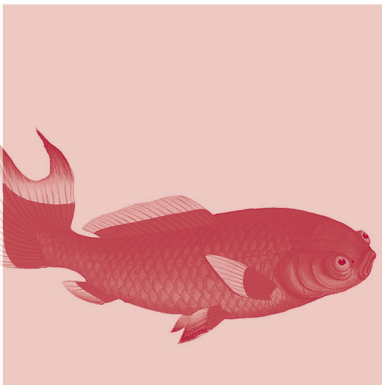
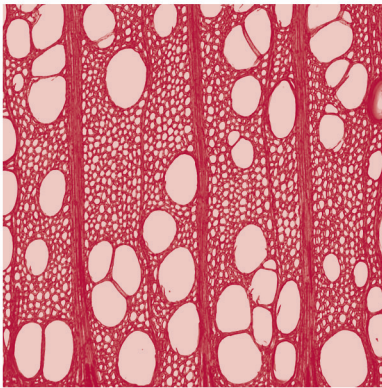




The Linnean



Carl Linnaeus
1707–1778

NEWSLETTER AND PROCEEDINGS OF THE LINNEAN SOCIETY OF LONDON

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A living forum for biology

THE LINNEAN SOCIETY OF LONDON

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Burlington House, Piccadilly, London W1J 0BF
Tel. (+44) (0)20 7434 4479; Fax: (+44) (0)20 7287 9364
e-mail: info@linnean.org; internet: www.linnean.org

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Professor David F Cutler

Vice-Presidents

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THE LINNEAN *Newsletter and Proceedings* *of the Linnean Society of London* Edited by Brian G Gardiner

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Editorial

This issue contains two main articles. The first concerns the wasp moths from Ecuador which belong to the Arctiidae. The article suggests that these moths with their suites of mimetic characters are Mullerian mimics, that have speciated allopatrically. It concludes with the thought that phylogenetic analyses do not always supply such clear cut results!

The second article concerns the Picture Quiz and traces its origins, development and design. It also deals with the form that the prizes have taken and how the clues are formulated to aid in the recognition of the picture, bearing in mind that although we want a winner it is a fine path to tread between having one and the award of half a dozen mugs!

Mention must also be made of the current Picture Quiz which concerns Sir William Bowman, one time surgeon at King's College Hospital, who later moved to The Royal London Ophthalmic Hospital, Moorfields. Although an expert in the use of the ophthalmoscope in the treatment of glaucoma by iridectomy, he is best remembered for his work on the kidney in which he described some six structures which still bear his name, including Bowman's capsule or *capsula glomeruli*.

BRIAN GARDINER

Society News

Former Executive Secretary honoured. The Society was delighted to learn that its former Executive Secretary, Dr John Marsden, has been awarded an MBE in the June 2006 Queen's Birthday Honours. The Society warmly congratulates John on this honour.

The Tercentenary Programme. The momentum is now building up for the Linnaean Tercentenary next year, and several Fellows have asked for news of our plans. Much of the programme is already in place and we have had generous and enthusiastic cooperation from many organisations and individuals. There are myriad events planned but the main ones are:

RHS Chelsea Flower Show. There will be a Linnaean exhibit in the Continuous Learning Zone (21–26 May 2007), and a Linnaean Apostles exhibit at the **RHS Tatton Flower Show** in Cheshire (6–12 July 2007).

Joint Meetings. There will be a series of joint meetings – with the Royal Society, Uppsala University, the Royal Society of Tropical Medicine and Hygiene, Kew Gardens, and the Royal Horticultural Society. There will also be collaborative projects or meetings with the Royal Institution, the Institution of Mechanical Engineers and *Linnaeus's Wake* project, which will include a tour of the replica Swedish East Indiaman *Götheborg III*.

Quite a few of our **evening meetings** in 2007 will have a Linnaean theme, and among the distinguished speakers will be Sir David King and Lord May.

There will also be a series of special events for Fellows including:

- Linnean Society **Christmas Party** to launch the Tercentenary celebrations in December 2006
- a Formal evening on 11th May at the **Liverpool Athenaeum**,
- a **Celebratory Reception** on 23rd or 24th May
- buffet supper with guided tours at the **Royal Botanic Gardens, Kew** on 7th June
- an **Anglo-Swedish excursion** retracing Linnaeus' journey through **Gotland** from 17th – 23rd June (fully booked)
- a tour and evening reception at **Chelsea Physic Garden** on 4th July
- **Tercentenary Conversazione** on 29th September – following in the footsteps of Linnaeus and Dillenius in the **Oxford Botanic Garden**, continuing in the **University of Oxford Natural History Museum** and closing with a buffet supper
- **Christmas Party** to conclude the years' celebrations and events.

Do have a look at our website for all the details.

Development News. The CARLS project is now in full swing with the Linnaean herbarium specimens being digitised at the Natural History Museum, the insect specimens at the NHM's Entomology section in Wandsworth, and the Linnaean letters by our specialist contractors in Bicester. Work is also progressing on the information management requirements of the CARLS project and we are appointing a consultant to review the current systems used by the Society in order to define the IT requirements of the project overall.

Elaine Shaughnessy has now joined us as Head of Development and is doing much to liven up the office. She has already achieved a lot on our website – we hope that you will have noticed the improvements by the time you read this.

Building and Refurbishment Work. I am delighted to report that the refurbishment of the Burlington House Courtyard has been completed. It was a great pleasure to arrive on 5th June and to find that the gates had been replaced on schedule and that all the work on the front railings had been completed. I think that anyone who visits will agree that there has been a huge improvement in how Burlington House looks compared to eighteen months ago, and that the Government's investment in improving its property has been well worthwhile.

However, this section of Society News cannot be closed yet! Over the next few months we shall again be busy with internal refurbishments to the Meeting Room and the Library. This will inevitably involve some disruption, particularly to the meetings programme, and I do ask that you make allowances for any difficulties. We are sure that all the work will be worth it and that we will have a building to be proud of for 2007.

Staff. I have already mentioned that Elaine Shaughnessy joined us at the beginning of May. Just before, we had another new staff member when Victoria Smith took over as our Office Manager. We welcome her and it is good to report that we now have a full and committed team to cope with the challenges of the digitisation projects, building refurbishment and the Linnaean Tercentenary over the next year or so.

Social Events for Fellows. We are sometimes concerned that Fellows do not

have enough information about all that is currently going on here, so we plan to make the development of the Society the theme of this year's **Conversazione** on 30th September. This will give us an opportunity to show you the first results of the digitisation programme and the work being done on the Linnaean letters. The staff and Fellows involved will give short presentations and then Elaine Shaughnessy will talk about the work that she is doing.

As noted above we are also planning a **Christmas Party** on 7th December to launch the Tercentenary Year. It will largely be a social event, but there will be presentations and poster boards on our plans for the Tercentenary.

Evening Meetings. We have continued to have an interesting and well-attended lecture programme over the last few months, the highlight being a joint lecture with the Royal Institution when Professor Roy Anderson gave a masterly presentation to over 250 people on *Plagues and People – Planning for Pandemics*. We are also having several lectures and scientific meetings after the Anniversary Meeting so this year may be a first in that we shall have activities every month. The autumn season will start with a talk on *Lichens in Churchyards* on 21st September, followed by our distinguished Foreign Member, Walter Lack, speaking on *Malmaison* on 12th October.

The Work of the Programmes Committee. The Programmes Committee is one of the committees appointed by Council and is normally chaired by the Zoological Secretary. It meets in May and November to monitor how the year's programme is progressing, to consider proposals for general and scientific meetings during the following year and to approve the schedules. There is regular consultation between the Committee meetings. Committee members are selected to represent a broad cross-section of the Society's interests and are expected to take an active part in helping to arrange meetings and programmes. Contributions from Fellows are always welcome. Please let us know if you have ideas about how the Committee should operate, if you want to propose a meeting or if you would like to be a member of the Committee yourself.

ADRIAN THOMAS
Executive Secretary

The Linnean Society and the National Trust

For more than a quarter of a century the Linnean Society has been able to nominate one of the 52 members of the NT Council. Indeed, the Linn may have been one of the first organisations to provide input in this way. A seat on Council provides scope for getting biological and ecological ideas understood and implemented. The problem with the NT is that it is widely perceived to be all about country houses and their contents, a 'Heritage Organisation', and this is reflected in the Council's membership. Fewer than 5 of the 52 members of Council are professional biologists and such people almost never stand for election, so the problem of bias persists.

This is important because the NT has huge responsibilities for British wildlife. It owns more Sites of Special Scientific Interest than anyone else, it owns many National

Nature Reserves, large parts of the National Parks and most of our key butterfly sites. It manages 700 miles of coastline (including many seabird colonies of national and international importance and many key sites for maritime plants). It owns more deciduous woodland than anyone else, Britain's most species-rich habitat, and also has more than 2,000 tenant farmers, whose activities are crucial to the landscape and vegetation of enormous areas of countryside, especially in the uplands of England and Wales. The Trust also has many gardens of great biological significance, and one of the most popular visitor attractions. Despite all this, its governing Council has few biologists.

The NT spends over £350 million per year, if we can get only 1% more of that spent on wildlife, that would be more than the entire annual budget for most conservation organisations!

The list of organisations that can nominate a member of the NT Council is being revised before new recommendations are put to the AGM in November. The Linnean Society has been 'de-listed'. The Royal Horticultural Society has also been 'delisted'. The proposal is that a slate of 26 suggestions will be put to the November AGM (for 26 places on Council), with a few 'optional extras' added to see if anyone wants them. Many members will just tick the box and elect the 26 suggestions. The result of that will be to remove the Linnean Society from the Council. I shall be stepping down soon as the Linn's representative anyway, having served a full 9-year term, but it seems I will not be replaced by another biologist. Other organisations will be represented instead. I have fought a rearguard action and there may be some adjustment to the list put to the AGM, but there will not be major changes. In any case, it is not clear from our name what the Linnean actually stands for (unlike many of the other bodies listed), so few people will vote for it.

Many Linnean members are also members of the NT. Can I please urge you not to help perpetuate the dominance of the Arts/ Cultural History interest on Council by:

- (a) Voting for the Linnean if I can get it reinstated
- (b) Voting for the Linnean if it is only on the list of 'optional extras'
- (c) Voting for any other wildlife oriented bodies that might be suggested
- (d) Voting for nobody else (unless you specially want to!) so as not to boost their apparent support.

Please DO NOT simply tick the box for the slate of 26 unless the Linn. is on that short list!

PAT MORRIS
March 2006

Library

Report from January to April 2006

Reader and Library use figures for the period from the beginning of January to the end of April 2006 give a total of 246 visitors, of which 129 were Fellows (52%). During that same period 73 books were loaned and 145 books and 33 Journals were consulted in the Reading Room. Enquiries received by e-mail totalled 820, some being

the follow-up to one of the 105 telephone calls for which records were kept.

General Library use included displays for the General Meetings on Echinoids, St George's Day and Shakespeare's birthday on 23 April, with other seasonal displays for St Patrick's Day, St David's Day and the Persian New Year/Spring solstice. Visiting groups included 2 groups of Library staff from the NHM, a small group of botanical artists from Lewisham Arthouse, a group of the Chelsea Florilegium botanical artists and the RHS Lily Group. There have also been a number of Swedish visitors as well as other Tercentenary related visits. The Reading Room has also been in use as a substitute room for Committee meetings while other rooms were being renovated.

We continue to gain much welcome assistance from volunteers, with a brief change in status for Rita Dockery, when we were able to use her skills on a full time basis for a few weeks. Thanks to that input our past Fellows database has now reached the 1890's. Prof. Arthur Bell continued to make excellent progress with portraits records, reaching those for Linnaeus just before a recent illness that kept him from progressing further. Sadly we have just heard that he has died. Jeanne Pingree has now completed listing the papers of J.C. Willis, and these have now been re-boxed and moved into the manuscript cases in the Executive Secretary's Office. Her "contents listing" has already been used to respond to a manuscript enquiry. She has now started work on the Cuthbert Collingwood papers received last year.

Since January most of the other volunteer activity has been concentrated on transferring the manuscripts in temporary storage in a basement Committee Room into new boxes. Enid Slatter, Alan Brafield, and John St Quinton have been in almost every week, checking the contents and re-boxing the manuscripts, replacing old wrappers when necessary with new acid-free folders, removing rusty paperclips and making a note of any special requirements in terms of conservation or special storage. The boxes are being moved, as completed, to the old Linnaean/Smithian cupboards in the Executive Secretary's office and a draft manuscript database in the form of an Excel spreadsheet is being created by the Librarian as part of the labelling process. This work has now almost been completed and the next task will be to re-house the domestic archives of the Society, which are also in temporary storage. Iris Hughes continues to catalogue reprints whenever she is in London. All this means that our manuscript collection is both more accessible and better housed. We are most grateful to all who have helped achieve this.

The coming months will see continued change but plans for refurbishment of the Library Reading Room do not yet have a start date so we cannot yet predict where our usual team of summer students will be working or whether it will be possible to maintain Library services as usual throughout this period. There may also be occasions when our involvement in other activities will mean that no Library staff are available. As far as possible we will try and warn Readers of what is happening so please check on the Society's web site for recent information.

Book sale

The Library will be holding its annual Book Sale after the General Meeting on the evening of Thursday 12th October 2006. As usual Fellows and others are invited to donate to the Library any books they wish to dispose of. These can be on any

subject area and some may be retained to fill gaps in the library holdings or replace defective copies. For this reason we prefer to have any donations received before the event to give us time to check and sort them. This year we have decided to add electronic media such as DVD's, videos and CD's, which will not be sold, to avoid infringing any copyright restrictions, but those wishing to acquire them will be asked to give a suitable cash donation.

