



THE LINNEAN

Newsletter and Proceedings of
THE LINNEAN SOCIETY OF LONDON
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THE LINNEAN SOCIETY OF LONDON

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THE LINNEAN

Newsletter and Proceedings
of the Linnean Society of London
Edited by B. G. Gardiner

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Anniversary Meeting 2003
to be held in the Society's rooms on
Saturday, 24th May 2003 at 2pm.

1. Welcome to members and guests.
2. Admission of Fellows.
3. Apologies for absence.
4. Minutes of meeting held on 27–30th April 2003, which have been posted in the Society's Rooms.
5. Third Reading of Certificates of Recommendation for two Foreign Members (FMLS) and a Fellow *Honoris causa*: *Prof. Else Marie Friis (Denmark, B)*, *Dr Angelika Brandt (Germany, Z)* & *Alwyne Wheeler*.
6. Appointment of three scrutineers.
7.
 - (a) Ballot for Members of Council (blue: details of Council nominees are overleaf)
 - (b) Ballot for a Fellow *Honoris causa* and two FMLS' (pink: see 5, above)
 - (c) Ballot for Officers (yellow: save for the President, whose term of office ends in 2003, the current honorary Officers offer themselves for re-election; *Prof. G. McG. Reid* has been nominated as President for 2003–2006.)
 - (d) Ballot for Fellows and Associates (white)
8. Citations and Presentations of Medals and Awards
 - Linnean Medal for Botany *Prof. Pieter Baas FLS*
 - Linnean Medal for Zoology *Prof. Bryan Campbell Clarke FLS*
 - HH Bloomer Award for an amateur who has made a notable contribution to science *David Anthony Pearman*.
 - Bicentenary Medal for a biologist under 40 *Dr. Toby Pennington*
 - Jill Smythies Prize for botanical illustration *Marja Koistinen*
 - Irene Manton Prize for a PhD thesis in botany *Dr. Mark Clegg*
9. Treasurer's Report for 2002.
10. Motion to Accept Accounts for 2002.
11. Appointment of Auditors for 2003.
12. Appointment of Bankers for 2003.
13. Contributions 2004.
14. President's address.
15. Vote of Thanks
16. Result of Ballots and any casting votes.
 - A. Council
 - B. Fellow *Honoris causa* and Foreign Members
 - C. Officers, including new President
 - i President
 - ii Treasurer
 - iii Zoological Secretary
 - iv Botanical Secretary
 - v Editorial Secretary
 - D. Fellows and Associates
17. Names of the Vice-Presidents.
18. Any other valid business.
19. Close. Reception in Library – admission **by ticket only**. Booking form enclosed.

Council Nominations 2003

Sara Jane Churchfield (1982) is a lecturer in Biology at King's College London. Her research interest is in the ecology of small mammals, particularly shrews, in temperate and tropical regions. She has been a member of the Linnean Society for many years and served on Council during the Bicentenary. She is currently a member of both the Grants and Programmes Committees. In addition to her contributions to the scientific literature, she has written books and popular articles on shrews. She enjoys enthusing amateur naturalists as well as professional biologists and frequently gives talks to Wildlife Trusts and other natural history groups nation-wide, and has made radio and television broadcasts. When not chasing shrews, she is a keen gardener and musician.

John Charles David (1992) has been a mycologist at CABI Bioscience (Egham) for sixteen years where he is curator of the herbarium (IMI), co-editor of the *Index of Fungi* and the *IMI Description Sheets of Fungi and Bacteria* as well as the 9th edition of Ainsworth & Bisby's *Dictionary of the Fungi* published in 2001. He is involved with many aspects of systematic mycology especially nomenclature of higher taxa of fungi, and is a member of the International Botanical Congress Special Commission on Suprageneric Names. Research interests include the systematics of Mycosphaerellaceae and their anamorphs. Dr David has served on the Society's Council from 1999 to 2002 and is currently a member of the Society's Library Committee as well as an associate editor of the *Botanical Journal of the Linnean Society*. More recently he has revived the UK Systematics Forum Botany Specialists Group as the Botanical Collections Managers Group, a specialist group of the Linnean Society.

Aljos Farjon (1992) is a botanist who currently works at the Royal Botanic Gardens, Kew, whose staff he joined in 1996. Before that appointment, he worked as an invited researcher in the Department of Plant Sciences of the University of Oxford, from 1993, and before that for nearly ten years in the Institute of Systematic Botany of the University of Utrecht. He is a world-renowned specialist in the taxonomy of conifers, on which he has published more than 40 papers and seven books to date. He was born in 1946 in the Netherlands where he was educated up to university level then worked and lived until 1993 when he came to England. Despite his specialism, his scientific and other interests are wide-ranging and include evolution, palaeontology, geology, ecology as well as history (including prehistory) and arts. Some of these interests originated in his childhood and have been pursued all his life, even though foci have shifted with time. He has travelled extensively to quench this thirst for experience, knowledge and wonder about the natural world and hopes to be able to continue for years to come.

Michael Francis Fay (1990) has worked at the Royal Botanic Gardens since 1986, firstly as Head of Micropropagation and more recently as Head of Genetics. His research relates to the application of molecular techniques in conservation genetics and phylogenetics. In conservation genetics, his work is focused on rare and endangered species from the UK and oceanic islands. In phylogenetics, he studies relationships in a

range of groups, often of horticultural interest, including Alliaceae, Helleborus and Liliaceae. He was awarded the Bicentenary Medal by the Society in 2000.

Brian Roy Rosen (2003) is a research scientist with biological and geological background, going back to 1964 when he graduated from Oxford in Geology. His main research interests are in the geology and biology of living and fossil corals and reefs. He initially held appointments at the Universities of Aberystwyth (Geology) and Newcastle upon Tyne (Geophysics), but he spent most of his career in the Department of Palaeontology at The Natural History Museum, London, until his statutory retirement in 2002. He then accepted invitations to become a Scientific Associate in the Department of Zoology (NHM) and Editor-in-Chief of the Museum's new life science journal (*Systematics and Biodiversity*).

Roger Anthony Sweeting (2000) was a student at Leeds University studying for a Zoology with Agricultural Zoology degree. This was followed by a PhD in Fish Parasitology under R. Wynne Owen at Leeds. Following that he moved to Sir John Cass College in London where, with Anne Powell, he studied fish and fish health in flooded gravel pits. In 1975 he took a post in Reading with the Thames Conservancy Division of Thames Water as a fish biologist/fish pathologist. A really productive fifteen years followed, investigating the reasons for fish mortalities in the rivers and stillwaters of the Thames catchment. He was promoted through various positions in the National Rivers Authority and then the Environment Agency, always with a brief entailing examination of the effects of environmental quality changes on freshwater biota. He is currently Chief Executive of the Freshwater Biological Association, based on Windermere. Here his brief seems to be more the study of the effects of the social and political environment on freshwater science and scientists!

These nominations, made by the Council, are for Fellows to replace Professor Bateman, Dr. Langford, Dr. Littlewood, Mr. Patrick, Dr. Sheffield and Sir David Smith whose terms of office on Council come to an end on 24th May 2003.

The President-Elect, Professor Gordon McGregor Reid (see Annual Report for 2002 for his CV) replaces the retiring President, Sir David Smith. Otherwise all the existing Officers are willing to stand for re-election.

JOHN MARSDEN,
Executive Secretary.

Editorial

This issue contains an account of the Reverend Gilbert White's life and includes his contemporaries as well as his successors of whom Thomas Bell, the sixth President of the Linnean Society, made the most impact.

Thomas Bell bought *Wakes* on the decease of White's grandnieces in 1844 for £1,600. Bell retired from practice and all official positions in 1862 to reside permanently at *Wakes* and became a natural successor to Gilbert White, occupying himself collecting relics of that naturalist, as well as improving the house. At the same time Bell produced a major edition of the *Natural History of Selbourne* (1877) containing numerous footnotes signed 'TB.', with a new memoir and publication of White's correspondence. During his occupancy of *Wakes* he made use of the garden and the pond to house and rear innumerable chelonians which he then used to illustrate his *Monograph of the Testudinata* (1836–42)¹.

