like to warmly welcome Gabrielle St John-McAlister to the team at the Linnean Society. Gabrielle has worked in archives since 2004, previously having been engaged in archival projects at The London Metropolitan Archives, The National Gallery, Wilton's Music Hall and, more recently, as Assistant Archivist at The Royal Opera House.

Gabrielle has joined the Society for the next nine months in order to catalogue the correspondence of Sir James Edward Smith. Smith was in touch with many significant political and scientific figures of his day, but also received letters from schoolgirls, book-agents, nurserymen and gardeners. Major figures such as Sir Joseph Banks, Erasmus Darwin, Humphrey Davy, Elizabeth Fry, Humphrey Repton and W. Henry Fox Talbot were all in correspondence with him.

The Society received a *Research Resources in Medical History* award from the Wellcome Trust to support the creation of an online catalogue for Smith's collection of correspondence; 3,800 letters will be catalogued, preserved and digitised. The correspondence will eventually be added to the Linnean Society's fully searchable online collections.

It is also appropriate to note that Gabrielle has started work on the project in time to coincide with the 250th anniversary of our founder's birth, in December 2009. Gabrielle's enthusiasm and wealth of experience will be a welcome addition to the Smith Correspondence project, which we believe will be another invaluable facility available to historians of science and medicine as well as to anyone interested in the study of natural history.



Gabrielle St John-McAlister

© Leonie Berwick

Education Update

2009 has been a year of progress with regard to the Linnean Society's burgeoning Education Programme. Late in 2008 a working group was set up incorporating people from several areas of education—King's College London, the London Wildlife Trust and Oxford University to name a few. Five main areas of study were outlined: Evolution, Taxonomy, Classification, Biodiversity and Whole Organism Biology. Our goal is to eventually cover all age groups but initially we will be targeting pupils aged 11–18, as well as undergraduate and postgraduate students.

Earlier this year the Society, as a lead partner alongside Westminster Archives, received a grant from the Heritage Lottery Fund for the 'Charles Darwin: A Genius in the Heart of London' project, looking at Darwin's life in Westminster. We have worked with local schools and the community on a number of activities including a tapestry, art project, visits to Down House with the charity Action for Children, an animation, an "opera" devised by pupils and an excellent 'Darwin Debate' for schools held in the Society's meeting room. A Darwin display has been produced by the institutions involved (including the Royal Society, Geological Society, Royal Geographical Society, Zoological Society and Westminster Abbey) which will tour well into 2010. For more information please go to our project website at www.darwininlondon.co.uk.

The Linnean Society has also started a series of student lectures, the first of which was given to a full house by Dr George McGavin in October 2009. His lecture 'To the Ends of the Earth: Exploration & Biodiversity' proved very popular, with comments including "the talk last night was one of the best I have been to in a long time". We hope to build on this great success with further lectures and projects in 2010.



Dr George McGavin, Tavurvur erupting, Rabaul

Did you know . . . ?

Charles Darwin's publisher, John Murray, is located just around the corner from the Linnean Society in Albemarle Street, London. Founded in 1768 on Fleet Street by the first John Murray (1745–93), the company was predominantly a bookseller, though production of their own editions soon started. In 1793 the company produced a nine-volume translation of Buffon's *Natural History of Birds*. In the early 1800s the publisher (now headed by John Murray II) moved location to 50 Albemarle Street, where it produced works by Lord Byron, John Betjeman, Washington Irving and Jane Austen among others. It was in this building in 1824 that Byron's memoirs were infamously burnt in the fireplace. However, it was John Murray III who published *On the Origin of Species* on 24 November 1859. It sold out almost immediately and work began on a second edition right away. Darwin's original manuscript is now held in the National Library of Scotland alongside the rest of the John Murray Publishers archive.



© Leonie Berwick

The fireplace at John Murray

Correction

Dr Azra Meadows FLS received her OBE for services to UK and International Community Relations as part of the Queen's Birthday Honours in June 2008, not the January Honours as quoted in the last issue.

Forthcoming Events 2010

21st January, 6.00pm
(Election of Fellows)

Restoring British Biodiversity: Native Mammal Reintroductions and the Scottish Beaver Trial
Tony King FLS, Scottish Wildlife Trust

18th February, 6.00pm

Thomas Blakiston's line: A Victorian naturalist's early contribution to biogeography
Andrew Davies

11th March,
Day & evening meeting

The commercial exploitation of Thames Chinese mitten crabs. Damned if we don't – damned if we do (Joint meeting with NHM and supported by London Port Health Authority, City of London Corporation)
Paul Clark FLS, NHM

More information about these and all of the Linnean Society's events can be found at www.linnean.org or contact Claire Inman on +44 (0)20 7434 4479 ext. 11, email: claire@linnean.org

All articles welcome! Please submit your articles in electronic format to Leonie Berwick at leonie@linnean.org. Images are also welcome in high resolution format with appropriate permission and copyright.