GINA DOUGLAS

Donations February – April 2006

We are still absorbing into the Library collections some major additions selected from Book Sale donations. These include a large number of books on the history of evolutionary biology from Dr Joe Cain. We have also collected additional material from Prof. JG Hawkes which will be added to earlier gifts. Prof. GLI Lucas has been bringing into the library a number of wildlife conservation related publications and we have also received a number of gifts from the World Land Trust. None of those donations are listed here as they are still in process of being accessioned, as we need to check carefully with existing holdings. Donations received in the period from February to the end of April 2006 include the following presents to the Library.

American Museum of Natural History: [American Museum of Natural History] *Pearls: a natural history*. [exhibition catalogue, Japan] 189 pp., Tokyo, Tokyo Broadcasting System, 2005.

Dr Hassan Amjad: Amjad, Hassan, *Medical botany of the Eastern United States*. 2 vols., 920 pp. illustr., Beckley, Lulu Press, 2005.

Botanical Society of the British Isles: Braithwaite, M.E., Ellis R.W. and Preston, C.D., *Changes in the British Flora 1987–2004*. 382 pp., col. illustr., maps, London BSBI, 2006. ISBN 0-901158-34-8.

Brooklyn Botanic Garden: Hanson, Beth, ed., *Designing a herb garden*. 120 pp., (BBG Handbook no. 179) New York, Brooklyn Botanic Garden 2004. ISBN 1-889538-63-9.

Burrell, C. Colston & Herdman, Lucy, *Intimate gardens*. 120 pp., col. illustr., (BBG Handbook No. 180), New York, Brooklyn Botanic Garden, 2005. ISBN 1-889538-65-5.

Douglas, Gina: Colquhoun, K., *A thing in disguise: the visionary life of Joseph Paxton*. 306 pp. illustr. some col., London, Harper Perennial, 2004. ISBN 0 00 714354 0.

Continenza, Barbara, ed., *Darwin: l'arbre de vie*. Special issue, Les Génies de la Science, 94 pp., col. illustr., Paris, Feb-May 2004.

Dr Keith Farrer: Farrer, Keith, *William Carey: missionary and botanist*. 156 pp. Kew, Vict. Carey Baptist Grammar School, 2005.

Dr John Feltwell: Feltwell, John, *Bumblebees*. 58 pp. col. illustr., Battle, Wildlife Matters, 2006. ISBN 0-907970-03-06.

Lisa Gee: Stott, Rebecca, *Duchess of Curiosities: the life of Margaret, Duchess of Portland*. 44 pp., Welbeck, Pineapple Press for the Harley Gallery, 2006.

Geological Society: Bowden A.J. *et al.* eds., *History of Paleobotany: selected essays*. 304 pp., London Geological Society (Special Publication No 241) 2005. ISBN 1-82639-174-2.

Grant Museum of Zoology, University College London: Parker, Sarah E., *Robert Edmund Grant (1793–1874) and his Museum of Zoology and Comparative Anatomy*. unpagged, [London] Grant Museum of Zoology, 2006. ISBN 0-9552191-0-8.

Dr Alan Hamilton: Cunningham, A., Campbell, B. & Belcher, B. eds., *Carving out a future*. 293 pp., London, Earthscan, 2005. ISBN 1-84407-045-X.

Hamilton, A. & Hamilton, P., *Plant conservation*. 324 pp. London, Earthscan, 2006. ISBN 1-84407-083-2.

Martin, G., *Ethnobotany*. 268 pp. London, Chapman & Hall, 1995. ISBN 0-412-48370-X.

Shanley, P. [*et al.*], *Tapping the green market*. 456 pp., London, Earthscan, 2002. ISBN 1-85383-810-1.

Prof. Inga Hedberg: *Species Plantarum 250 years* (Conference publication) 219 pp., Uppsala, Uppsala University, 2005. (*Symbolae Botanicae Upsaliensis* Vol. 33:3).

Dr John Howells: Howells, John, *Clematis: the Montanas a book for gardeners*. 215 pp., illustr. some col., map, Woodbridge, Antique Collector's Club, 2005. ISBN 1-870673-51-4.

Prof. Bengt Jonsell: Rudbeck, Olof, *Little book of flowers*. 43 pp. Uppsala, Uppsala University Library, *Bibliothecae Regiae Universitatis Upsaliensis* Vol. 9 2000. ISBN 91-85092-57-6.

Rob Kessler: Kessler, Rob, *Pollinate: encounters with Lakeland flowers*. 96 pp. col. illustr., Ambleside, Grizedale Arts, 2001. ISBN 0-952-5450-39.

Prof. H. Walter Lack: Lack, Hans Walter, *Florilegium Imperiale: botanical illustrations for Francis I of Austria*. 303 pp., col. illustr., Munich, Prestel, 2006. ISBN 3-7913-3492-1.

Christophe Lebourg: Duris, Pascal, ed., *Linné: classer la nature*. 118 pp., illustr. Special issue of *Les Génies de Science*, Paris, Feb-May 2006.

Dr E.C. Nelson: Attis, D. & Mollen C., eds., *Science and Irish Culture: why the history of science matters in Ireland*. 174 pp., illustr., Dublin, Royal Dublin Society 2004. ISBN 0 86027 047 5.

Osborne, Bruce & Jones, Michael, eds, *Understanding the Burren*. Special Issue of *Biol. & Evol. Proc. Roy. Irish Acad.* Vol. 103B no. 3, October 2003. pp. 111-201. ISSN 0791-7945 (together with a number of older parts of *Proc. Roy. Irish Acad.* on the Burren and Clare Island).

TRAFFIC International, *On stony ground: an investigation into the trade in water-worn limestone...* 12 pp. Cambridge, TRAFFIC, 1999.

Herries Davies, Gordon, *The history of Irish Science: a select bibliography*. Dublin, Royal Irish Academy, 1st ed. 13 pp., 1983, 2nd ed. 19 pp., 1985.

White, James & Doyle, Gerard, *The vegetation of Ireland: a catalogue raisonnée*. Offprint from the *J. of Life Sci.* Royal Dublin Society, Vol. 3, 1982.

New York Botanic Garden: New York Botanic Garden, *Dutch watercolours: the heritage of the Leiden Botanic Garden* (exhibition catalogue) (12 p.) illustr. New York, New York Botanic Garden, 2006.

Royal Botanic Gardens, Kew: Dransfield, John & Patel, Meesha, *Rattans of Borneo: an interactive key*. CD-ROM Kew, RBG, 2005. ISBN 1-84246-097-8.

Savolainen V. [et al.] eds., *DNA and tissue banking for biodiversity and conservation: theory, practise and uses*. 151 pp., Kew, Kew Publishing, 2006. ISBN 1-84246-119-2.

Thulin, Mats [ed.], *Flora of Somalia*, Vol. 3, 626 pp., Kew, Royal Botanic Gardens, 2006. ISBN 1-842446-099-4.

University of Murcia: Guerra, J. & Cros, R.M., *Flora Briofítica Ibérica* Vol. III Pottiales Encalyptales. 305 pp. illustr. Murcia, Univ. de Murcia, 2006.

Dr C. Violani: Siviero, Monica & Violani, Carlo, *Paolo Magretti: naturalista ed entomologo* (exhibition catalogue). 63 pp. illustr. some col., Pavia, Comune di Paderno Dognano, 2006.

Prof. J.T. Williams & ICUC: Kengue, J., *Safou* 147 pp, Southampton, International Centre for Under Utilised Crops. 2002. (*Fruits of the future*, 3). ISBN 0854327649

Sidibe, M. & Williams, J.T., *Baobab*. 96 pp. Southampton, International Centre for Under Utilised Crops. 2002. (*Fruits of the future*, 4). ISBN 0854327762.

Pinto, A.C. de Q. [et al.], *Annona species* 263 pp., Southampton, International Centre for Under Utilised Crops. 2005. (*Fruits of the future*, 5). ISBN 0854327651.

Azurdia, C., *Tres especies de Zapote en América Tropical*. 216 pp., Southampton, International Centre for Under Utilised Crops. 2006. (*Fruits of the future*, 6). ISBN 0854328416.

Tchoundjen, Z. & Atangana, A., *Ndjanssang*. 74 pp., Southampton, International Centre for Under Utilised Crops. 2006. (*Fruits of the future*, 7). ISBN 0854328424.

Mwamba, C.K., *Monkey orange*. Southampton, International Centre for Under Utilised Crops. 2006. (*Fruits of the future*, 8). ISBN 0854328416.

Dr Joseph K.L. Yip: Hu, Shiu-Ying, *My story with Hollies, with a taxonomic treatment on the Aquifoliaceae of Hong Kong*, 60 pp., col. illustr., Hong Kong, Friends of the Country Parks, 2005. ISBN 988-211-320-6.

Hu, Qi-ming (and others), *Rare and precious plants of Hong Kong*. 229 pp., col. illustr., (text in Chinese and English), 3rd revision, Hong Kong, HKSAR Government Agriculture, Fisheries and Conservation Department, 2004. ISBN 988-201-616-2.

Hong Kong Herbarium, *Check list of Hong Kong plants*. 198 pp., col. illustr., Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department, 2004. ISBN 962-86652-8-6.

Musings of a Linnean Volunteer

For just over a year now I have been a volunteer in the Library, and in response to some gentle hints I record the experience. It all began with an enticing little note on our Society's website, with the inducement – one I could not resist – of meeting interesting people.

Of course I knew how a library functions, or at least I thought I knew. As can occur with the familiar, one only imagines one understands ... how often the familiar plays *that* trick!

I was a university student for 15 years, studying a variety of scientific subjects, and have spent my subsequent decades continuing research in a few of them. I realise now I really didn't have a clue about libraries. My Help Desk enquiries had always led to the seamless appearance of a textbook or journal. Within moments of idly pondering the subject in hand, the requested article simply materialised. Being a librarian must surely be easy! A request arrives: you reach behind the nearest column and the item is sitting there waiting. Upon its return you just slip it back. That's all...or is it? I now realise that the actual work involved in librarianship staggers ingenuity and patience. My own needs were modest, the latest paper that might derail my train of thought or, as a young student, a doorstep textbook created solely to spoil my social life. But what of an historian who needs a manuscript last requested a century ago: written perhaps during the early anti-Darwinian diatribes. How has it been maintained in such pristine condition? Where in the plethora of similar documents is it to be found? Has it ever been cited in a publication? Which one? Now multiply the possible variety of requests a thousand-fold. Then add the everyday needs of a learned society: the meetings, the conferences, the exhibitions, the displays, the fellows, the visitors, the correspondence, the communications, the catalogues, the conservation, the website ...the very activity of the Linnean Library deserves its own taxonomy. And who supports these endeavours in our beautiful library? ...a small but resolute phalanx indeed. Leonidas at Thermopylae had far more support and faced relatively far fewer fellows. But unlike Leonidas, our Library redoubt is never overwhelmed: echoes of Thermopylae resound... "We shall darken the sky with our hurled requests!"... "Good, then we shall respond in the shade."

There has been a long and distinguished line of Linnean volunteers. My fellow volunteers bring skills that I am only just beginning to acquire. Set tasks began very gently with preparations for the frenetic book sale: an occasion that devours every veneer of civilised academic repose and culture! Some of the generous book sale donations fill beckoning voids in the library catalogue; some are duplicates, some sit outside the library spectrum, all need careful consideration. With the exception of journals – a 'thorn' I will return to – the task was straightforward and most agreeable: thanks to our CARLS computer catalogue...and all who sustain her! Hmm...the journals...some in an unpronounceable, consonant-laden script I can't imagine anyone wanting to learn, let alone speak! But here lies the real rub: the journals are not yet listed in any database. When you set out to 'fingertip walk' – and all too often retrace your steps – through the torturous journal card index, bring a pair of nail scissors! A useful device to prevent your cuticles fraying even further! As for patience and fortitude

– bring those too whenever you have to locate the correct troglodytic shelf position to re-store a recalcitrant journal. *Hey ho...* with practice it does get easier... moreover, finally finding the correct location does render a sense of reward... especially after an hour's manual shunting of obstinate book wagons!

But, however firmly ensconced in a task one may be, a welcome call ensures that one never misses morning coffee or afternoon tea. I think it unlikely that anywhere in London there is a more discrete and congenial 'tearoom' that guarantees such eclectic, erudite and delightful company.

Recently, together with fellow volunteers, I have been engaged in checking and re-boxing manuscripts. Examining three hundred year old personal correspondence may be commonplace for an historian. But I am no historian and I can't begin to describe how fascinating it is to peruse such documents and see specks of knowledge glisten in contemporary light. Some engaging examples from the early 18th century...

- London physicians wore a sword as a badge of their professional status.
- Ink was often home-brewed from gall tannin, iron sulphate, gum Arabic and water.
- The cotton-based paper quality far exceeds the contemporary wood-based form.
- Seashells were early rudimentary 'weapons' in the skirmishes for Taxonomy.
- Lifetime correspondents still addressed each other as 'Dear Sir'.
- Puzzling observations often led to emotional conflict with indoctrinated belief.

Most poignantly, you discover that a whole lifetime of letters can be read in but a single afternoon.