On Bell's death his widow eventually sold *Wakes* for £3,800 to Edward Bradford, when the contents (including many of the relics of Gilbert White's occupancy) were disposed of by auction. The house was next occupied by the Pears family (the soap people) who sold it in 1954 (following an unsuccessful public appeal to make it into a memorial to White) to Robert Washington Oates, who was anxious to find a home for his family's memorabilia. Today the Oates Museum occupies the upper floor of *Wakes* and comprises a library and ephemera relating to Francis Oates' travels and explorations of Central America (1871) and Matabele Land (1873). It also contains a section on the exploration of Antarctica, since it was his cousin Lawrence Oates who went on Scott's ill-fated expedition to the South Pole and who, crippled with frostbite, walked into the open saying, "I am just going outside, I may be some time", and met his death in order to make the task of his comrades easier. Although a search party eventually found Scott, Wilson and Bowers, no trace of Oates could be found. A district in Antarctica is named after him. Gilbert White and Thomas Bell, however, are both buried in Selbourne churchyard. There is a memorial window to White, which shows St. Francis preaching to the birds and a memorial tablet to Bell on the south wall inside the church. In White's time the house was known as *Wakes*, however, today it is more usually referred as The Wakes and is open to the public.

Following the article on Gilbert White we have included a poem whose subtitle is "Gilbert White" and which won a prize at Cambridge some years ago. It captures the essence of White and his studies rather well.

Two other short articles, and some items of correspondence, are relevant to the continuing discussion of evolution and the determination of species, both of which are particularly appropriate topics for the Society's newsletter.

B.G. GARDINER

¹ See *The Linnean* 17(4):10

Society News

We congratulate two Fellows, who in the New Year Honours received CBEs. They are **Professor Enrico Coen FRS**, of the John Innes Centre at Norwich, and **Professor Paul Henderson** of the Natural History Museum, London.

We also congratulate **Professor Duncan Porter FLS**, Director of the Darwin Correspondence Project, based at Cambridge University, which has received a Queen's Anniversary Prize for Higher and Further Education. Professor Porter is professor of botany at Virginia Polytechnic Institute & State University. The Prize recognizes and rewards the outstanding contribution that universities and colleges in the United Kingdom make to the intellectual, economic, cultural, and social life of the nation. The Darwin Correspondence Project involves transcribing, editing and publishing more than 14,500 letters written and received by Charles Darwin throughout his life. The project has published 13 of a projected 32-volume set of Darwin's letters, *The Correspondence of Charles Darwin*. In 1991, the Darwin Correspondence Project received the first Modern Language Association of America Morton N. Cohen Award for a Distinguished Edition of Letters. Professor Porter is also co-editor, with Professor Peter Graham, Professor of English at Virginia Polytechnic, of the book *The Portable Darwin*.

And whilst on the subject of books, the annual **Book Sale** will be held on the evening of 16th October after the talk at 6pm by Sir Christopher Lever FLS on *Naturalized species: the ecology of successfully introduced species*.

Members should note that the *Species Plantarum* meeting in Uppsala, which the Society is supporting, will now take place on 22–24th August (not 9th October as on the Programme Card); registration details are available at <http://systbot.uu.se/sp.pl/>

A tercentenary commemoration of the life of Robert Hooke will take place on 2nd October 2003 at Christ Church, Oxford. Open to the public, the commemoration of Hooke's life and works is being arranged under the auspices of Christ Church, where Hooke was an undergraduate member and where his inventive career began. This Symposium is supported by the Royal Society, the Linnean Society, the London Mathematical Society and the Royal Academy of Engineering. It will take the form of a meeting in which some of the present-day holders of the positions Hooke occupied will take part. The Speakers will include Dr Allan Chapman, Professor Michael Cooper, Dr Ellen Tan Drake, Professor John Enderby (Secretary of the Royal Society), Sir Roger Penrose, Sir Martin Rees (Astronomer Royal) and Sir Christopher Zeeman. Admission will be by ticket (£25 including lunch in Hall at Christ Church). Tickets are obtainable from The Secretary, Development Office, Christ Church, Oxford OX1 1DP, (e-mail: development.office@chch.ox.ac.uk)

We have also been asked to note that the **XIVth Congress of European Mycologists** will be held in Katsiveli, near Yalta, Crimea, Ukraine, 22–27th September 2003. The Congress website is <http://www.biodiversity.ac.psiweb.com/14cem/index.htm> and the Second Circular and Registration Form can be downloaded from there.

Medal Winners



Ladies and Gentlemen, I have an important announcement



with the assistance of my friend here I can fly.



.... but someone in the audience doesn't agree?

...



I'll just hand over my worldly goods.....



.... I may be gone some time.



Ladies and Gentlemen, I have an important announcement...

David Frodin receives the Engler Silver Medal of the International Association of Plant Taxonomy in Leiden, from Pieter Bass, Vice-President of the Association and himself winner of a Linnean Medal in 2003. Congratulations all round!

The Conversazione on Saturday, 15th December 2002 featured the film *The Young Charles Darwin* by courtesy of **Shropshire Connections** and talks by **Claire Sedgwick** (National Museums and Galleries on Merseyside), who has been closely involved in the cleaning and cataloguing of the Linnaean and Smithian Collections; by **Hew Prendergast FLS** (Centre for Economic Botany, Royal Botanic Gardens Kew) on *Wild Species in Britain Today – Any Commercial Value?*; and by **Michael Balke FLS** (Department of Entomology, Natural History Museum) on *Diverse Beetles in a Diverse World*. Additionally, there was a display of botanical art in the Library by **Aljos Farjon FLS**, and in the Council Room there were displays by **Salvador Carranza** (Dept. of Zoology, Natural History Museum), **Lorraine Corscadden** (Corscadden Associates, Llanelli), the **Harrison Zoological Institute**, **Charlie Jarvis FLS** (Dept. of Botany, Natural History Museum), **John Lewis FLS** (Somerset County Museum and Dept. of Entomology, Natural History Museum), **Kate Sanders & Roger Thorpe FLS** (Biological Sciences, University of Wales at Bangor), **Ray Tangney** (Dept. of Biodiversity and Systematic Biology, National Museum and Gallery of Wales) and **John Tennent FLS** (Dept. of Entomology, Natural History Museum). To all the above our gratitude is due. The event was attended by close on 100 Fellows and guests and, whilst there were complaints of interference with Christmas shopping, by and large the new timing seemed welcome.

The Treasurer has presented to the Council a draft document on risk assessment, which details all the perils to which the Society is exposed. Chief of these is the security of the Society's occupancy of Burlington House, which has been a matter of dispute with HMG these last seven years. Papers relating to the case have now been served, a defence mounted by all five Societies, and the matter is now *sub judice* until the conclusion of the case in the High Court.

Mr. David Thomas, from New Zealand, has recently joined the staff of the Society. He appeared one day in the Society, bringing greetings from David Galloway FLS, formerly lichenologist with the Natural History Museum, and by the way, did we have a part-time job? Such is the power of modern communication that written references from New Zealand were obtained overnight and David joined us in July. It became apparent that David, a geologist by training, has remarkable talents in the field of computing, solving many of the problems that plagued our network here and helping to install a new network in the Library in connection with the electronic cataloguing project. The Society's web site – www.linnean.org – is regularly updated and is much more extensive than formerly. Such abilities are, in our experience, sufficient to warrant a full-time post and we are delighted that he has now joined us on that basis.

We were sorry to hear at the end of last year that **Garth Underwood**, a staunch supporter of the Society, had suddenly died at the age of 83. He was still actively involved in his research on reptiles and his obituary will appear in the Annual Report. The Society is seeking to organize a meeting on squamate evolution/systematics in memory of Garth in 2004 – any thoughts or ideas to Professor Thorpe at R.S.Thorpe [bss024@bangor.ac.uk].