Sometimes a letter leaves one pondering. One correspondent was sure that in the next life, her beautiful and loyal mulatto slave would be as white as a European. Heaven, it seems, has indeed a diverse range of characteristics. But then, I suppose, you can assign any characteristic you wish to heaven. Which rather suggests that heaven is simply an idea. Similar to many other observation-free concepts with which, over millennia, we have become so familiar. It is not surprising that such beliefs should have been held. Only recently has it been demonstrated that humans have four independent types of thinking, each with its own form of 'truth'; a testable discovery that explains, amongst other things, the structure of metaphysical notions and provides the means to solve the beguiling Classical paradoxes.

Another letter, another ponder... In the early 18th century, 'authorities' stated that coral was a vegetable/animal metamorphosis. There was the occasional maverick that doubted this: but at least this assertion had the possibility of being refuted. What of today, when 'authorities' in modern physics 'prove' that infinite worlds in parallel universes really exist? Where is the maverick now to point out that their elegant, 'indisputable' proof is erroneously based on intertwining two, totally independent, sets of axioms? People forget, sometimes conveniently, that logical proofs, however elegant and abstruse, are based on assumptions. Assumptions unfounded in accessible observation produce only proof of conjecture, not proof of fact: whilst un-testable assumptions merely generate proof of fantasy, some as time-honoured as the Emperor's new clothes – and just as familiar.

A philosopher once said: "The unexamined life is not worth living". A scientist

might add: 'The unexamined environment is not worth living in'. For this volunteer a library had been an environment of encapsulated knowledge...it still is. But now I begin to glimpse the complex mechanism of a library. The naïve bibliophile now knows that books are but one 'cog' within the intricate mechanism of a library. There are many other components, interactions and emergent activities involved...and it is indeed a delight to pass one's day amongst them.

JOHN ST.QUINTON
miexp@yahoo.co.uk

Picture Quiz

Sir William Bowman (1816-1892) was born at Sweetbriars Hall, Nantwich, Cheshire, on July 20th 1816, the third son of John Eddowes Bowman. From the age of ten he attended Hazelwood School near Birmingham. When he reached sixteen he was apprenticed to W.A. Betts of Birmingham Infirmary where he worked under Joseph Hodgson (founder of the Birmingham Eye Hospital). At the age of 21 he moved to the medical department of King's College, London and two years later, when King's College Hospital was founded, he was elected to the staff as Assistant Surgeon and subsequently to the post of Demonstrator of Anatomy and Curator of the Museum. From King's he moved in 1846 (aged 30) to the Royal London Ophthalmic Hospital, Moorfields first as Assistant Surgeon and then later as Surgeon, where he remained until his retirement. Meanwhile, he was elected Professor of Physiology and General Anatomy at King's.



Clue: Worked at Moorfields Hospital: a good friend of Florence Nightingale.

He continued in private practice until the age of 70. After practicing for several years as a general surgeon, he was induced by the advice of his friends to devote himself entirely to the diseases of the eye. In this branch of surgery he established a brilliant and well-earned reputation. He was amongst the first in England to become an expert in the use of the ophthalmoscope and was an advocate of Von Graefe's treatment of glaucoma by iridectomy, treating numerous cases of detached retina and cataract. During this period Bowman became a personal friend of Florence Nightingale whom he met while she was nursing at the Harley Street Establishment for Gentlewomen where he happened to be the surgeon.

As a microscopist his manual dexterity was remarkable while his capacity for close and careful observation was said to have been to a large measure inherited from his father who attained considerable distinction as a naturalist.

For the histological study of the kidney Bowman was awarded the Royal Society's medal in 1842. His resulting collaborative publication: *The Physiological Anatomy and Physiology of Man* (2 vols. 1843-50) not only contains numerous illustrations by



Clue: Organized the opposition to the anti-vivisectionists.

Bowman but also, more importantly, many new anatomical structures of which some six still bear his name, including the *capsula glomeruli* or Bowman's capsule. At the British Association meeting in Oxford in 1847 he demonstrated (independently of Brucke) the structure and function of the ciliary muscle. During this time he also contributed important researches into the movements of voluntary muscle, the mucous membrane of the alimentary canal as well as cirrhosis of the liver. Bowman was made a Fellow of the Linnean Society on 19th February 1828 his form being signed by John Murray, Richard Taylor, John Lindley, Edward Forster, Junior, John Curtis and Robert Brown.

He died on March 29th 1892 at his home near Dorking from an attack of pneumonia. He had been close friends with several artists including Frederic Watts, whose portraits of Tennyson, Donders, and Watts own self-portrait he donated to the Tate. A slender man, who rarely drank and never smoked, he was said by the DNB (whom I gratefully acknowledge for much of the above information) to have exemplified certain Victorian virtues through his dignity and reserve, his early rising and constant hard work, and his religious piety.

BRIAN GARDINER

Correspondence

FROM: Mary Morris

I regret that once again I have to offer apologies for errors in the previous (April) issue of *The Linnean*. In the letter from Peter James (page 18) the name of the originator of "Catastrophe Theory" should, of course, have been René Thom (not Thorn) and, in the last paragraph, the end of the second sentence should read "... not one containing too many partial differentials." I have no excuse, so my sincerest apologies to our correspondent and all our readers. I have made a new resolution ...

FROM: Alex Andrew

Alex.Andrew@britishlibrary.net

Peter James raises an interesting point concerning whether an event of multiple speciation should be seen as a series of bifurcations or as happening in one go. Zeeman apparently favours the latter even though he emphasises the importance of catastrophes and hence bifurcations. His explanation in terms of water running downhill after escape from a pond seems to correspond to a traditional view of allopatric speciation, but with the difference that a burst of it is triggered by a single catastrophe. The suggestion seems to be that multiple speciation is a hybrid phenomenon.

Bifurcations are very much part of chaos theory and of the work of Prigogine and his group on dissipative structures. Much of this is concerned with spontaneous emergence of order without regard to any criterion of fitness, so it only becomes relevant to evolution when combined with a means of selection. The primary effect is often described as "self-organisation", but it has been suggested that "self-ordering" is better since "self-organisation" carries a suggestion of purpose. Zeeman's treatment is obviously distinct from theories that are purely about self-ordering.

However, in a recent book (*Holistic Darwinism: Synergy, Cybernetics, and the Bioeconomics of Evolution*, by Peter A. Corning, University of Chicago Press) it is argued that evolution should be seen as interactive, taking place within synergies, a view also attributed to John Maynard Smith. The rather clumsy term post-neo-Darwinism has been applied. This seems to cast doubt on any scheme that assumes a fixed "fitness" function. No doubt catastrophe theory is still applicable, but unfortunately probably in more complicated ways.

FROM: Jeremy Franks FLS

jeremy.franks@mailbox.swipnet.se

When I wrote in *The Linnean* 2005 Vol 21(2) on Linnaeus', Solander's and other Swedes' putative religious inhibitions, I relied on a 40-year-old source. As a researcher has recently studied this interesting subject, you may like to know how Carola Nordback regards it in her dissertation, *Samvetets rost. Om motet mellan Luthersk ortodoxi och konservativ pietism i 1720-talets Sverige* "The Voice of Conscience. On the encounter of Lutheran orthodoxy and conservative Pietism in Sweden in the 1720s" (Umeå, 2004).

On pp. 53–58, in *Det religionspolitiska läget 1720–1741* "Religio-political conditions 1720–1741", Nordback writes that the 1735 legislation "in principle forbade

all forms of dissentient religious thinking” and aimed at “creating preconditions for order in *both the lay community* (emphasis added) and the church”. Anyone who wished to teach privately or seek employment in the service of the state or any such employee who wished to travel outside Sweden was required to have a certificate attesting to his religious status. In the early 1740s, when the principle of freedom of religious conscience was under discussion in Sweden, there was no question of extending it to “Anabaptists, Quakers, atheists, Roman Catholics and ‘fanatics’ [because] these groups... were deemed to be a danger to public order.” As an offender would be both exiled and deprived of his or her inheritance, this legislation must have had a salutary effect on younger members of families of means, regardless of their beliefs or lack of them.

Nordback naturally does not address the wider question of how far, if at all, the Royal Academy of Sciences (founded 1739) or any of its members or any Linnaean ‘apostle’ was inhibited by this legislation, but it must be hoped that in due course some other scholar will. Besides a tendency to convoluted syntax in discussing some possibly contentious point, I have found nothing in C.H. Braad’s papers to suggest that he at least was particularly inhibited.

FROM: Mark Griffiths FLS

mark.griffiths63@btinternet.com

I was gladdened by the sight of the primitive actinopterygian *Polypterus bichir* illustrated in your article Sturgeons and Caviare [*The Linnean* 2006 Volume 22 (1)].

Last year, in a rare departure from the Plant Kingdom, I acquired three young adults of its close Congolese relation *Polypterus palmas palmas* which I found languishing in an aquatic centre while searching for waterlily baskets. Unaccountably, their distinctive looks had not stolen any hearts and the dealer had consigned them to a fishy oubliette, having despaired of ever selling them. I felt it my duty to save them and they have since proved admirable additions to the household.

In 1809, not long after he discovered the Nile bichir (*Polypterus bichir*), Étienne Geoffroy Saint-Hilaire remarked: ‘If I had found this species alone in Egypt, it would still have been worth all the pain of this unusually long expedition’. Georges Cuvier is said to have gone further than that, risking *lèse-majesté* by telling Napoleon that the only worthwhile aspect of his invasion of Egypt was the discovery of these fishes.

As consolation prizes go, bichirs (*Polypterus* spp) are certainly remarkable. Watching them in action is a form of time travel not unlike standing under a mature specimen of *Ginkgo biloba*. Numerous features appear to attest to their having been stranded in some long-ago evolutionary cul-de-sac: amphibian-like exterior gills as juveniles; ganoine plating of their scales; spiral intestinal valves as per cartilaginous fishes; large paired ‘lungs’ and obligate air breathing; quasi-reptilian hinged jaws; fin blades that are close to those of skates and rays in structure; dorsals that are a row of multiple, webbed cartilaginous outgrowths; pectoral and ventral fins inserted on short fleshy limbs that enable them to walk on the substrate in or out of water; 3 sets of ‘nostrils’; excellent night vision, and so forth.

In addition to these curious but well-known characteristics, my specimens exhibit one other which I have failed to find described anywhere else. This is why I am writing

– in the hope that you or a Linnean reader may be able to shed light on a matter which at first had us believing that we were losing our grip. You see, *Polypterus palmas palmas* (at least as it exists here) is loquacious, a natural communicator.

Its repertoire consists of two sound types. The first is a low knocking. I doubt this sound is vocal, nor is it literally a knocking as would be produced by the drumming of tail upon glass. It seems rather to emanate from deep within the longer of the creature's two lungs and to involve a certain amount of shuddering in the anal and caudal area. This type of noise is made chiefly at night and in response to squabbles over territory, at the appearance of food, and as part of courtship. It may consist of just one or two 'knocks' or be a fast Morse Code-like sequence. One noisy fish sometimes appears to trigger production of the sound in the other two. The presence of a common stimulus such as food or the gawping face of an unwelcome spectator will set off all three.

The second sound type is less common but still more intriguing. Pardon my anthropomorphising, but there is really no other way to describe it. This noise is somewhere between the 'ping' of a submarine and an exasperated and slightly winded-sounding mewl or groan. It does seem to be orally emitted and we hear it when the fish are startled or attacked (by one another, I should add) and as a prelude to flight. Once they hear it from one of their companions, the other fish will often take evasive action.

Both types of sound are plainly audible most days even through a considerable volume of water and thickness of glass. Indeed there are nights when these fish could be described as rowdy. Although captivity can never be an ideal condition for them, I would not say that they are under stress.

I am a horticultural botanist, not a zoologist, and so there may be countless cases of other noisy fishes of which I am simply ignorant (I only recall the croaking or talking gourami, *Trichopsis vittatus*). None of the above may be worth noting. But I thought I would set it down as a tail piece to your excellent article, and in the hope that a specialist might be able to say a little more about these fish which are just as revealing of the puzzles of the past as another Egyptian find (one which Geoffroy Saint-Hilaire failed to bring home), the Rosetta Stone.

Bust of Richard Spruce unveiled in Ecuador

On 4th March 2006 a bust of Richard Spruce (1817–1983), the British botanist and South America explorer, was unveiled at Río Verde near Baños, central Ecuador. The work of art, fashioned by the Ecuadorian sculptor Edguin Barrera, and generously supported internationally by various institutions, organizations and individual donors, honours the pioneering work of this great botanist on the rich Amazonian and Andean floras.

The celebration, organized by the Chamber of Tourism of the town of Baños, was attended by a large crowd, including the Vice-Mayor and other leading personalities of the region, the British Vice-Consul, and the heads of all the major herbaria of



Ecuador. Speeches were given by the Vice-Mayor as well as Dr Plutarcho Naranjo, former Minister of Health of Ecuador and Dr Robbert Gradstein, member of the organizing committee. The programme also featured singing (hymns of Ecuador and Baños) and a toast by co-organizer Patricia Guevara of Baños. The unveiling was undertaken by Sophie Deeks, British Vice-Consul and Mrs Isabel Paredes, chairperson of the Río Verde community.

Following a splendid lunch in hotel Miramelinda, Río Verde at the invitation of its owners Patricia Guevara and Manuel Chauvin, the participants spent the afternoon on leisure walks to some of the localities visited by Spruce, including the Río Verde waterfall and the Río Topo valley. It was at the latter site that Spruce experienced great difficulties when trying to cross the swollen

waters of the river, and almost lost his precious collections there. Local botanist and orchid specialist Lou Jost showed some of the plant species collected by Spruce along this spectacularly beautiful river. A highlight was finding the rare liverwort *Myriocolea irrorata* Spruce, known only from the River Topo and long considered extinct. Spruce was particularly attracted to this species, which he considered “perhaps the most interesting bryophyte that I have ever found ... and the only agreeable souvenir I have preserved of this river” (Spruce 1908, *Notes of a botanist on the Amazon and the Andes*, vol. 2, p. 167).

The inauguration of the bust of Richard Spruce in Río Verde should help keeping the memory of this great explorer of the Amazon and the Andes alive in Ecuador. It should also help in promoting awareness of the rich biodiversity of the upper Pastaza and Topo Valleys which are currently threatened by plans to build three hydroelectric projects. Efforts are currently being made by the tourist and nature conservation agencies of Baños to counteract these destructive activities and ensure conservation of the area. It is hoped that such endeavours to conserve the magnificent rain forest and watercourses of the valleys, first explored by Richard Spruce, will prove successful.

S.R. GRADSTEIN, L. JOST,
M.R.D. SEAWARD and G.T. PRANCE

Unattractive moths? Species diversity in Ctenuchinae.

The Ctenuchinae, or wasp moths, are a neotropical group belonging to the Arctiidae, the tiger moths. They present a wide range of colour and morphology which invites interpretation in adaptive terms. H.W. Bates collected and made careful drawings of them in his journals. The basis of the taxonomy is to be found in Hampson (1898, 1914). More recently, they have been considered to consist of two tribes in the subfamily Arctiinae, the Ctenuchini and the Euchromiini, that have undergone parallel or convergent evolution (Jacobson & Weller, 2002). In an ongoing series, *Mariposas del Ecuador*, Piñas and Manzano (2003b) have performed the valuable service of enumerating 477 species in that country. The number of species per genus is very varied. For Ecuador, 25 out of 82 genera have a single representative only. At the other extreme, *Eucereon* (sometimes *Eucereum*) has 79 species and *Cosmosoma* 55 species. Six other genera have numbers of species in double figures. This distribution is highly non-random, although it becomes random if one takes logarithms. The processes governing proliferation within genera appear to have been multiplicative rather than additive. The volume contains a CD with images of the species, and it is possible to scan these to see the progressive change in form and colour as one proceeds from one genus to another. To get some idea of this progression they can be divided very roughly as follows.

1) *Broad-winged, more or less cryptic colouration.* Many of the species in the large genus *Eucereon* (Fig. 1a) have mottled or dull fore-wings that make them inconspicuous when at rest. Often they have dark hind-wings and body as well but others are bright red or orange on parts of the abdomen that are covered by the wings at rest, so that they flash colour at any animal that disturbs them. This is a classical pattern found on edible noctuid moths subject to attack by vertebrate predators. Sargent (1969, 1973) suggests the variety of hind-wing colour in species of the noctuid genus *Catocala* with similar cryptic fore wings is due to selective predation. Some species in other ctenuchine genera are also dull coloured, often without the flash component.

2) *Broad-winged, aposematic coloration.* Some are large-winged, often with distinct warningly-coloured patterns (e.g. Fig. 1b). A particular variant on this pattern occurs in species that have iridescent windows in their wings, so that they tend to resemble some of the distasteful ithomiine butterflies (Fig. 1c). *Napata walkeri* (Fig. 1d), a widespread species in South America is uniquely brightly coloured in yellow and very dark blue. It is almost identical to quite unrelated Lepidoptera, including a riodinid butterfly, a zygaenid and a pyralid moth (Beebe and Kenedy, 1957; Rothschild *et al.*, 1973).

3) *Narrow-winged, aposematic patterns.* Many ctenuchines are large-bodied and long-winged with prominent hind legs, so that they suggest hymenoptera in appearance (Fig. 1f,g) without close resemblance to any specific non-lepidopteran pattern. The coloration is often bright and iridescent. These characteristics suggest warning or distastefulness. White spotted *Chrysocale gigantea* (Fig. 1f) is similar to Old World Syntomiinae (*Amata* spp.) that are Müllerian mimics and models for Batesian mimics (see e.g. Bullini *et al.*, 1969; Sbordoni & Bullini, 1971; Turner, 1971).



Figure 1. Ctenuchine species showing a range of colour, pattern and form. Selected from Piñas & Manzano, 2003b *Mariposas del Ecuador*. Vol. 21b. Arctiidae. Subfamilia: Ctenuchinae.

a. *Eucereon chalcone* Druce, b. *Coreura simsoni* Druce, c. *Agryrtidia uranophila* Walker, d. *Napata walkeri* Druce, e. *Correbidia germana* Rothschild, f. *Chrysocale gigantea* Druce, g. *Phoenicoprocta* nr. Rothschild, h. *Napata pseudolex* nr. Rothschild, i. *Sarosa acutior* Felder.

4) *Narrow-winged mimetic patterns.* *Correbidia germana* (Fig. 1e) has a pattern shared with some other arctiid moths and several species of lycid and other beetles (Beebe & Kenedy, 1957; Linsley et al., 1960; Eisner et al., 1962). The antennae are similar in shape to those of the beetles. Others are undoubtedly hymenopteran mimics (Fig. 1h,i) which resemble different groups of wasps (Beebe & Kenedy, 1957; Simmons & Weller, 2002). Mimicry of insects from another group involves changes in behaviour and flight characteristics, as well as colour pattern. These may be costly, and if so, must be offset by the advantages of mimicry (cf. Srygley, 2004).

Numerous observations have been made showing that on being disturbed many of these species fly sluggishly, drop to the ground, curve their bodies or exude substances from glands, in displays that are characteristic of poisonous Lepidoptera (e.g. Blest, 1964). Some sequester cardiac glycosides and pyrrolizidine alkaloids from the larval food plants, or by adults from rotting plants, making them distasteful (Hristov & Connor, 2005; Nishida, 2002; Rothschild *et al.*, 1973; Weller *et al.*, 1999; Wink & von Nickisch-Rosenegk, 1997). Some produce ultrasound, which can be an adult defensive display directed against bats but is also incorporated into courtship displays (Hristov & Connor, 2005; Weller *et al.*, 1999). Several, including *Eucereon* species, have been found to be rejected by birds, lizards, amphibia, bats and a variety of predaceous invertebrates (Beebe & Kenedy, 1957; Hristov & Connor, 2005; Rothschild

et al., 1973). Altogether, the evidence indicates that the ctenuchines are distasteful to predators, although perhaps less so than the arctiines.

Why should there be such variety of form? Except for a number of *Eucereon* spp., all these moths have patterns indicating warning coloration and/or mimicry. In the classical understanding of the terms, if the species are distasteful the mimicry should be Müllerian, with a tendency for them all to converge in appearance on a single pattern, yet a wide variety of modal forms occurs. This is more characteristic of Batesian mimicry, where edible species resemble distasteful models, and variety is selected for because it reduces the chance that the deception will be detected by predators. To an extent the Müllerian prediction is achieved. There are many species living in the same localities which conform to one or other of the modes and are extremely similar to each other. In Ecuador, the provinces of Napo and Orellana form a fairly homogeneous area of riverine rain forest around Amazonian headwaters. They provided 30 per cent of the 753 images on the disc, including numerous examples of series of similar species. However, it is still necessary to explain the existence of so many distinct pattern modes.

One factor involved is likely to be the normal time of flight and rest. Some of these insects are active during the day, others are strictly nocturnal. Beebe & Kenedy (1957) examined times of activity in 13 species of varied appearance. Three broad-winged dull coloured species, including two *Eucereon* spp., were entirely nocturnal in flight and therefore static and at rest during the day, while an aposematic broad-winged species *Ctenucha andrei*, a wasp-like clear-winged species *Aethria carnicauda*, an ithomiine butterfly mimic *Agyrta dux* and a yellow wasp mimic *Pseudosphex kenedyae* were all entirely diurnal, so that they would be exposed to sight hunting predators. This matches the prediction for adaptive coloration, but as usual with such surveys there were exceptions. The bright yellow *Napata walkeri* is nocturnal. A lycid beetle mimic and a black and iridescent wasp mimic both flew at night but were sometimes also found flying during the day. It is undoubtedly true, however, that if ecological and phenological requirements modify the flight time the risks of predation and the other insects available to become mimics or models must also change, leading to selection in diverse directions. With respect to mimetic ithomiine and heliconiine butterflies, Papageorgis (1975) argued that even preferred activity at different levels in the forest selects for characteristically different pattern modes. Light and temperature conditions vary with height above ground, and wing colour interacts with both. Even distasteful insects gain an advantage if they are difficult to catch in the first place. She recorded butterfly species with patterns that are respectively transparent, black and yellow (tiger stripe), red and blue flying progressively further above ground level, subject to complementary changes in light intensity and penetration of direct sunlight. Mallet & Gilbert (1995) questioned Papageorgis' results, finding little difference in flight heights between the mimicry rings. They did identify behavioural differences, however, that may serve to maintain separate mimetic modes. These investigations provide useful pointers when studying the ctenuchines.

As the experimental study of mimicry developed it became clear that a strict division between Batesian and Müllerian mimicry was untenable. There is a palatability spectrum (Brower *et al.*, 1963, 1968; Turner, 1984) because different prey species

have different degrees of distastefulness and because predators may differ in their tolerances. Insects sequester poisons from their food plants. There is probably often a metabolic advantage to the insect in feeding on a plant without poisons and so becoming an automimic (Brower *et al.*, 1967, 1970; Pough *et al.*, 1973), which is offset by increased vulnerability to predators. The most famous example occurs in the monarch butterfly *Danaus plexippus* (Brower, 1969; reviewed by Nishida, 2002). Instead of there being two categories, it may be better to describe the whole system as quasi-Batesian mimicry (Speed, 1993), in which there is a continuous testing of the system by predators with varying degrees of tolerance. If many species are involved, some of them quite edible, the more distasteful species will gain an advantage by diverging from the mode of the mimicry complex. If distinct patterns are formed as a result, associated with high distastefulness, it follows that the less unpalatable species may increase their survival by becoming polymorphic, with rare new morphs resembling the newly diverged distasteful forms. The palatability spectrum would therefore generate variability and may account for cases of polymorphism in apparently Müllerian mimetic species. These arguments have been discussed extensively (e.g. Brower, 1984; Brower and Brower, 1964; Pough *et al.*, 1973; Huheey, 1988; Speed, 1993). Predator perception and rates of learning and forgetting are crucial factors determining the mimetic system which arises (Speed & Turner, 1999).

In general, the theory of evolution of mimetic complexes is concerned with the generation of polymorphisms and of divergent geographical races (Turner & Mallett, 1996; Joron & Mallett 1998 and references in them), given that species are available to interact with each other. This still leaves the question how the high species richness of the tropical biota came about in the first place. The quasi-Batesian argument offers a possible route. If pressure from more edible species selects divergent variants in highly distasteful species, and the selective pressure is sufficiently high to overcome the restraining effect of gene flow, then sympatric speciation could occur. It may be imagined that a change in colour leads to altered thermal tolerance, then to difference in flight location and consequently to assortative mating. Such events are clearly possible (Doebeli & Dieckmann, 2003; Via, 2001), although there is no general agreement as to how likely they might be. Alternatively, the answer lies in the history of the taxa concerned. If splitting of range, rejoining and overlap by reproductively isolated or semi-isolated taxa occurs then an increasingly complex fauna could be built up. In South America numerous forest refugia are thought to have been formed by contraction of sometimes continuous forest during dry phases of the Pleistocene (Haffer, 1969; Brown *et al.*, 1974). The evidence for this scenario has been disputed (e.g. Nelson *et al.*, 1990), but it can be applied to a range of types of organisms - birds and reptiles as well as invertebrates. Less extreme separation coupled with varying patterns of selection leading to parapatric speciation would also be promoted by environmental fluctuations. Ctenuchines are not noted for polymorphism and form an extremely species-rich group. It seems most likely that their diversity has its roots in allopatric speciation due to repeated fractionation of range during the Quaternary and probably more deeply into the Tertiary, the causes being climatic or geological or both.

Simmons and Weller (2002) examined the historical origins of ctenuchine diversity with respect to three distinct groups of wasp mimics that resemble, respectively, black

clear-winged wasps, yellow clear-winged wasps and a dark-winged form with white wing tips. If quasi-Batesian mimicry operated the expectation would be that distinct shifts of mimetic pattern would be favoured; phylogenetically closely related species would belong to different mimetic modes. If they are Müllerian mimics that have speciated (presumably allopatrically) then each mode would represent a different phylogenetic grouping. The analysis they carried out strongly favoured the Müllerian, rather than the quasi-Batesian, hypothesis, with suites of mimetic characters inherited together. They propose that predator perception and accuracy are the operational factors driving evolution of mimicry rather than assessment of gradations of palatability. Phylogenetic analyses do not always supply such clear cut results (e.g. see Yen *et al.*, 2005 for another mimetic assemblage). Whether this one will be applicable to other sectors of the Ctenuchinae remains to be seen.