During 2002, over a quarter of the Society's Membership opted for the suite of **electronic Journals** now on offer. This was much greater than we anticipated and has led to a one-off overproduction of hard copies, for which we contracted at the end of 2001. Notwithstanding these losses on hard copies, we are delighted with the take-up of the electronic versions, which allow electronic cross-referencing to other journals and dispense with storing such hard copies as are needed to deal with missing or damaged numbers. As a result, new Fellows and Associates will, in future, be offered only the electronic versions of the three Journals as part of the enhanced Contribution, unless there are pressing reasons for hard copies. We are also pleased that Blackwells, our publishers, are seeking to make copies of our electronic journals available at deeply discounted rates in countries where they cannot otherwise be afforded, such as Eastern Europe. Indeed, the market value of these copies to the institutions in receipt of them could be very close to the suggested rent of £164,000 pa which the Government has suggested the Society should pay for its premises in Burlington House (see October 2002 issue, p.6).

Dr. R.C. Joshi, FRES, MIBiol, CBiol(Lon.) of PhilRice in the Philippines writes: "In future, I would like to interact globally with researchers/training & extension staff on *Liriomyza* spp. management. Your kind cooperation to introduce me and the web link researchers interested in *Liriomyza* spp. is requested by providing me their E-mail as well as postal addresses. Is it also possible please to provide literature searches or links/sites related to leafminer flies (*Liriomyza* spp.) and its parasitoids." Dr. Joshi can be contacted at <http://www.potatonews.com/leafminers/leafminers.asp>; e-mail: rcjoshi@philrice.gov.ph; joshiravi@hotmail.com; joshiraviph@yahoo.com.

JOHN MARSDEN

Library

As usual, here are some general updates on Library activities. The Library was open for 72 days from late September to the end of 2002, during which time 220 visitors (132 FLS) were recorded, 60% of them being Fellows. This represented an average visitor level of 3 visitors/day, slightly higher than previously. Loans totalled 57. Users of manuscripts numbered 16, and included visitors from Australia, Canada, Germany, India and the USA as well as from the UK. The display cases were used for exhibitions related to Society meetings and the *Conversazione*. We also welcomed a number of group visits by students and colleagues. A series of leaflets on the Library and its collections have been prepared for visitors. London Open House on 23 September saw just under 200 people visiting the Rooms, and we have agreed to participate again in September 2003. The annual book sale in October followed the evening meeting on Erasmus Darwin and raised £200 for the Library funds.

The catalogue records for the book collection have now been converted into the format

used by the computerised catalogue. Some essential editing of this information is necessary before we can make it available through the Society's website. The Linnaean material will be the first priority, and we expect to have these records online by the end of the year.

Two major donations have been received in recent months: Professor Jack Hawkes asked us to collect books and journals from his office in the University of Birmingham and Lisa Pontecorvo asked us to select material for the Library from her late father's books. Books from Professor Hawkes have been roughly sorted to separate journals from monographs but have not yet been listed. Those from Professor Pontecorvo's estate are acknowledged in the list of donations below.

Lynn Crothall has catalogued and cleared most of the material from the top of the Table Case in the Annexe and is now beginning on the boxed material from Professor Hawkes and B. Smythies. These catalogue records will enable us to produce listings for both those donations as it has not been possible previously to spend time in doing this. The older material is making its way onto the shelves at a faster rate because we can now print shelf-mark labels for book spines as they are catalogued. Mrs Edna Clifford finishes the accession process by pasting in Library Rules and donation labels. Matty Pye has continued work on the database of information on past Fellows of the Society.

Extra shelf space is still needed and the possibility of moving the older back-stock of the Society's journals into off-site storage is being explored as a way of achieving this. A "Reader feedback" form will be available in the near future to help us to decide which material is less used, and therefore most suitable to be moved elsewhere.

We are grateful for all the help given by our volunteers: Jeanne Pingree, Enid Slatter and Val Vivekananda continue to visit regularly as does Alan Brafield who helps to catalogue incoming material. Margot Walker has moved out of London and is now only an occasional visitor as is Iris Hughes, now transcribing her listing of the Pulteney letters into printed form. Jenny Brasier was able to resume work on one of the Gunter volumes on a recent visit.

GINA DOUGLAS

DONATIONS: October to December 2002

- | | |
|-------------------|---|
| Dr M. Abibi-Habib | Abibi-Habib, Mayabeen, ed., <i>Green pioneers, stories from the grass roots</i> . 204 pp., col. illustr., maps, Karachi, UNDP, 2002. |
| Dr J. Akeroyd | Challinor, Helen (& others), <i>A beginner's guide to Ireland's sea shore</i> . 206 pp., col. illustr., Cork, Sherkin Island Marine Station, 1999. |
| Dr M. Black | Bewdley, J. Derek & Black, Michael, <i>Seeds, physiology of development and germination</i> , 2 nd ed., 445 pp., illustr., New York, Plenum, 1994. |
| Dr C. Bowlt | Allen, C.G., <i>A manual of European languages for Librarians</i> . 803 pp., London, Bowker, 1975. |

- Brooklyn Botanic Garden BROOKLYN, Botanic Garden, *The sunny border, sun-loving perennials for season-long color*. Edited by C. Colston Burrell, 112 pp., col. illustr., map, New York, Brooklyn Botanic Garden, 2002 (Handbook no. 172).
- Dr Janet Browne Browne, Janet, *Charles Darwin, the power of place*. 591 pp., illustr., London, Jonathan Cape, 2002.
- John Burton Stock, K.L., *Rose books, a bibliography...* 533 pp, Milton Keynes, privately, 1984.
- Dr J. Cain Chapman, Matthew, *Trials of the Monkey, an accidental memoir*. 333 pp., London, Duckworth, 2000.
Hamill, William ed., *The New York Public Library desk reference*. 836 pp., illustr., maps, New York, Webster, 1989.
- Prof. J. Cairns Cairns, John, *Collected papers, goals and conditions for a sustainable world*. 292 pp., figs., Oldendorf, Inter-research, 2002.
- Bruce Coleman Ogilvie, Malcolm & Rose, Chris, *Grebes of the world*. 112 pp., col. illustr., map, Oxbridge, Bruce Coleman, 2003.
- Dr. Paul Cutler WASHINGTON, National Research Council, *Down to Earth, geographic information for sustainable development in Africa*. 155pp., maps, Washington D.C., Nat. Acad. Sci. Press, 2002.
- Czech Botanical Soc. Hendrych, Radovan, *Genera Plantarum Orbis Geographicus, concise synopsis of the generic geography*. 123 pp., Prague, Societas botanica Ěechica, 2002.
- DEFFRA Preston, C.D. (& others), *The changing flora of the UK*, 36 pp., col. illustr., maps, London, DEFFRA, 2002.
- R. Desmond Keay, John, ed., *History of world exploration*. 320 pp., illustr. some col., maps, New York, Mallard Press, 1991.
- G. Douglas Kalm, Peter, *Travels into North America*, translated by John Reinhold Forster, introduction by Ralph Sargent, illustr., col. frontisp., Barre, Mass. The Imprint Society, 1972.
White, Gilbert, *The natural history and antiquities of Selborne*, facsimile of the 1813 edition, introduction by P.G.M. Foster, 587 pp., illustr., London, Ray Society, 1993.
- E.E. Emmett Cosgrove, Peter & Amphlett, Andy, eds., *The biodiversity and management of Aspen woodlands (Conference, Kingussie, May 2001)*, 88 pp., col. illustr., maps, Grantown on Spey, Cairngorms Local Biodiversity Action Plan, 2002.
- Fauna & Flora International Andrews, Harry V. & Sankaran, Vasumathi eds., *Sustainable management of protected areas in the Andaman and Nicobar Islands*. 159 pp. with CD-ROM, New Delhi, FFI, 2002.
- R. Fitter Rickett, Harold William & Steere, William C., *Wild flowers of the United States. Vol. 2 The Southeastern States*. (2 Vols, 2nd printing) 688 pp., illustr. some col., maps on endpapers, New York, New York Botanical Garden, 1975.