Species in the group are invariant and of wide range. Of 234 named species in the Ecuador list, 34 (out of 127) are also present in Forbes' (1939) records for Barro Colorado, Panama, and 18 are shared with Trinidad, West Indies (Fleming, 1957, 1959). Half of the dozen species studied by Blest (1964) in Trinidad also occur at Barro Colorado. I have found no information on whether there are centres of diversification that could give information on the possible historical origins of the present spread, but Ecuador is of interest in this respect. It is a country comprising three continental regions, Oriente (mostly rain forest surrounding western headwaters of the Amazon), Costa (rain forest in the north changing to savanna in the south) separated by the high Sierra region. The Sierra came into being with the Andean orogeny, which occurred 5 to 3 million years ago and was followed by Pleistocene climatic fluctuations and glaciations (Helmens & van der Hammen, 1994). There is evidence of the profound effect this separation has had on the fauna (Brower, 1994; Brumfield & Capparella, 1996; Slade & Moritz, 1998). The Sierra region has few ctenuchine species. The Costa is connected to central America through the coastal forests of Colombia and Panama, so that the two low-lying regions may have been colonized by different faunas and are sufficiently well separated for divergence in common species to have taken place. Of the 477 species figured in Piñas & Manzano's (2003) list 45 per cent are represented by specimens from the Costa region and 40 per cent from Oriente. Only 3.6 per cent are from the Sierra. However, about half of the total are represented by a single image, so give no indication of range. Considering only those illustrated by 2 or more images (202 species) 18.3 per cent are represented by individuals from both Costa and Oriente. If the images were picked at random there is a roughly 50 per cent chance that a species common to both regions will be illustrated with pictures from one only, so a guess at the frequency of common species is 36 per cent. This suggests that the difference between the eastern and western faunas may be substantial. Both the Saturniidae (Piñas & Manzano, 2003a) and the Papilionidae (Bollino & Onore, 2001) have named subspecies, which tend to be restricted to one lowland region or the other.

The ctenuchine group has been comparatively little studied in the field compared with the mimetic butterflies, and clearly merits further examination. It would be interesting to compare the composition of these two regions in more detail and to census the associations of ctenuchines and their mimics within single localities. Why

have the monotypic multi-species ctenuchines evolved differently from the often polytypic butterfly species with which they share wide tracts of the neotropical forests? Research on the group ranges from the pioneering studies of Beebe and Kenedy and of David Blest on palatability and behaviour, through studies of chemical sequestration to the recent systematic approach of Weller and others. It offers exceptional opportunities for further analytic studies.

I am grateful to Fr Francisco Piñas Rubio, S.J. for helpful comments and permission to reproduce the figures. My interest on ctenuchines began during collaboration on mimicry studies with Lincoln Brower.

LAURENCE COOK

lcook@manchester.ac.uk

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The Picture Quiz

The first Picture Quiz was in April 1986. I had been given a series of photographs taken by P.P. E.I. White. The first of these was a photograph of Sherborn and Chatwin on Box Hill (right). I suggested that a small prize would be awarded to any reader who could tell me who the two persons were and approximately when the picture was taken. The winner of this very first Quiz was Mr Harry Toombs, and he was awarded a 1930s style briar pipe.

This picture also elicited an answer from an American Fellow: Patrick Roche of Andorra (actually Texas!).

Who? Right, Sherlock Holmes, disguised by an obviously white beard. Left: Dr Watson wearing someone else's hat which he absentmindedly picked up when leaving a meeting of the Linnean Society.

Where? Dartmoor (vide Wistman's Wood in the background).

When? At the time when the hounds of the Baskervilles were being tiresome.



This then set the tone of the Picture Quiz, with correspondence and correct identification being rewarded with a small prize.

The second picture used (left) was of E.I. White himself standing outside his tent in Spitzbergen in 1939. The third picture (below left) depicted a gathering in the American Museum of Natural History, circa 1950, when George Gaylord Simpson received Lady Smith Woodward's tablecloth (below right). There were no immediate winners for either the second or third Picture Quizzes, but it prompted the editor to write a short article on P.P. Smith Woodward and the acquisition by the AMNH of his wife's tablecloth (*The Linnean* 3(3) August 1987). Apparently, soon after their marriage (1894), Mrs Smith Woodward had the novel idea that instead of a visitors



book all her distinguished guests should sign her tablecloth (in pencil) and she would later embroider their signatures in silk. This custom was kept up until her husband died in 1944. The tablecloth covers a 50 year period and contains some 350 signatures. In the autumn of 1951 Mrs Smith Woodward gave it to the AMNH and the third Quiz picture (*The Linnean* 3(1):6) featured the tablecloth being formally received by the Director and staff. It was subsequently housed in the Department of Vertebrate Paleontology.

In September 1977 the Department of Vertebrate Paleontology, under the Chairmanship of Dr Bobb Schaeffer, decided to return the tablecloth to what they considered its rightful home. They accordingly presented it to the Department of Palaeontology (formerly Geology) at the NHM, the department of which ASW had for 22 years been Keeper. The cloth was subsequently cleaned and curated by the Victoria and Albert Museum and was shown at the Linnean Conversazione 1980.



The unveiling of the tablecloth. L to R: Dr Bobb Schaeffer, Dr Robin Cocks (Keeper) and Mrs Margaret Hodgson, in May 1987.

Meanwhile I received answers to both the second and fourth Picture Quizes. They were answered by one of our palaeontological Foreign Members, Eric Jarvik who informed me that the occasion was the Joint English-Norwegian-Swedish Expedition to Spitzbergen in 1939. I was so impressed by the answers to these two Quizes that we awarded Erik a small prize in the form of a tea cup/mug decorated with *Linnea borealis* L.

Our Librarian Gina Douglas, who, like her husband, is a potter, produced the cup and it was she who using a glaze transfer at 750 °C glazed the picture of *Linnea borealis* onto the surface of the cup. This was the start of the practice of awarding a decorated cup or mug to the Picture Quiz winners. Somewhat later we decided that zoological and palaeontological winners should receive their own appropriately decorated mugs. To this end, Gina applied transfers of fishes, molluscs, crustaceans, insects, trilobites and ammonites. However, we were soon receiving answers to our Quiz from Fellows in Australia, the USA and Japan. Logistically they needed to be given something other than a mug. Accordingly winners were rewarded with either an archival picture of Robert Brown or Alexander MacLay, or a reprint of Owen's "Marsupials of Australia" (with colour plate) or if they were botanists with an 1870 paper by John Scott "On the Tree Ferns of British Sikkim and their relationships to Palms and Cycads".

After the initial four Quizes we figured a mixture of famous scientific figures such as Ernst Haeckel, Augustin de Candolle, Lorenz Oken, Gothe and Haller, intermingled with Linnean Fellows like Richard Owen, Edward Forbes and Henry Walter Bates. All told, in the first ten issues we gave descriptions of 26 persons including our founder, James Edward Smith. In the next four volumes we figured thirteen characters, all of whom were Fellows with the exception of Miss Elthelred Benett, the first female palaeontologist.

In January 1995, however, we returned to the subject that had initiated the early Picture Quizes, namely the Swedish-Norwegian-British Palaeontological Expedition to Spitzbergen of 1939. The photograph (below left) shows, reading from left to right: W.N. Croft, Erik Stensio, Erik Jarvik, the sealer Andresen and J.A. Moy Thomas.



The expedition was arranged on the initiative of Professor Stensio to collect fossils, especially cephalaspids. The expedition came back with over 15,000 fossils. Although we had figured the expedition previously in both the Quiz and correspondence, on this occasion we used the picture to emphasize the close liaison between the Society and Sweden which extends back over many decades and which culminated

in 1973 with the Linnean Society honouring Professors Stensio and Jarvik with a festschrift entitled “The interrelationships of fishes” the publication of which proved to be of signal importance to fish taxonomists.

Among the thirteen characters mentioned above we also included the best-known Fellow of his generation, Thomas Stamford Bingley Raffles (right), the founder of Singapore and the Zoological Society and its menagerie. He was a great procurer who, whilst in Malacca, employed four collectors, one for plants, one for land invertebrates, one for marine animals and one for birds and mammals. He apparently kept barrels of arrack and brandy in which he killed his arthropods and snakes before putting them into bottles.



Following the conquest of Java he sent back to Banks a plant collection numbering 237 prepared specimens. Later a short sojourn in Sumatra led to his discovery of “the most beautiful flower in the world”, *Raffeleisia arnoldi*. Finally, on his way home from Singapore the ship caught fire, destroying over 2,000 of his drawings and nearly all his natural history collections, including a living tapir and pheasants, and a new species of tiger, all of which had been domesticated for the voyage – “in short a perfect Noah’s Ark”. When he got back to England he deposited the remains of his Singapore collection, together with his Sumatran collection (sent home in 1820) in the Zoological Society’s Museum. There is a statue of him in both Westminster Abbey and Singapore. Others figured were: Nathaniel Wallich, Thomas Bell, James Ross, Joseph Hooker, Charles Lyell, Edward Blyth and Robert Grant.

Right: George Busk



The Linnean 15(1) January 1999 featured one of my favourite Fellows, George Busk, one of the greatest authorities on fossil man and whose claim to fame was his description of the “Gibraltar Cranium”. He was followed by John Lubbock, the Linnean who introduced Bank Holidays. Next in the sequence came John Lindley – with the clue “a rather foxy type” which referred to his



John Lindley

monograph on *Digitalium* (1821). Lindley was a pioneer orchidologist and founder of orchid taxonomy (there were no answers to this Quiz).



John Lubbock

We then profiled an explorer, botanist and anthropologist, Berhold Carol Seeman who is best remembered for his introduction of the Bora dina or cannibals tomato (*Solanum anthropophagorum*) the leaves of which were wrapped around human bodies before cooking on Tonga, Tahiti and Rarotonga. Subsequently we pictured William Carpenter the instigator of the Challenger voyages, who, together with Wyville Thomson made explorations of the Mediterranean and Atlantic.

Leaving aside explorers, we returned to a botanist, Daniel Oliver who curated Spruce’s South American collection, helped rehouse Bentham’s Herbarium and books, as well as arranging J.D. Hooker’s Australasian, Antarctic and Indian Collection and then Griffith’s Collection. He also found time to curate our British Herbarium. Oliver was followed by a zoologist, the stalwart Quinarian William Swainson. The Quinarian System had originally been proposed by Alexander Macleay whose portrait, together with that of Robert Brown, we gave away to several of our overseas winners of the early Picture Quizes. Macleay had used his system to challenge the Darwin/Wallace theory of 1858. Swainson, however, adopted it when he divided the world into five geographical provinces while Sclater in 1858, when



Daniel Oliver



Berhold Carol Seeman

dealing with bird distribution, divided the world into six regions as did Wallace in his *Geographical Distribution of Animals* (1870). Both Sclater and Wallace had to all intents and purposes adopted Quinarianism!

Our next Picture Quiz candidate Cuthbert Collingwood had been present at the reading of the Darwin/Wallace papers. Collingwood was an expert on nudibranchs who argued that agreement of habitat in widely separated groups is accompanied by similarity of form, in other words adaptive convergence but to Collingwood only adaptive similarity. He was a great supporter of Agassiz who, like him, believed that one day Darwinism would give place to a much deeper and more philosophical theory of Creation.



Alexander Macleay

Collingwood was followed by Samuel Stevens, elected a Fellow in 1850 and who looked after and sold both Bates' and Wallace's collections. These included those accumulated by Wallace from his travels in the Malay archipelago from whence he obtained 110,000 insect specimens, 8,050 birds, 410 mammals and some 7,500 marine and land shells, as well as plants, including living orchids which he dispatched to Stevens in casks. He also passed on to Darwin, via Stevens, several specimens of "Jungle cock" and a wild honeycomb from Timor. From the sale of several skins of the Birds of Paradise, plus some of the more exotic butterflies, Stevens secured over £1,000 which he invested for Wallace in Indian Railways (this was yielding over £300 per annum in 1862).

Leaving aside the riches of Wallace, our next Quiz featured one of the best known of Fellows whose portrait hangs facing us in the Meeting Room, Nathaniel Bagshaw Ward, whose Wardian Case was responsible for the introduction of the Chinese or Cavendish banana to the Navigator Islands and from thence to Fiji. The East India Company then sent some Chinese transplants (20,000) from Shanghai to the Himalayas, and also relayed 529 chirchona plants via the UK to India to be established in the Nilgiri Hills. Thus the Wardian Case was both instrumental in tea production and the treatment of malaria in India.

At this juncture I was approached by Paul Taylor who wished to commemorate the bicentennial of Alcide d'Orbigny (1802) one of the foremost authorities on the Foraminifera. Although never a Fellow of the Linnean Society, he was an extraordinary taxonomist, having described over 3,000 species of Foraminifera in stratigraphical order, of which some 2,500 were new to science. Thus we used Alcide d'Orbigny and interpolated him between Ward and another Linnean Fellow John Meirs. Meirs was initially a chemist who did research into the composition of nitrogen. In 1818 he went to Chile for six months where he studied the geological structure of the Cordilleras and made extensive collections of the plants of the pampas during his passage across

the continent. He also made extensive plant collections both in Brazil and Argentina on successive trips. His book, entitled *Contributions to the Botany of South America* (1867–71) included in its third volume a monograph on the Menispermaceae which contained upwards of 700 tracings of menispermaceous plants from the principal herbaria in England and the continent. A dogged believer in the fixity of species meant that less than 50 of his species from Chile are still regarded as valid.

Next we figured William Mitten (1819–1906) a bryologist who described Richard Spruce's South American collections. His own very extensive collections of both mosses and liverworts were purchased by the New York Botanical Gardens. He was an intimate friend of Wallace who eventually married his youngest daughter.

Next we profiled the Laird of Ballysheer, William Macdonald (1797–1876) who was personally invited to attend the reading of the Darwin/Wallace papers on July 1st 1858 by Lyell himself. Although he accepted Owen's Archetypes and wrote on vertebral homologies we have no knowledge of the effect on him made by the Darwin/Wallace papers. Then we figured George Bellas Greenough, MP for Gatton (Surrey) who is best known for his geological map which he persuaded the Geological Society to produce: *Geological Map of England and Wales, on six sheets with an accompanying*



George Bellas Greenough

memoir 1820. Previously Smith's map: *A Deliniation of the Strata of England and Wales* had been published in 1815. Though accused of plagiarism Greenough's rebuttal did not prevent a codicil being added to his 1820 map by the Geological Society which stated, "On the basis of the original map of Wm. Smith 1815." The year previously (1819) Greenough published his book, *THE FIRST PRINCIPLES OF GEOLOGY in a Series of Essays*. This book, which was sent to Darwin in Buenos Aires in 1832, has several interesting essays including one on the succession of life and another on the History of Strata as deduced from their fossil contents. Another, dealing with Monte Bolca fishes, has biogeographic comments that would have made interesting reading on the Beagle voyage. It appears that Darwin was impressed

enough with Greenough to send him the sections on Coral Islands from his paper "On certain areas of elevation and subsidence in the Pacific and Indian Ocean" 1837, for his approval. Previously in 1828, together with Jeremy Bentham, Greenough had been instrumental in the foundation of London University which later became University College, of which he was the first Secretary. Following on from Greenough (for which we had six correct answers) we then featured Joseph Paxton (1801–1865) who on the recommendation of Sabine, the Secretary of the Horticultural Society, was given employment in their new gardens at Chiswick. Here he attracted the attention of the President of the Horticultural Society who appointed him Superintendent of his gardens at Chatsworth where he erected greenhouses and a great conservatory over 300 feet in

length, said to be the model for the Great Exhibition building of 1851, in Hyde Park. Following the unexampled success of his daring plans for the erection of the Great Exhibition Building, his name became a household word. Later, between 1853–4, he superintended the re-erection of the Crystal Palace at Sydenham. He added new wings and the whole now measured 3,476 feet in length (about three-quarters of a mile). The glass roof covered 25 acres. In the surrounding gardens he created a great lake with an island on which resided models of 26 extinct animals including *Hylaeosaurus*, *Meglasaurus* and *Iguanodon*. Paxton's name will also go down in history as the founder of the *Gardener's Chronicle*.



Joseph Paxton

After Paxton we reverted to a zoologist, namely Phillip Pearsall Carpenter (1819–1877), a qualified minister and conchologist whose life was changed when, with the help of his brother-in-law he bought the Liverpool portion of Reigen's shell collection for £50. He eventually became one of the leading authorities on North American conchology, depositing sets of shells in the NHM and the New York State Museum. After his death his remaining collection, containing 4,000 species, was put up for sale and was bought by the Redpath Museum, McGill University, Montreal.



Phillip Pearsall Carpenter

We then returned to the well-tried formula of exploration when for the next Quiz we featured Mungo Park (1771–1806). A good friend of Sir Joseph Banks who, using his influence on the Board of the African Association, suggested in 1794 that Park would be an ideal person to ascertain the course of the Niger. However, this first expedition was unsuccessful. Nevertheless, the Colonial Office subsequently invited him to lead a second expedition of discovery to Africa with the rejoinder that he was “to pursue the course of the Niger to the utmost distance it can be traced”. After the ravages of malaria and yellow fever had

whittled down the party, the seven survivors sailed down the Niger to Boussa where there were extensive rapids. The townsfolk then attempted to prevent their progress. A fight developed and they were all drowned. Park left four children, all of whom received £7,000 from the Colonial Office.

At this juncture I returned to a character who had featured in a previous Quiz – Edward Jenner. The clue for which had been “Wallace did not believe him”. The first account (October 1995) had enabled me to write about how in 1895 the residents of

my home town, Stroud, five miles from Berkeley, burnt down the local pest house because they objected to the movement there of the town's small-pox victims. The second account allowed me to tell the tale of how neither my grandmother or mother (or myself) were vaccinated. My maternal grandmother came from Cam, a stone's throw from Berkeley and, like Wallace, believed there was more danger in being vaccinated than not. I was then able to explain the clue that I had used on both occasions – "Wallace did not agree with him".

In 1875 Wallace realised that there were anti-vaccinators and read some of their articles on the subject, including that of the philosopher Herbert Spencer. Spencer pointed out that the first compulsory Vaccination Act (1853) had led to an increase in smallpox. After careful consideration of the data, Wallace produced his first pamphlet in 1885 entitled "Forty-five Years of Registration Statistics Proving Vaccination is both Useless and Dangerous". He produced a second pamphlet in 1898 which he sent to every member of the House of Commons, who despite Wallace's protestations of the loss of personal freedom, both the 1898 and 1907 Vaccination Acts were passed without any dissent. Nevertheless, Wallace's views were noted and resulted in parents being allowed exemption from having their offspring vaccinated if objection was made on conscientious grounds.



Edward Jenner.

There were no answers to either the first or second Jenner Quizzes. The remaining four Picture Quizzes – Gosse, Kingsley, Herdman and Hooker are too recent to comment on, except to point out in reply to Jim Green's letter concerning Hooker, my philosophy is to make the clues difficult and challenging.

In concluding this article I should like to add that over the years the setting of the Picture Quiz has given me great pleasure, particularly in the extraction of the information from our Proceedings where the literary style varies greatly according to who is the author of the relevant obituary. This is often augmented by knowledge gleaned from the Dictionary of National Biography. It is from an analysis of all this information that enables me to concoct or design a suitable clue which might aid Fellows in the recognition of the picture used, always bearing in mind we do not want too many winners! It is a fine path to tread between not having a winner and the award of several mugs.

"What is the use of a book" thought Alice "without pictures or conversations?"

BRIAN GARDINER

Postscript: Jim Green has given the most correct answers to the Picture Quiz (at least five) and will be awarded a special mug, suitably enscribed. B.G.

Book review

Jean Delacour & Dean Amadon, updated by Josep del Hoyo & Anna Motis: Curassows and Related Birds. Lynx Editions/American Museum of Natural History 2004, 476 pp. Price US\$ 70

This is the second edition of a book first published by the American Museum of Natural History in 1973. The original gave a full and highly readable account of the neotropical bird family Cracidae, excellently illustrated by Albert Earl Gilbert and George Miksch Sutton. A few years later it was remaindered, then rose to dizzy heights of value in the second-hand market. All the more welcome therefore is this fresh and considerably amplified version, cheaper than the first edition if one allows for inflation.



A plate by Gilbert from the original edition. Top left: Black Guan *Chamaepetes unicolor*. Chick, a few days old. Top right: Highland Guan *Penelopina nigra*. Chick, one week old. Bottom: Wattled Guan *Aburria aburri*. Chick, a few days old.

It is updated by means of a separate chapter, which has the virtue of leaving the original charming and anecdotal text unspoilt. The most remarkable of the new illustrations, of young birds still in their downy plumage, have been provided by Albert Earl Gilbert. Included in the present volume, with typical generosity, are the identification illustrations from Vol. 2 of the *Handbook of the Birds of the World* (Ed. del Hoyo, Elliott & Sargatal). These enable the reader to see all the birds of one genus on a single page, and they are useful when linked to the update chapter and for researching the survival prospects and whereabouts of all 50 species of the family.

The great strength of the update chapter is that the species accounts are compiled from the work of specialists who have studied the various species in the field. In some cases they disclose an increasingly alarming conservation situation: more than half are now considered to be endangered. One of them (*Mitu mitu*) is extinct in the wild and its captive population reduced to a few dozen. Another, *Pipile pipile*, the Trinidad Piping-guan, is only just holding out in a sadly depleted forest in the north-east of Trinidad: there we see undeniable climate change, for the cloud forest which is an important part of the birds' range has now risen up the mountains to the extent that only 200 acres remain. The same upward movement of vegetation types has occurred with similar effect to a closely related species, *Chamaepetes unicolor*, at Monteverde in Costa Rica. We are seeing habitats vanishing off the face of the earth. But encouraging accounts have been coming in for a few species, of wild populations being successfully protected and of birds purposely bred in captivity and their progeny re-introduced into their correct (and protected) habitat.

We must be grateful to Mr. John Eugene Phipps, whose generosity made this new edition economically possible, and to Dr. del Hoyo whose enthusiasm made it happen. The original edition was sponsored by Mr. Phipps's father.

As Dean Amadon, one of the original authors, tells us, these birds are a barometer of the state of the forest systems they inhabit. Reduced Cracidae populations indicate unhealthy forest. Heavily intervened forest and too much human pressure lead first to scarcity then to absence of the Cracidae. The outlook for many species of these splendid-looking creatures and their habitat is disquieting. The changing situation can be studied in the bulletins of the Cracid Specialist Group of the World Pheasant Association (www.pheasant.org.uk).

NIGEL HUGHES FLS

Nigel Hughes's own work on the Cracidae consists of a series of mainly life-size oil paintings of all 50 species. These have been shown at Oxford University Museum of Natural History, Missouri Botanical Garden and Houston Museum of Natural Science. They were exhibited at The Fine Art Society plc, 148 New Bond Street, London W1S 2JT (art@faslondon.com) from 7 to 22 June 2006. Mr Hughes (www.nigelhughes.com; nrhughes@btinternet.com) lectured to the Society on the Cracidae on 8 June.

218th Anniversary Meeting of the Linnean Society held at

Burlington House, Piccadilly, London W1J 0BF

on Wednesday, 24th May 2006

1. **The President** took the Chair and welcomed 101 Fellows and their guests to the meeting.
2. **Apologies** were received from: Dr M G Morris, Dr P A Morris, Dr C. A. Prion Pansius, Dr Pamela Le Couteur, Dr Roger Sweeting, Prof Mike Claridge, Mr Andrew Sheppy, Prof Sam Berry, Dr Brian Rosen and Ms Carol Gökçe.
3. **Admission of Fellows.** The following signed the Obligation in the Roll and Charter Book and were admitted Fellows:

Dr Arthur MacGregor	Dr Martin Nickol
Ms Yoko Otsuki	Dr Edward Martin Rix
Dr Thore Lie	Professor Michael Ernst Heinrich
4. The **Minutes of the Meeting held on 11th May 2006** were taken as read and signed.
5. **The Executive Secretary** read for the third time the **Certificates of Recommendation** for the election of three Fellows *honoris causa*. The citations* are reproduced below:

Sir Jonathan Miller was born in 1934, and read natural sciences at St John's College Cambridge where he qualified as a medical doctor in 1959. From 1970 to 1973 he was research Fellow in the History of Medicine at University College, London, and Research Fellow in Neuropsychology at the University of Sussex. He became a Fellow of the Royal College of Physicians in 1997.

Sir Jonathan has written and produced many outstanding science series for the BBC and ITV, including *The Body in Question* a thirteen-part series looking at the history of medicine; *Museums of Madness* in which he examined the conceptual history of psychology, *The Question of Language* and *The Nature of Perception*.

Of his many publications, *The Facts of Life* and *The Human Body* show his undoubted enthusiasm in conveying knowledge of the biological sciences to the widest possible audience.

Three of Miller's heroes are Linnaeus, Darwin and Wallace. In a recent lecture given at the Linnean Society to another organisation, he said how honoured he felt lecturing under the gaze of these three men, and expressed his delight that, at long last, due recognition had been given to the Alfred Russel Wallace.

The scientific achievements of Jonathan Miller cannot be separated from his other interests. From his days at Cambridge he developed a passionate love for music and drama which led to him becoming world famous as a director of numerous plays and a producer of over fifty operas.

The wide-ranging activities of this polymath – a doctor, neurologist, historian of science, film director, lecturer, television presenter and producer, art historian, actor, curator, and educator were recognised in June 2002 when Jonathan Miller was knighted by Queen Elizabeth II.

Desmond Morris. During his childhood Dr Morris developed a strong interest in writing and natural history. He studied Zoology at Birmingham University and after graduating with first class honours in 1951 he moved to Oxford. His studies on the reproductive behaviour of the ten-spined stickleback led to his being awarded a doctorate in 1954 and then to post-doctoral research on the reproductive behaviour of birds.

In 1959 he was appointed Curator of Mammals at London Zoo. In 1967 he was editor of *Primate Ethology*, a work which considered advances in the study of the behaviours of monkeys and apes. During the same year he published the international best-seller *The Naked Ape*, which studied human behaviour from a zoologist's perspective. This work has since been translated into 23 languages, selling upwards of 10 million copies.

Among his many significant works during the following years were *The Human Zoo* (1969), *Intimate Behaviour* (1971) and *Manwatching, a Field-Guide to Human Behaviour* (1977). More recent publications have included, *Catwatching* (1986), *Dogwatching* (1986), *Babywatching* (1991), *The Human Animal* (1994), *Peopplewatching* (2002), *The Naked Woman* (2004) and *The Nature of Happiness* (2004).

Through these works Desmond Morris has become a household name for his study of animal behaviour. He has written almost fifty scientific publications altogether, as well as hosting popular television programmes, and because of his very wide interest and influence he is a most worthy candidate for Membership of the Linnean Society *honoris causa*.

Gathorne Gathorne-Hardy, Earl of Cranbrook, is a zoologist and an environmental biologist, specializing in the biology, taxonomy and archaeology of South-east Asian vertebrates. He received his BA (1956) and MA (1960) from Cambridge, and PhD from Birmingham (1960).

He is a specialist on cave swiftlets, the birds whose edible nests are an Asian delicacy. He is also an authority on the mammal and bird fauna of SE Asia, having authored or co-authored several books on the subject including: *Mammals of Borneo* (1965), *Birds of the Malay Peninsula* (1976), *Riches of the Wild: Land Mammals of South-East Asia* (1987), *Belalong: a tropical rainforest* (1994) and *Swiftlets of Borneo: builders of edible nests* (2002).