- Harold Porter Nat. Bot. Garden CAPE TOWN, Harold Porter National Botanic Garden, *Kogelberg biosphere reserve, heart of the Cape flora*. Ed. by Jeanne Hromnik, (guidebook), 56 pp. col. illustr., map, Cape Town, Struik, 2001.
- Prof. J.G. Hawkes Hanelt, Peter, *Mansfeld's encyclopedia of agricultural and horticultural crops*, 6 vols. 3645 pp., illustr., Berlin, Springer, 2001.
- Hunt Institute White, James J & Bruno, Lugene B. eds., *A blossom on the bough, (catalogue of an exhibition) Anne Ophelia Todd Dowden*. 48 pp., illustr. some col., Pittsburgh, Hunt Inst. for Bot. Doc., 2002.
- Prof. H.W. Lack BERLIN, Berlin-Brandenburgische Akademie "... *Eine Stütze des Gedächtnisses*" *die Akademie-bibliothek in geschichte und gegenwart*, 39 pp., illustr. Berlin, Berlin-Brandenburgische Akademie, 2000.
- Prof. J. Leclercq Godefroid, C. ed., *Marcel Florkin, 1900–1979, le savant, l'humaniste, l'homme engagé*. 278 pp., Stavelot, Champefeld, 2002.
- Sir Christopher Lever Phillips, Tom & Wilson, Phillip, eds., *The bear bile business, the global trade in bear products from China to Asia and beyond*. 248 pp., illustr. London, W.S.P.A., 2002.
- Dr H.F. Linskens Linskens, H.F. & Jackson, J.F. eds., *Cell components (Modern Methods of Plant Analysis, NS 1)* 399 pp., illustr., Berlin, Springer, 1985.
Linskens, H.F. & Jackson, J.F. eds., *Plant toxin analysis (Modern Methods of Plant Analysis, NS 13)* 389 pp., figs., Berlin, Springer, 1992.
Sprengenberg, G., Z-Y Wang & I. Potrykus, *Biotechnology and forage and turf grass management*. 200 pp., illustr. some col., Berlin, Springer, 1998.
- Dr F.K. McKinney Hayward, P.J., *Antarctic cheilostomatous Bryozoa*, 355 pp. illustr. map, Oxford, OUP, 1995.
- Dr E.C. Nelson Nelson, E. Charles, *The virtues of herbs of Master John Gardener*, 112 pp., illustr. some col., Dublin, Strawberry Tree Press, 2002.
- E. Nystrom Drake, Gustav ed., *Linnés avhandling Potus Thea 1765*, (translated into Swedish with commentary) 22 pp., Uppsala, Sveska Linnésalskapets, 2002.
- Prof. M.J. Petry Linné, Carl Von, *Nemesis Divina*, edited and translated with explanatory notes, by M.J. Petry , 483 pp., Dordrecht, Kluwer Academic Publishers, 2001 (Archives Internationales d'Histoire des Idées 177).

- Ms Lisa Pontecorvo 56 volumes from the library of the late Prof. Guido Pontecorvo.
 Royal Botanic Gardens, Kew Maunder, Michael (& others) *Plant conservation in the Tropics, perspectives and practise*. 628 pp., illustr., maps, Kew, Royal Botanic Gardens, 2002.
 Stearn, William T. (and others), *The genus Epimedium and other herbaceous Berberidaceae*...342 pp., illustr. some col., Kew, Royal Botanic Gardens, 2002.
- Dr T.J. Roberts Roberts, T.J., *The Butterflies of Pakistan*, 200 pp., col. illustr., maps, Karachi, Oxford University Press, 2001.
- Dr R.M. Rosini Rosini, Rosanna, *Pianeti Proibiti: descrizione traduzione intertesti*, 508 pp., Perugia, Ed. Guerra, 1997.
 Rosini, Rosanna Masiona, *La traduzione del linguaggio botanico: I giardini emblematici*. 208 pp., Perugia, Guerra edit., 2002.
- The Royal Society Read, David, *The role of land carbon sinks in mitigating global climatic change*. 27 pp., figs, (Policy document) London, Royal Society, 2002.
- Russian Acad. of Sci. Tzvelev, N.N., *Flora Europae orientalis. T.10 Magnoliphyta (=Angiospermae), magnoliopsida (=Dicotyledones)*. Petropolis, MIR Semia, 2001.
- M. Pilar San Pio MADRID, Real Jardín Botánico, *Las rosas del Herbarium Pictum*. 6 pp., portfolio of 13 col. pl. Madrid, Real Jardín Botánico & Ayuntamiento da Madrid, 2002.
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Picture Quiz

George Bellas Greenough (1778–1855)

He was the son of George Bellas, a proctor in Doctor's Commons, and his mother was the daughter of a surgeon named Greenough. Sadly in 1780 his mother died and he was subsequently brought up by his father and grandfather. He was educated at Eton, during which time his grandfather died leaving him with a fortune, with the proviso that he should add the name of Greenough to his own. From Eton he proceeded to St. Peter's, Cambridge and from thence to the University of Göttingen, where he wished to study law. However, instead he studied natural history. From Göttingen he went to Freiburg where he studied mineralogy. Then after making the 'grand tour' he returned to England in 1801.



Soon after his return he was appointed Secretary to the Royal Institution, where he came into contact with the chemist William Wollaston and then Sir Humphrey Davey, with whom in 1806 he toured Ireland, examining both the geology and the social conditions. On his return he entered Parliament as a member for Gatton, Surrey (1807–1812). In 1808 he first sketched the boundary lines of the various geological strata in England and Wales and produced an early sheet of Westmoreland. However, Thomas Webster criticised this map for being defective. Nevertheless Greenough was not deterred! Two years later (1810) he embarked on a major geological exercise; first he conducted a campaign of fieldwork, which he then augmented with a set of leaflets referred to as "*Geological Inquiries*". The subsequent information he obtained on the geology of England and Wales was used the following year (1809) in setting up a committee for maps at the newly formed Geological Society, Greenough having been one of the thirteen founding members in 1807. The Committee for Maps, whose remit was to produce a geological map of England and Wales, included William Conybeare, Dean William Buckland and Henry Warburton, while Thomas Webster, the first curator of the Geological Society's Museum, draughted the original map. Meanwhile Greenough had collated the vast amounts of information he had obtained from his "*Geological Inquiries*", which had been augmented by his numerous field excursions; in this way he obtained considerable amounts of local information. The large scale coloured map was eventually published in 1820.

In the meantime, Smith's map: *A Delineation of the Strata of England and Wales with part of Scotland* ... was published on August 1st 1815. Five years later in the spring of 1820, the Geological Society under Greenough's auspices published their (his) *Geological Map of England and Wales, in six sheets, with an accompanying memoir*, compiled from an extensive collection of maps and surveys and enriched with much original matter, contributed both by Greenough and his numerous geological friends. Nevertheless, many subscribers to the Geological Society's map were of the opinion that, although the Geological Society, and Greenough in particular, had been collecting vast quantities of geological information, Smith's original observations should not be neglected. This, together with the accusation of plagiarism, brought a swift rebuttal from Greenough who wrote "charged with trespassing upon ground which I knew to be by right of pre-occupancy his ... (viz Smith's) ... however, our two maps agree in many respects, not because the one has been copied from the other, but because both are correct; and they differ in many, not from an unworthy apprehension on my part of being deemed a plagiarist, but because it is impossible that the views, the opportunities and the reasonings of two persons engaged on the same subject should be invariably the same". Smith, however, had the last word when, from 1865 onwards, *A Geological map of England and Wales*, by G.B. Greenough Esq., FRS, had the codicil (on the basis of the original map of Wm. Smith, 1815) added to it.