He is Chairman of the International Trust for Zoological Nomenclature, the body that provides support for the International Commission on Zoological Nomenclature. He was also Chairman of the Institute for European Environmental Policy (1990-2006), English Nature (1990-98), and has chaired or led a large number of environmental advisory bodies.

As a hereditary peer he sat in the House of Lords for 21 years (1978-99), concentrating on environmental issues and the role of science in politics and public policy. He has led a number of projects in South-east Asia, and was awarded the Royal Geographical Society's Founders' Medal in 1995.

The Executive Secretary then read out the **Certificates of Recommendation** for two Foreign Members. The citations* are reproduced below:

Professor Claus Nielsen is a graduate of the University of Copenhagen and has been there for the whole of his career. From 1965 he was a lecturer at the Marine Laboratory of the University, serving as Director 1970 to 1975. In 1982 he became lecturer/curator at the Zoological Museum of the University, and went on to become senior lecturer then in 1989, Professor of Evolutionary Invertebrate Embryology. He was Director of the Museum 1992 to 1996. Through all this time he also spent numerous periods abroad, working at academic and research institutions in Norway and Sweden, France, Italy, Germany and the UK, and in the U.S.A and Thailand.

Professor Nielsen's research interests span the whole of marine invertebrate zoology. Early research interests included the biology, ecology and reproductive cycles of the Entoprocta, the ecology and systematics of molluscs and the comparative morphology of bryozoans. He became increasingly absorbed with the morphology and development of marine invertebrate larvae, the structure and function of larval ciliary bands, and their significance for understanding metazoan phylogeny. His publication record totals more than one hundred primary research papers, numerous book chapters, encyclopaedia entries, notes and reviews; he has served on the editorial boards of many important scientific journals, including associate editor of the *Zoological Journal of the Linnean Society*.

Claus Nielsen is author of Linnean Society Synopsis 41 (Entoprocta, 1989). His 1964 monograph, '*Studies on Danish Entoprocta*', was awarded the gold medal of the University of Copenhagen; his seminal work, '*Animal Evolution: Interrelationships of the Living Phyla*', (Oxford University Press, 1995) was selected for the list of 'Outstanding Academic Books 1996'. Claus Nielsen was elected to Fellowship of the Linnean Society of London in 1984.

Dr Norman I Platnick was born in West Virginia in 1951, and became a natural history enthusiast at a very early age - by the time he was 22 had graduated from Harvard with a PhD on North American spiders under the supervision of Ernst Mayr.

Since then he has spent nearly all of his career at the American Museum of Natural History where he is now the Peter J. Solomon Family Curator. He also holds Adjunct appointments at CUNY and Cornell and Columbia Universities. He oversees the world's largest collection of spider specimens and he has recently been described as the best arachnologist of his generation. He has well over three hundred original papers and books, and at least 100 popular works on spiders, to his credit.

More importantly however, his classification methods have revolutionised the field of taxonomic study. Inspired by Hennig's *Phylogenetic Systematics* Norman Platnick wrote what is perhaps the seminal work of the 20th century: *Systematics and Vicariance; Cladistics and biogeography*. He went on to write a whole string of important papers on optimisation, the transformation of cladistics, the basics of cladistic biogeography, homology, and much else. For the last 20 years or so he has been a good friend to all systematists debunking the phylocode, paraphyletic groups and the emptiness of phylogenetic systematics.

Norman Platnick has left indelible marks on systematic theory and spider classification as a whole, and there is no doubt that he is well qualified to be a Foreign Member of The Linnean Society.

6. Appointment of Scrutineers. The following were appointed as scrutineers:

Dr Colin Bowlt Dr John Marsden Dr Charlie Jarvis

7. Ballots. As a result of the ballots:

- a. The following were elected to Council: **Dr Shahina Ghazanfar (B)**, **Mr Alastair Land (Z)**, **Prof Mark Seaward (B)** **Dr George McGavin (Z)** and **Dr Joe Cain (Z)**. Details of these new Council members can be found in *The Linnean*, April 2006, p.2. These nominations, all made by the Council, were for Fellows to replace Prof Gordon McG Reid, Dr J Sarah Churchfield, Dr John David, Dr Brian Rosen and Dr Roger Sweeting.

- b. The following were elected Fellows *honoris causa*: **Desmond Morris, Jonathan Miller** and **Gathorne Gathorne-Hardy FLS**.
- c. The following were elected Foreign Members: **Claus Nielsen FLS** and **Norman Platnick**.
- d. The Officers elected were: President, **Professor David Cutler**; Treasurer, **Professor Gren Li Lucas OBE**; Editorial Secretary, **Dr John Edmondson**; Botanical Secretary, **Dr Sandy Knapp**; Collections Secretary, **Mrs Susan Gove** and Zoological Secretary, **Dr Vaughan Southgate**.
- e. The Fellows were elected as on the accompanying list.

8. Citations and Presentations of Medals and Awards:

- a. The President presented the **2006 Linnean Medal for Botany** to **Professor David Mabberley FLS**, of the University of Washington, Seattle. **Vice-President Dr Jenny Edmonds** read the citation* which was prepared by **Dr Pieter Baas FLS** and **Aljos Farjon FLS**.

Throughout his botanical career Professor David Mabberley (1948) has made outstanding contributions to botany, especially in the fields of systematics, ecology and bio-history. As a pupil of E.J.H. Corner (another worthy recipient of the Linnean Medal) he wrote his PhD thesis in 1973 on the giant groundsels (*Dendrosenecio*) and giant lobelias (*Lobelia*) of tropical montane Africa and has since then contributed significantly to the international debate on the evolutionary significance of pachycauly and woodiness in several “herbaceous families”.

His publication record includes 15 books, 221 original research papers and 74 book reviews on a great diversity of subjects. Some highlights in his versatile and highly productive research include his numerous contributions to revisionary taxonomy and botanical nomenclature, especially on Meliaceae, Lamiaceae/Verbenaceae, Rutaceae (with new insights in the origins of the multitude of cultivated Citrus forms), and Vitaceae; his thought provoking essays on the evolution of form through homeosis, and his authoritative biographical studies on Robert Brown, Ferdinand Bauer and Arthur Harry Church.

Most of all, however, the international botanical community and all members of the general public interested in information on plants are indebted to David Mabberley for his authorship of “*The plant-book: A portable dictionary of the higher plants*” (1st ed. 1987, 2nd ed. 1997, 3rd ed. in prep. for 2007). Rooted in the original “*Willis’ Dictionary of Flowering Plants and Ferns*”, the plant-book has become a true thesaurus and comprehensive encyclopedia, not only on scientific plant names and botanical classification, but also of concise information on plant uses and noteworthy biological attributes of families and selected species of plants. David Mabberley has also admirably aimed and succeeded in making his “Plant-book” a synthesis of modern taxonomic insights. For the forthcoming 3rd edition he has convened a number of workshops in Australia, Europe and America to reach optimal consensus on current views (revolutionised by the APG system) on family delimitation and ordinal classification of the higher plants. Without exaggeration the “Plant-book” can be hailed as the most useful and compact source of information on plant systematics and economic botany to date.

Throughout his career Professor Mabberley has been actively engaged in teaching. During his term in Oxford (1976-1996) he was a successful tutor and lecturer, supervising no less than 12 successful PhD students. As extraordinary Professor of Systematic Plant

Anatomy in Leiden (from 1994 onwards) he teaches a very successful international course on Economic Botany. In Sydney, associated with the Royal Botanic Garden and with the University of Western Sydney (1996—2005) he added public outreach in radio broadcasts to his educational role. From 2005 onwards, as Professor and Director of the University Botanic Gardens, students of the University of Washington in Seattle, USA, will profit from his inspiring lectures on economic botany. His successful book “Tropical Rain Forest Ecology” (1983, 2nd edition 1991) must be seen as a most valuable teaching manual for biology students. David Mabberley is the current President of IAPT, the International Association for Plant Taxonomy.

The international community has recognized Professor Mabberley’s great merits on several occasions. He is the recipient of the Burbidge medal “for services to Australian plant systematics”, of the “Peter H. Raven Award for exceptional contributions to scientific outreach” and of the “Cuatrecasas medal for excellence in tropical botany”. The award of the Linnean Medal for Botany by the Linnean Society of London would be a most appropriate and timely recognition of this great English Botanist.

- b. The President presented the **2006 Linnean Medal for Zoology to Professor Richard Fortey FRS FLS** of the Natural History Museum. The citation* was composed by **Dr Norman MacLeod FLS**, of the Natural History Museum, and read by **the President** who said:

Among systematists Professor Richard Fortey FRS hardly needs an introduction for he is pre-eminent in several systematic fields along with being a world expert on the taxonomy and phylogeny of trilobites. Richard is also, significantly, an award-winning writer on a variety of popular science topics.

Richard’s professional career began at Kings College, Cambridge where, from 1965-68, he read Natural Sciences securing both the College and Harkness prizes for geology in 1968. From 1968-70 he worked toward a PhD in Cambridge involving an innovative systematic, stratigraphic, and paleoecologic study of the Spitsbergen Ordovician fauna. Richard has remained involved with lower Palaeozoic stratigraphy in general, concentrating on the Ordovician in particular, ever since.

Richard joined the Natural History Museum in 1970, first as a Research Fellow and then as a Scientific Officer (1974), as a Principal Scientific Officer (1978) and finally as a recipient of the UK Research Council’s prestigious Individual Merit Promotion (1986-Present). Richard was an early convert to phylogenetic systematics while at the NHM and has long been a proponent within the palaeontological community. Stemming from his constant interest in the history of trilobites, Richard added many other skills and topics to his systematic and stratigraphic work over the years, including macroevolution, the early history of arthropod evolution, the Cambrian explosion, developmental studies, functional morphological studies, and most recently Lower Palaeozoic palaeobiogeography.

Over the past decade Richard Fortey’s activities have increasingly focused on communication of the results of scientific research and the ethos of science, to the general public. Richard’s technical papers have always had a strong focus on topics of general interest to scientists. He has been an author, co-author, or contributor to many important technical books and review articles as well as many lectures on technical subjects for public audiences. Since 1993 though, Richard’s writing has increasingly focused on the production of popular books that get to the heart of what it’s like to be an active participant in the scientific enterprise. Even more importantly, Richard’s popular books explain both the excitement and importance of science and scientists to those who wish to follow

developments in this field, but are not connected with science professionally.

Richard's success in these endeavours can be assessed by the large number of enthusiastic reviews and by the high-profile awards and shortlistings they have received. Because of his success, Richard has been increasingly in demand to write essays and book reviews, serve on awards and editorial committees, deliver prestigious public lectures, and take on a variety of honorary 'public understanding of science' positions, the responsibilities for all of which he has met with his customarily high level of talent and enthusiasm. Through it all, however, Richard has refused to relinquish his activities as a leading contributor to the primary technical literature and an active mentor to a host of current and former graduate students, many of whom now occupy positions of responsibility in their own institutions.

Finally, Richard's work on behalf of various professional societies (including the Linnean Society), his involvement with advising UK research councils (where he has been a tireless advocate of the strong tradition and continuing importance of systematics to UK research), and his activities in the education of future generations of systematists, must be mentioned. For all these reasons Richard Fortey is a highly deserving candidate for the 2006 Linnean Society Medal for Zoology.

- c. The President presented the **2006 Bicentenary Medal to Dr. Vincent Savolainen**. The citation*, prepared by **Professor Mark Chase FLS**, and read by the **Zoological Secretary**, Dr Vaughan Southgate, was as follows:

Vincent Savolainen received his PhD from the University of Geneva in 1995 on the subject of relationships of the holly family, Aquifoliaceae, and the order Celastrales, for which he developed a new marker (not a simple task at that time). He then went to the Royal Botanic Gardens, Kew, for a post-doc, and it was during this time that he developed an affinity for London and the research environment at RBG, Kew. On completion of his post-doc in 1996, he returned to Switzerland, where he worked on molecular systematics and taught at the Universities of Geneva and Lausanne. He returned to RBG, Kew, when a post in molecular systematics became available in 1999, and he is now Deputy Head of the Molecular Systematics Section.

Vincent has an impressive publication record with nearly 60 papers, books and book chapters in 13 years, and he is a successful writer of grants and a valued reviewer/editor (he is an associate editor for *Systematic Biology* and *Molecular Systematics and Evolution*, both highly cited journals). His recently published paper in *Nature* has been cited by several other researchers as the best evidence produced thus far for sympatric speciation in plants and animals; in the brief period since its publication last month this paper in *Nature* has been downloaded over 4000 times, a record for the journal. This paper is well on its way to becoming a textbook example of sympatric speciation. He is clearly one of the top researchers in the EU in the area of plant evolutionary biology.

Vincent gives lectures in courses at Imperial College, the Natural History Museum (London) and the University of Reading and is also an effective teacher/supervisor at undergrad, postgrad and postdoc levels (16 of these last two categories thus far). Some of his former students are now respected lecturers at several universities, and he is in great demand as a thesis examiner in the UK and EU.

He is highly skilled in phylogenetic and related analytical methods (including molecular clock analyses) and is active in the European arena on subjects including the Tree of Life, biodiversity hotspots and DNA barcoding.