In 1852 Greenough laid before the Asiatic Society a series of maps of Hindustan defining all the important elements of the ten water basins of that Peninsula. This mainly hydrographical map was followed in 1854 by a large-scale geological map of the whole of British India under the title of a *General Sketch of the Physical Features of British India*.

In 1819 Greenough published his book '*THE FIRST PRINCIPLES OF GEOLOGY, in a Series of Essays* (Strachan and Spottiswoode, London)'. This was a resounding success, being translated into French, German and Italian. It was this book that was sent to Darwin whilst he was in Buenos Aires in 1833 by his sister.

Initially on the advice of Henslow, Darwin had taken with him the first volume of Lyell's "admirable" *Principles of Geology*. In his autobiography Darwin remarks that "the wonderful superiority of Lyell's manner of treating geology, compared with any other author whose work I had with me (viz Greenough's *The First Principles of Geology*) or ever afterwards read" showed the importance he placed on Lyell's *Principles*. Later he remarked "The Science of Geology is enormously indebted to Lyell – more so, as I believe, than to any other man who ever lived". Despite these comments Darwin would undoubtedly have found several of Greenough's Essays very interesting. Thus Essay VI dealing with the fossil contents of rocks pointed out that the zoophytes, the lowest and most important class of animals, were formed first, followed by shell fish and marine plants unknown to the present world; afterwards came the same genera of animals as those we are acquainted with – then still later the same species. Land plants are said to be more recent than any of these, and land animals the more recent still. This succession of life is followed by Essay VII on the History of Strata, as deduced from their fossil



Clue: Horticulturalist and garden designer who specialised in conservatories.

contents. In it Greenough explains that out of the vast number of fossils discovered scarcely one resembles any existing plant or animal. He then goes on to enumerate the fishes found at Monte Bolca of which 39 are said to be of Asiatic origin, 3 African, 18 from South America and 11 from North America. These biogeographic comments would have made interesting reading on the '*Beagle*' voyage! When Darwin's paper "On certain areas of elevation and subsidence in the Pacific and Indian Ocean" was received by the Geological Society in 1837, the sections on the Coral Islands were sent out to Greenough for his approval. Greenough was on the Council of the Geological Society at that time. Besides having been its first President from 1807–13 he was re-elected in 1818 and 1833. Consequently, he served on Council from 1810 until 1855. In 1838 Darwin was elected Secretary of the Geological Society, an office he held for three years. It was during this period that Greenough finally admitted the cogency of evidence derived from fossils. Like William Smith, Greenough formed his own fossil collection which he left to the Geological Society.

Back in November 1803 Greenough had been elected a private soldier in the Light Horse Volunteers of London and Westminster which formed most of the British Reserve Army. In the year following his election as a MP (1808), and the foundation of the Geological Society, he was commissioned as a Lieutenant. He served all told for 16 years, resigning in protest over the controversial Peterloo massacre – his biographer concluded he was a man of principle, sensitive to the potential abuse of military power. He was elected a Linnean member in 1811 and was an original member of the British

Association (1831) and an active member of the Society for the Diffusion of Useful Knowledge. Together with Jeremy Bentham he was instrumental in the foundation of the University of London (1828), which later became University College, of which he was the first Secretary. He was for two years President of the Royal Geographical Society (1838–40). He died in Naples on April 2nd 1855. His books and maps were bequeathed to the Geological and Royal Geographical Societies, with a bequest of £500 for their arrangement and preservation.

A marble bust by Richard Westmacott, RA 1843, is in the Geological Society's apartments*.

B.G. GARDINER

*Dr Gradstein also correctly identified William Mitton and will receive an appropriate prize. Ed.

Correspondence

27.1.03

31 Hamilton Drive,
Glasgow G12 8DN

Dear Sir

I am very sorry that Ivan Crowe¹ thought that my review² of his book *The Quest for Food* took it as a springboard for a political diatribe. I hope that if he reads my review again he will see his reaction was mistaken, for I make it clear that 'Marxist politics' is in no way part of my point.

I am not a 'Marxist' or 'Communist', but as a social scientist I have always had to reckon with Marx and Engels' effort to analyse the emergence of human society from man's pre-human past. They were among the very few in the early stages of the academic social sciences to do so, and remain important, as for example von Humbolt or Darwin remain significant today to biology.

It is a shame that Ivan Crowe saw my review as an insult, as I praised his book strongly and argued that its account of the role of the 'quest for food' in human evolution is superior to that provided by 'historical materialism'.

Yours sincerely

TIM CLOUDSLEY

¹ The Linnean 18(3); ² The Linnean 18(1).

15 November 2002

7, Highland Road, Chichester,
West Sussex PO19 5QX

Dear Brian,

Richard Dawkins is probably correct that Patrick Matthew 'really did [not] understand the importance of natural selection' when he published his idea in the appendix to his

Naval Timber and Arboriculture. There is a somewhat similar case with Gregor Mendel whose hybridization paper was published in *The Journal of the Brno Natural History Society* and, in the words of Jacob Bronowski, ‘achieved instant oblivion’. However, Dawkins is on less sure ground when he suggests that the *Gardener’s Chronicle* was not the ‘organ in which to claim your priority’. In those days the *Gardener’s Chronicle* had considerable eminence and it was there that, 35 years after its ‘discovery’, Mendel’s paper was reprinted.

There is a further parallel in that the papers of both Mendel and of Darwin-Wallace were not appreciated at the time – either by Mendel’s scientific contemporaries or by the 1858 President of the Linnean Society.

Yours sincerely,
BRIAN HOPKINS

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30 October 2002

10 Battishill Street,
London N1 1TE

Dear Brian,

I am glad that you have published (*The Linnean*, **18** (4): 17–24) the stimulating address that Richard Dawkins delivered after unveiling the plaque to commemorate the reading of the Darwin-Wallace paper on 1 July 1858. It is a shame that the case for Darwin’s nomination as Greatest Briton (BBC TV) was not put forward by Dawkins, rather than by Andrew Marr in an enthusiastic but somewhat flawed presentation. In particular, Marr misrepresented the influence of the Geospizinae on the development of Darwin’s ideas.

Professor Dawkins commented on the continuing problem raised by sexual selection. At school before the War, I was taught by Sir Francis Knowles that the only known direct evidence of Darwin’s hypothesis lay in the courtship by the males and mate selection by the female Great Crested Grebe (*Podiceps cristatus*) as described by Julian Huxley (*Proc. Zool. Soc. Lond.* 1914: 491–562). But, as Knowles pointed out to us, nothing was known about hormones during Darwin’s lifetime. It is especially interesting, some 65 years later (and having attended, although by no means understood, R.A. Fisher’s lectures at Cambridge in the later 1940s) to read that both the Neo-Wallacean and the Neo-Darwinian strands, more particularly in their modern forms, contain a strong element of paradox.

Yours sincerely
JOHN CLOUDSLEY-THOMPSON FLS

15 November 2002
l'Ecole Pratique des Hautes Etudes, Montpellier,
7 rue de l'Avenir, 34820 Teyran, France

Dear Sir

Reflections on the status of evolutionary education

In July 2002 two papers appeared in *The Linnean*, one by Randy Moore, the other by John Cloudsley-Thompson concerning the problem of American creationists and I entirely agree with these two colleagues about the disastrous effects of the behaviour of the American creationists.

Unfortunately, no scientific argument can change the creationists' position, since they take for granted that no scientific proof is available against their particular and entirely false understanding of the teachings of the Bible, which they maintain notwithstanding the advice of practically all the serious exegetes (except the American creationists, of course) and of the highest religious authorities. So, their position is worse than that of the Inquisition of Galileo, since, even when doubting the possibility of proof of the earth revolving round the sun, Bellarmine was writing that even if there is no real proof of such thing, we have to ... admit that we have not understood the Holy Writings rather than to declare false an opinion which is demonstrably true (1).

The American creationists are certainly not ready to accept such a declaration! But, on the other hand, we must not forget that there were scientists who claimed loudly that science was incompatible with faith, and that Evolution did replace God and proved that God did not exist. I am not certain that such a declaration did not, in fact, open the way to the creationists' exclusive contrary opinion! The attack of these scientists immediately suggested a war and a situation of war never suggests objectivity. The real answer is to show that the assumed incompatibility does not exist.

Moore seemed surprised that many American teachers of biology endorse creationism. I think that one can guess that a lot of them were creationists who took their grades in order to promote creationism with the authority of recognised biologists !!!

Well, for my part, I do not see any reason why religion should exclude science or that science should exclude faith. Being convinced that the world has been entirely created by God, there is really no reason why the scientific analysis of all the structures made by God should demonstrate that God does not exist. I certainly cannot and will not force anybody, scientist or not, to believe in God, but on the other hand, nobody has the right to force me not to believe, and to tell me that if I believe I cannot be a good scientist. To believe in creation does not prevent me discovering the scientific laws of development and structures of the world which have been created. I have studied palaeontology and evolution in an official lay institution for some sixty years, and I have never heard any scientist explaining that I could not be a good scientist, while everyone knew that I was a faithful Christian. I think that evolution is the backbone of the physical and biological

sciences and I am certain that Evolution is, as Pope John Paul II himself states (2), strongly confirmed by science, including the animal origin of the body of man, and there is no religious reason for any Catholic to say that evolution is contrary to the Christian faith. I have written a booklet on this subject, unfortunately not published in France, but translated and published in Spanish by the University of Zaragoza (3).

Of course it is against the creationists' opinion when I affirm that evolution is not the work of the devil, but, on the contrary, that it is a masterpiece of God. For me, evolution is really the way chosen by God to create all the known world, a world which needed an extraordinary amount of the highest possible intelligence to give its first elements the qualities which would permit it to build all the different realities which have successively appeared, and still appear. We know very well that while a computer built by man remains, in itself, absolutely stupid, it is able to give perfectly intelligible results if, but only if, the intelligent specialist has been able to give it a perfect program. Of course we must be aware that the action of God in creating and building a program is transcendent and not on the level of scientific causalities.

My good colleague and friend George Gaylord Simpson (4), a disbeliever, as far as I know, speaking about a possible explanation of the adaptation by a conscient intelligence able to finalize the physical laws, has clearly explained that a scientist, as such, was not able to speak on the problem (R.L. neither pro nor con).

In my opinion, science is not the only way of thinking, and there is a clear philosophical need for such a conscient intelligence.

WHAT CAN BE DONE?

If either the creationists and the people who follow them, or the scientists, maintain that there is no compatibility between evolution and creation, I am afraid that nothing serious can be done.

Indeed, it is true that many scientists are religious men who believe in creation and take evolution as certain. This is important, and demonstrates that there is no necessary connection between the fact of being a scientist and disbelieving. In fact, the only realistic solution is to show and admit that for religion there is no opposition, no contradiction between creation and evolution, making the important point that, in the opinion of most exegetical and religious christian authorities, that is simply the truth.

There is no hope, I am afraid, of convincing the militant creationists that their interpretation of the Bible against evolution is false. But I think that many, and I hope most, religious American people are only follow the creationists because they don't know much about these problems, and the pressure from the creationists is intense.

We must be aware that many christians do not accept the evolutionary origin of man from animals because they have a feeling that it is humiliating to have animal ancestors. But, indeed, a living body is something on a higher level of existence than the dust on the ground and, ground or animal, it remains that, to become a man with a mind, a

special creative intervention of God is necessary, and the unique dignity of man comes from that, and only from that.

For most Americans who are religious, only the advice of religious authorities, not necessarily of the same Christian confession, can convince them of a good interpretation of the Bible which does not exclude the science of evolution. But evidently we must work as hard as the creationists to provide information to various levels of society.

Yours sincerely
RENE LAVOCAT FLS
Directeur Honoraire de Laboratoire

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19 January 2003

Dear Professor Gardiner,

I am afraid that Brian Hopkins' championing of Paul Richards' 76-year-long membership of the British Bryological Society as "an all-time record for a society membership" (*The Linnean* 19(1):22) is in vain – unless he intended only national societies to be in the competition. For Robert Francis Towndrow, a grocer of Malvern Link and a leading Worcestershire botanist, joined the Malvern Field Club at 14 and continued as a member without a break till his death at 92 (on Christmas Day in 1937), which beats Richards by 10 years at least. Towndrow, moreover, probably paid his subscriptions out of his own pocket from the very first, for he would have been earning his living by the age of 14. Although I have heard it jocularly said of Richards that he noted his first mosses while still in his pram, I rather suspect that as an 11-year-old boy he may have enjoyed an element of subsidy.

Yours sincerely,
DAVID ALLEN

The Zoological Record and registration of new names in zoology

Joan Thorne (Editor, *Zoological Record*)

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Abstract

BIOSIS is offering, through its publication *Zoological Record* (ZR), to provide a database register of new names in zoology. Inclusion of a name in this register would not indicate or imply its validity or other nomenclatural status. The register would provide the raw material needed by those seeking to establish which new zoological species, genera or families have recently been described and named. The register would also include those names that appear to be unavailable under the Code (where possible they would be indicated as such), but would not arbitrate in matters relating to the availability or validity of the names. Expert taxonomists, calling on the assistance of the Commission where necessary, would determine which names were available and valid for use in a particular group of animals. ZR's coverage of new names is well over 90% complete and takes place within two weeks of receipt of new publications by ZR or within three to six weeks of receipt of new publications by source libraries. Double-checking ensures that far less than one percent of 20,000 new animal names registered each year is likely to be recorded incorrectly. There is no existing registration source that is more up-to-date or complete. The register would be available on line free of charge to anyone who wished to check on the existence of a name and would provide a sound basis for a full nomenclatural repository. However, the register could only be as comprehensive as the community chooses to make it. A comprehensive register could be achieved if zoologists ensured that ZR was aware of all new works containing new names. The 10% of new names not currently registered by ZR because of the obscurity of the publications in which they appear (or other reasons) could be eliminated if the Code required all new names to be registered. Therefore, it is proposed that Recommendation 8A of the Code (which recommends that authors should send a copy of a work containing a new name or names to ZR) be revised to become a mandatory Article.

Keywords: Nomenclature; taxonomy; register of new names; BIOSIS; *Zoological Record*.

Introduction

This article was written following the extensive discussions leading up to the publication in 1999 of the Fourth Edition of the *International Code of Zoological Nomenclature* and, more recently, with the Commission's Executive Secretary on a possible role for *Zoological Record* (ZR) in 'registering' new names in zoology. During the preparation of the paper, the concept of a centralized archive/database for taxonomists was also raised in the journal *Nature* (*Nature*, 2002). This stimulated extensive exchanges on the TAXACOM e-mail discussion list. I hope that the views on names registration expressed in the current paper will be a valuable addition to the discussion.

In the current proposal, BIOSIS is offering the means to collect all new animal names and, acting as a neutral host, make them available free of charge to all who need to use

them. In BIOSIS's view, this would be a means of registering new names and would provide a firm foundation for *Nature's* more extensive concept of a centralized repository of nomenclature. If I have understood the latter correctly, this would involve extending the basic names database to include additional data, such as description, type locality, holotype location, links to the bibliographic citation, abstract or the full text of the publication. Developing such systems is one of BIOSIS's core activities and, although BIOSIS does not have the funds to offer to implement this more extensive concept on its own, it would be willing to participate in any suitable cooperative arrangements that might be developed in the zoological community.

It is important to note that the word 'registration', as used in the current paper, is simply a label to describe a proposal for providing a comprehensive database of new names in zoology. Inclusion of a name in this register would not indicate its validity or other nomenclatural status. The register would provide the raw material needed by those seeking to find out what species, genera or families had been described and named. The expert taxonomists, calling on the assistance of the Commission where necessary, would determine which names were valid for use in a particular group of animals.