He has been instrumental in the establishment of a DNA Bank for the South African flora (as a result of a successful Darwin Initiative application) and now has a second project funded for similar activity for the orchids of Costa Rica. He has also been successful in obtaining a training grant from the EU on biodiversity hotspots, which will link together nine centres of excellence covering plants, fungi and animals. On the whole, he is an outstanding researcher in evolutionary biology in the UK.

- d. The President presented the **2006 HH Bloomer Award** to **Mr Eric Clement FLS**. The **Botanical Secretary** read the following citation prepared by **Mrs Clare O'Reilly FLS and Prof Clive Stace FLS**:

Eric Clement is one of our most influential botanists, whose expertise on alien (or non-native) flora of the British Isles is, to quote Professor Stace in his *New Flora of the British Isles*, "unparalleled".

Eric's amateur status is so well disguised by his prolific, high quality publications that many are astonished that he not only does not hold a botany degree, but in fact had no formal higher education. Therefore being a Fellow of the Linnean Society is a source of much pride for Eric and he actively encourages others to join the society.

Eric's botanical career began young, in the 1950s, and his passion for plants remains undiminished to this day. For over 40 years he has devoted every spare moment, including long lunch hours from his day job as a civil servant, to developing his botanical skills. This level of commitment is extremely unusual yet arguably necessary if an amateur is to establish himself on a par with full-time academics. Indeed, Eric may well be one of the last of a great generation of amateur experts, including David McClintock and Duggie Kent. During the 1960s Eric organised many field meetings both in Britain, often to London rubbish dumps, and also in the Mediterranean, which led to his interest in aliens. However, it is easy to overlook the fact that he is equally knowledgeable about native plants. Eric is also unusual in his understanding of botanical nomenclature, a challenging subject for most professionals.

Eric has regularly published in the *Botanical Journal of the Linnean Society* and *Watsonia* as well as contributing several hundred papers to Botanical Society of the British Isles (BSBI) News. The sheer scale of his output is evident from the *New Atlas of the British and Irish Flora* reference section, which gives Eric as one of the most cited authors. His major publication *Alien Plants of the British Isles*, co-authored with Sally Foster (1994), was the result of over 20 years work and achieved world-wide recognition. Other publications include *Alien Grasses of the British Isles* (1996), and *Illustrations of Alien Plants of the British Isles* (2005). Eric is currently working on yet another ground-breaking project: a vegetative flora of the British Isles. This will go a long way towards improving the standard of field botany amongst ecologists, who are often required to identify non-flowering plants. But in typical fashion, he sought out a promising young botanist to take on the work under his guidance, and is likely to decline any formal credit for this publication.

In 1999, Eric was elected as an honorary member of the BSBI, in recognition not only of his contribution to the society and botany but also of his willingness to encourage beginners to study plants. Many authors cite early support and teaching from Eric in their acknowledgements.

We are delighted to nominate Eric J. Clement for the prestigious 2006 H. H. Bloomer Medal in recognition of his outstanding contribution as an amateur to the study of British botany.

e. The President presented the **2006 Irene Manton Prize to Dr. Yuki Yasumura.**

The citation* prepared by the **Botanical Secretary** and read by the **President-elect**, was as follows:

Our late President, Professor Irene Manton, instituted an annual prize for the best doctoral thesis in Plant Science in the UK. This year's winner is Dr Yuki Yasumura, from the Department of Plant Sciences, University of Oxford. In her thesis on "Conserved regulation of chloroplast development in *Physcomitrella patens* and higher plants", she investigated the role of the *Golden 2-like (GLK)* plant gene family in the regulation of chloroplast development.

The Queen's College, at which Yuki was a Kobe Scholar, was originally founded in 1341 by Queen Philippa's chaplain and later endowed by Lady Elizabeth Hastings. Given the College's ancient links with Cumberland, Westmorland and Yorkshire I suspect that Irene Manton, who formerly held a chair at Leeds, would have been pleased that this year's winner comes from an institution with both feminist and northern credentials.

Our prizewinner, who now works at the John Innes Centre in Norwich, was supervised by Dr Jane Langdale, who provided the following testimonial:

"Dr Yuki Yasumura was one of the best students I have trained in my 15 year supervisory career, both in terms of intellectual ability and commitment to the project. Her thesis represents a coherent piece of work of the highest quality".

The examiners' report continues:

"The thesis centres on *GLK* genes in the moss *Physcomitrella patens*. Moss and higher-plant lineages having diverged soon after land colonisation, the presence of *GLKs* in *Physcomitrella* would underline their fundamental importance in chloroplast biology. Furthermore, *Physcomitrella* is unique amongst plants in providing established methods for gene targeting via homologous recombination, thus greatly facilitating the study of gene function.

The thesis is well written and logically structured, and the results are documented in separate chapters describing the PCR-based cloning and characterisation of two *PpGLK* genes, their expression patterns, the generation and characterisation of targeted *GLK* lines, and finally the phenotypes of these mutants. PCR-based methods were used to clone two *GLK*-encoding genomic and cDNA fragments, *PpGLK1* and *PpGLK2*. High-quality Southern blots are presented in description of the loci, while northern blots provide information regarding the diurnal expression pattern. A phylogenetic analysis was performed of the *Physcomitrella* *GLK* sequences and their relationship to the large GARP transcription factor family. The high level of homologous recombination in *Physcomitrella* allowed translational fusions between the 5' regions of *GLK1* and 2 and *GUS (uidA)* to be introduced into the genome. This is to our knowledge quite new in a plant, and illustrates the great potential of the *Physcomitrella* system. The main findings were published in volume 17 of the journal *The Plant Cell* in July 2005."

Our assessor concluded that this was "an excellent piece of research into developmental biology that is superbly presented". I should like to invite the President to present the award, which consists both of a cheque and a work of art.

f. The President presented the **2006 Jill Smythies Award for published botanical art** to **Ms Bobbi Angell**. The citation*, composed by the **Botanical Secretary** and read by the **Collections Secretary**, was as follows:

The judges unanimously chose Ms. Bobbi Angell as this year's winner of the Jill Smythies Award. Her work has been widely published in a large number of floras, field

guides and monographs over the past 25 years, as well as in popular publications such as the New York Times' weekly gardening column, republished as *The Gardener's Essential Companion* in 2000. Having obtained a degree in botany at the University of Vermont in 1977, she started work at New York Botanical Garden the following year as a botanical illustrator, her first project being the illustrations to *Intermountain Flora*. She has continued to make a major contribution to the publication programme of the Garden, not only through the illustration of their monographs, field guides and floras (outstanding examples include Nathan Smith et al *Flowering Plants of the Neotropics* and Rupert Barneby *Sensitivae Censitae: a description of the genus Mimosa*) but also by providing many individual illustrations of newly described species published in journals such as *Brittonia*. So high is the esteem in which she is held by plant taxonomists that she is commemorated in three species for which she unwittingly provided the illustrations: *Macroparpea angelliae*, *Mexia angelica* and *Potentilla angelliae*.

In nominating Bobbi Angell, her proposers (Dr Jacquelyn Kallunki, Associate Director and Curator of the Herbarium and Susan Fraser, Director of the LuEsther T. Mertz Library at the New York Botanic Garden) wrote:

"Using her botanical training, keen observational skills, and artistic sensibility, she creates botanically accurate, exquisitely detailed illustrations. Her images are not only scientifically accurate but also beautifully composed, even when they are reconstructions of flattened dried specimens. The clarity of the microscopic details provides an intimate view of beauty that usually escapes the naked eye. Many people, when identifying a specimen, go directly to the illustrations rather than to the keys and descriptions, and those who use a flora illustrated by Bobbi Angell find that a picture truly is worth a thousand words".

Reviews of the publications in which her work has appeared often make specific reference to the high quality of her drawings. For example, "Adding immeasurably to the quality and usability of *Intermountain Flora* ... are some of the finest and most accurate ... line illustrations to be found anywhere". Although working mainly in the medium of pen and ink, she also prepared a series of 75 watercolour portraits of U.S. endangered plant species for the Missouri Botanic Garden-based Center for Plant Conservation, which have been used to assist them in raising funds to conserve imperilled native plants and restore their habitats.

In a year when several strong candidates were put forward for the award, it is indeed a worthy achievement to be the winner of the Jill Smythies Award of the Linnean Society of London for 2006.

9. The Treasurer presented the Accounts for 2005. These are to be found in the 2005 Annual Report. The Treasurer stressed the Society's need to fundraise in order to achieve its goals and answered a number of questions. The President then warmly thanked the Treasurer.

10. Dr. David Frodin of the Audit Review Committee proposed: "In accordance with Bye-Law 12.6, the Annual Statement of Accounts for 2005, and the report of the professional auditors, were carefully examined by the Audit Review Committee of Fellows on 9th March 2006. On behalf of the Committee, of which I was a member, I am pleased to report to the Anniversary Meeting that we concluded that the Accounts give a true and fair picture of the Society's finances as at 31st December 2005. I therefore move that they be accepted." This was carried unanimously on a show of hands.

- 11. The Treasurer** moved that the firm of Knox Cropper, of 16 New Bridge Street, EC4V 6AX, be appointed as auditors in accordance with Bye-Law 12.5, which was accepted unanimously. He then proposed the continuation of the banking arrangements with Lloyds TSB which the Fellows also agreed. The Treasurer closed by thanking all the staff and volunteers for their hard work and commitment throughout the year. **The President** paid tribute to the Treasurer's great contribution to the Society.
- 12. The President** then gave his address on *Linnaeus' Fish – Past, Present and Future*
- 13.** On behalf of the Fellows the **President** was thanked for a most stimulating and wide-ranging talk.
- 14. Professor Gordon McGregor Reid** then handed over the Presidency to **Professor David Cutler** who thanked the outgoing President for his leadership and diplomacy through a difficult period. Professor Cutler nominated as his Vice-Presidents **Professor Richard Bateman, Dr Jenny Edmonds, Professor Mark Seaward** and **Dr Vaughan Southgate**.
- 15. Any other valid business.** Ms Gina Douglas moved that the President's address be published and circulated. The motion was passed.
- 16.** The President then declared the meeting closed, noting the dates of forthcoming meetings.
- 17.** The next Anniversary Meeting will be on **Thursday, 24th May 2007 at 5pm.**

ADRIAN THOMAS,
Executive Secretary

*The citations formed the basis of what was said at the meeting.

A Century of Evolution: Ernst Mayr 1904-2005

6th Oct 2006

Provisional Timetable

10.00-10.10 **Mike Claridge** (Cardiff University, Wales) *Introduction – Systematics and the Origin of Species*

10.10-10.50 **Jim Mallet** (University College, London) *Mayr's contributions to understanding species and speciation*

10.50-11.30 **Sandy Knapp** (Natural History Museum, London) *A local flora and the biological species concept*

11.30-12.00 Coffee

12.00-12.40 **Brent Emerson** (University of East Anglia, Norwich) *Speciation on islands – what are we learning?*

12.40-13.20 **Axel Meyer** (University of Konstanz, Germany) *Geographic models of speciation : effects of Ernst Mayr's contributions on current research*

13.20-14.20 Lunch

14.20-15.00 **Patric Nosil** (Simon Fraser University, BC, Canada) *Ecological factors in speciation*

14.00-15.40 **Ian Owens** (Imperial College, London) *What do Ernst Mayr and island birds tell us about evolutionary biology?*

15.40-16.00 Tea

16.00-16.40 **Roger Butlin** (University of Sheffield) *Candidate gene approaches to speciation*

16.40-17.20 **Joe Cain** (University College, London) *Mayr as historian and philosopher – how does this fit with his science?*

17.20-18.00 General Discussion followed by drinks in the library

The Linnean Society

Programme

2006

13th July	6pm Thurs.	TILAPIA IN AQUACULTURE Roger Pullin to celebrate publication of the autobiography of Rosemary Lowe-McConnell FLS	
4th August Day meeting	Fri.	PLANTS, PEOPLE AND EVOLUTION † Plant Anatomy Group To mark the retirement of Barbara Pickersgill FLS	
15th Sept. Day meeting	Fri.	BIOMATERIALS MEETING: FROM NATURAL MATERIALS TO BIOMIMETICS † Paul Hatton	
16th Sept.	Sat.	LONDON OPEN HOUSE	
21st Sept.	6pm	LICHENS IN CHURCHYARDS Frank Dobson FLS	
30th Sept	Sat.	CONVERSAZIONE at the Linnean Society	
6th October Day meeting	Fri.	A CENTURY OF EVOLUTION: ERNST MAYR 1904–2005 † Mike Claridge FLS and Vaughan Southgate FLS	
12th October	6pm* Thurs.	MALMAISON Walter Lack FLS	Book Sale
19th October Day meeting	Thurs.	PARASITE SPECIES AND SPECIATION – TACKLING A HOST OF PROBLEMS † Tim Littlewood FLS	
25th October Day meeting	Wed.	PALAEOBOTANY SPECIALIST GROUP † Peta Hayes	
26th October	Thurs.	PROGRESS IN PALYNOLOGY † Palynology Specialist Group	
2nd Nov.	6pm Thurs.	EVOLUTIONARY NOVELTY IN THE DEEP SEA: WORMS FROM WHALE CARCASSES Adrian Glover FLS	
25th Nov.	Sat. am	BROGDALE LECTURE	
30th Nov.	6pm Thurs.	DEBATE ON ISSUES IN SYSTEMATIC BIOLOGY † organiser	
		* Election of new Fellows	

Unless stated otherwise, all meetings are held in the Society's Rooms. Evening meetings start at 6 pm with tea available in the library from 5.30. For further details please contact the Society office or consult the website – address inside the front cover.

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