The current situation

The value of a central zoological names resource is generally accepted but, unfortunately, the means of providing it is not. Recognizing this situation, *Nature* (*Nature*, 2002) has recently taken 'a small step towards a database for taxonomists'. A new policy, started in August 2002, requires authors of papers which are accepted for publication in *Nature* and which contain 'the formal nomenclature and description of species' to send a preprint or an electronic copy to the Linnean Society of London. With this action, *Nature* has made the first move towards a central repository for taxonomic data, although the Linnean Society does not currently have an established mechanism to act as a repository of this nature. We applaud this initiative. However, as the ZR is already in existence as just such a repository, BIOSIS would like to explore possible options which could develop the idea further without duplicating already existing efforts.

New names in the *Zoological Record* (ZR)

In 1995, the discussion draft of the current (fourth) edition of the Code included an Article that proposed a process of 'international notification' of new names. This was to be achieved by recording them in ZR. As part of this proposal, BIOSIS developed the Index to Organism Names (ION; http://www.biosis.org.uk/free_resources/ion.html), a free name search tool that enables any user to check whether a name has been used. All zoological names indexed in ZR since 1978 were added to this database, together with names from other associated organism groups to enhance its value to the wider scientific community. ION is still freely available and is currently being enhanced with improved search mechanisms and additional content.

However, the 'notification' proposal was at the time unacceptable to the zoological

community for a number of reasons, and therefore was finally included in the current Code as a recommendation (Recommendation 8A) rather than as a mandatory Article. The main concerns of the community related to coverage, availability and accessibility, to which ZR responded (Howcroft & Thorne, 1999) as follows:

- (1) *Coverage.* ZR's names coverage is estimated to be well over 90% complete (Bouchet, 1999). The remaining 10% or so of names are mainly those published in sources to which ZR does not have access. We estimate that names we seek from source libraries are usually indexed in ZR within six weeks of receipt at the source library and a great majority are indexed within three weeks. Material sent directly to ZR from publishers is normally indexed within two weeks of receipt. As each new name indexed is double checked for spelling, only a small fraction of one percent of new names is likely to be recorded incorrectly. We know of no more current or complete names resource.
- (2) *Availability.* Names are recorded at face value and reflect the literature. Names that have been published improperly under the Code and are therefore formally unavailable are still recorded. This may include names that are not accompanied by an adequate description, names that are published electronically or associated with invalid typification. Names are checked against selected criteria of availability and if they appear to be unavailable under the Code, this is stated in the index entry. Other than this ZR is a unbiased index to the literature and makes no judgements on the status or validity of names. This is the province of taxonomists not indexers. ZR has adopted this neutral position throughout its existence. However, it would not be difficult to mark in the register those newly published names that do not fulfil selected criteria.
- (3) *Access.* There was an incorrect assumption that access to new names could only be achieved through ZR and that this access would have to be paid for. This was never the case and the ION service, then as now, is free to anyone who wishes to check on the existence of a name. Other zoologists questioned the viability of ZR and expressed concern about long-term access to the register. BIOSIS has long recognized the importance of archival issues, and can use its experience to ensure enduring access to a names register. The ZR was founded in 1864. It has survived through two world wars and the technological revolutions of the late 20th century, and the community can be reassured that it is securely positioned for the future.

ZR and registration

Each year ZR selects some 70,000 items from the life science literature, and extracts some 20,000 new animal names. These names, along with existing names indexed from the literature, are made available to users through ION in the free resources part of the BIOSIS web site. We suggest that this existing effort could readily be exploited as a basis for registration purposes.

New animal names published in serials monitored for ZR (this list is available on the BIOSIS web site: www.biosis.org) would be indexed as now. For those new names

published in serials not monitored for ZR (i.e. serials not available to us), authors would need to provide a reprint of the relevant articles for indexing as is already recommended in the existing Code. A similar mechanism could be established for names published in non-serial publications.

After indexing, all new names would be transferred to a suitably titled register/database of new animal names mounted by BIOSIS on the web. The new names, marked as such, would simultaneously be added to ION. This would enable such names to be searched alongside existing names. The database would be available free of charge to anyone (including non-subscribers to ZR) who wished to check on the existence of a name. Such a database would provide a sound basis for a full nomenclatural repository. However, it is important to note that in the current proposal and in any other proposal that might be put forward, a new names register/database will only be as comprehensive as the community chooses to make it. It should be noted that registration of a name can only be accomplished once the original publication in which the name is published as new has been indexed in ZR.

BIOSIS and the community

BIOSIS, established in 1926, is a not-for-profit organization based in Philadelphia, U.S.A., which provides a variety of services for those seeking access to life science information. BIOSIS UK, established in 1980, is a subsidiary of BIOSIS, based in York, England. It compiles *Zoological Record* and provides an international presence for the organization. BIOSIS is self-sustaining – there are no shareholders; any surplus is reinvested in the company, and in the development of new services for the life science community.

True to its mission, BIOSIS has long standing associations with several organizations, and is an active participant of the Committee on Data for Science and Technology (CODATA), the Global Biodiversity Information Facility (GBIF), Species 2000, and the Taxonomic Databases Working Group (TDWG). It also has close ties with the Commission, and currently hosts the web sites of the Commission and of Species 2000.

In addition to its participation in the activities of these organizations, BIOSIS has recently created a new web-portal site entitled 'BiologyBrowser' (www.biologybrowser.org) offering a range of free services to the research and education community. This incorporates an indexed web directory of links to relevant Internet sites, an animal classification guide for students and teachers, a biological conference calendar, and, in collaboration with other organizations, ION.

Working with the zoological community is also a means of ensuring that significant duplication of effort is avoided. Sharing resources, or using existing resources for new applications, benefits the entire community, and the concept of registration is no exception. Registration would support, not compete with, GBIF, Species 2000, and the many other names and biodiversity initiatives. Moreover, using the ZR, registration could be accomplished with little extra effort by anyone else in the publication chain.

BIOSIS and the ZR

For 114 years the Zoological Society of London (ZSL) subsidised the publication of ZR. In 1980, aware that it could not continue to provide this subsidy and wishing to ensure the continuity of ZR, the ZSL entered into a joint publishing agreement with BIOSIS. In the agreement, all production, management and financial liability for ZR was transferred to BIOSIS, and BIOSIS UK was created. Since 1980, BIOSIS has eliminated a significant publication backlog in ZR, introduced new production systems, and issued ZR in electronic formats. Following these achievements, the BIOSIS Board (which includes several eminent members of the life science community) has given their overwhelming support for the ongoing development of ZR and its community activities.

Conclusion

Given the critical role of names in all life science research, it is essential that the zoological community agrees on a mechanism to bring them together in a central resource. BIOSIS is well positioned, and willing, to provide this. With the help of the community, and by using existing ZR procedures, a fully comprehensive new animal names database (and perhaps, in the future, other organism names) could readily be established. Taking this further, to provide a repository of the full description, links to abstracts etc., would be a logical step that BIOSIS would be interested in discussing with others. To make the registration of names that BIOSIS proposes a reality, the current recommendation in the Code that authors should send a copy of their work to ZR would have to be emended by the Commission to become a mandatory requirement in the form of an Article of the Code.

Acknowledgements

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Human phylogenetics and ancient DNA: the role of gene sequence variation in the species concept

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Abstract

The analysis of variations in DNA sequences has become a standard method of determining the classification of plants and animals today. Sequence variation is not being considered within the context of natural selection due to Neutral Theory. The argument over DNA substitutions and speciation is one which rekindles the great debate between selectionists and mutationists. Most disturbing is the assault on the concept of species in which some phylogeneticists seem near to arguing that every gene variation is a speciation event, replacing Mayr's biological species concept. In this paper, fundamental problems with the interpretation of DNA variations specific to PCR are presented in the context of recent developments in the question of human origins and the species concept.

Introduction

Fundamental changes in our understanding of the human genome, gene function and the concept of the gene have taken place in the past few years (1). Recent publication of ancient DNA sequences from the Australian site of Mungo (2) has caused a controversy among researchers in the field and enlightens us on new issues in phylogenetics. This new controversy centers on technical aspects of preservation of aDNA and on consideration of the legitimacy of sequences produced by different laboratories.

However, this is just a fragment of a larger argument raging in the biological sciences over how to balance sequence data and evolutionary studies, as well as the taxonomic utility of DNA variations. Since the use of PCR has become an increasingly important tool in determining species, it is important to focus on the significance of base pair variation in individuals. This becomes increasingly complex when we consider paleospecies. I would like to use the recent Mungo debate as an example.

DNA substitutions and the Species Concept

In their response to Constance Holden's article, "Oldest human DNA reveals Aussie oddity", (*Science, News of the Week*, 12 Jan., 2001:230), Cooper, Rambaut, Macaulay, *et al.*, provide some assertions to question the authenticity of the Mungo sequences ("Human Origins and Ancient Human DNA", *Science*, v.292, 1 June 2001:1655–6). Among these assertions, Cooper, *et al.*, note that ancient DNA is easily contaminated and PCR of such samples carry "a considerable burden of proof" when novel sequences are reported in "surprising examples of preservation". They characterize the Mungo samples (2) as falling into this category specifically because they come from a hot and dry environment. They assert that DNA is not expected to survive outside cold environments for this length of time (up to 60,000 BP). As I have shown in several

publications (3), the survival of ancient tissue is dependant on several factors which vary despite the general local climate due to specific microenvironments. The fact that significant finds of ancient tissue and DNA have been found in arid environments (Egypt and Peru) indicates that stability and lack of moisture are important factors. The fact that few animal remains are found outside of special environments is due primarily to scavenging rather than general preservation conditions. Ideal conditions for preservation are the result of a unique confluence of local microenvironmental conditions which must remain stable (lack of cycling) for long periods of time. This is true of fossilization as well.

Cooper *et al.* 2001, claim that certain criteria must be followed in the discovery of ancient tissue for authentic DNA analysis to be considered. Cooper *et al.* 1997 (4) widely criticized the published ancient DNA literature for a perceived lack of rigorous methodology. However, some of these authors have cited claims of necessary conditions (e.g., *D/L* ratios) for authentic DNA to be retrieved in the past, only to change these requirements due to what they consider to be unknown but unique and undefined, special conditions of their finds (4,5). Cooper *et al.* 2001 require independent replication of results as the hallmark of authenticity. I noted with Gabow (6) the fact that even the Krings *et al.* (1997) report of Neandertal DNA (7) was done without actual independent verification of the reported sequence. Also, this sample was found to be outside the expected limits of preserved DNA (5). Cooper, *et al.* 2001 complain that the Mungo samples have been handled over the years complicating DNA analysis, but this is true of the samples used in the Krings *et al.* report from Feldhofer (6). They also note the high proportion of cytosine-thymidine transitions in the Mungo samples arguing these are due to deamination, but the Krings *et al.* report also shows a high proportion of C–T transitions (6). In fact, much of the distribution of the substitutions in the reported Neandertal sequence can be explained by miscoding lesions, as noted by Hansen *et al.* (2001) (8). The results of Caldararo & Gabow (6) are supported in a study published by Gutierrez *et al.* 2002 (9). They also found that the phylogenetic position of the ancient DNA sequences recovered from Neandertal bones is sensitive to the phylogenetic methods employed, which depends on the model of nucleotide substitution, the branch support method and the set of data used. This is also demonstrated by Cooper *et al.* (2001) (10), in their reanalysis of the Mungo sequences, as Gutierrez *et al.* point out. Finally, the phylogenetic model used by Cooper *et al.* 2001 in discounting the Mungo relationship, relies on outdated neutral models of DNA substitutions.

These models are now in question due to new considerations concerning the concepts fundamental to DNA operation, arising from the results of the Human Genome Project, discussed, for example, by Strohman (2001) (11) and can no longer be considered valid in the manner they have been applied. Guthrie and I discussed other problems with neutral theory in detail in our 1998 paper in *Homo* (12). Wayne *et al.* (13) have demonstrated how significant DNA divergence in breeding populations exists in canids, sufficient in other groups to have resulted in species designations (8%). While in other cases, in wolves and the domestic dog, there is little genetic variation in mtDNA and yet we recognize species distinctions (14) and considerable morphologic variation. Dogs

are, as Wayne puts it, grey wolves. One major assumption of neutral theory as applied to phylogenetic analysis is that introns or “non-coding” sequences are junk DNA and base substitutions in these sequences are not subject to selective pressure. We have detailed the problems with this assumption elsewhere (12).

It is sufficient to say here that recent research has shown (15) that non-coding regions often have functional roles, e.g. intronic recombination (16), RNA polymerase II promoters, retrotransposons as epigenetic mediators (17), and therefore would be subject to selective constraints.

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The Reverend Gilbert White (1720-1793)

His Contemporaries and Successors

To many people Gilbert White was the author of the most famous nature book in the English language, *The Natural History of Selborne*, but it is much more than an easily readable classic. His scientific ideas were well ahead of his time and contributed to modern biology, especially to ecology and animal behaviour, ethology with concepts of niches, territory and breeding habits. In character, he was a peculiar mix of modern and old-fashioned.

Gilbert, known as Gil, was born at the Hampshire vicarage of Selborne where his grandfather, the rector, another Gilbert, was married to a local yeoman farmer's daughter. Gil's great-grandfather, Sir Samson White, has been a worthy Lord mayor of Oxford. The connection of the White family with Selborne began when the older Gilbert took over the benefice in 1681 and, soon afterwards, purchased an early 16th century cottage opposite to the church, known as Wakes. This became Gil's home and it was extended several times, before, during and after his day. It is now a rambling house, which contains the Oates and Gilbert White museums, a gift shop, café and the adjacent Field Studies Centre. The Wakes was in the White family for c.150 years.



The Wakes, Selborne today.

Young Gilbert's father was a not very successful barrister who had the fortune to marry a wealthy lady. After the death of his grandfather in 1728/29 his grandmother moved to The Wakes where his parents rejoined her after a time in Surrey.

Gilbert, the eldest child, was educated privately by The Rev'd. Thomas Warton of Basingstoke, an eminent classics scholar and Anglican theologian. With his young brothers and sisters, they remained a close-knit family. From an early age, Gilbert showed a bent for natural history and was a keen observer. He lamented later, the absence of anyone of his generation with similar interests around Selborne. As a boy, he came to know The Rev'd Dr. Stephen Hales, FRS, of Teddington-on-Thames, who came to his other benefice near Selborne during the summer months. Hales was a close friend of Gilbert's grandfather and was forty years Gil's senior. He had a considerable influence on Gilbert in scientific method. He was an eminent scientist, mathematician and inventor, who had attended the mathematics lectures of Sir Isaac Newton at Cambridge. His pre-eminence was as a physiologist of fluid motion in both plants and animals and was the first to make careful measurements. Hales described root pressure in his *Vegetable Statics* (1727) and he pioneered the study of blood pressure, working on horses. He also examined circulating red blood cells in the capillaries of a frog's foot, all published in his *Haemostatics* (1738). Among his useful inventions were ventilators for Royal Naval warships.

Hales introduced Gilbert to the doctrine of physics of natural theology as expounded by the distinguished 17th century English Naturalist, John Ray. This considered that all life was adapted to the environment and the design was evidence of divine creation. This doctrine was developed by W. Derham (1657–1735) and W. Paley (1743–1805). It glossed over noxious living things but was widely accepted until challenged by Charles Darwin. A useful consequence was that many Anglican clergymen were induced to take up natural history, like White, but it came to some strange conclusions, such as that horses were created just the right size for people to ride them. Because all life, including Man, was part of this divine tapestry of nature, there was none of the furore when Carl Linnaeus placed the Human species, *Homo sapiens* among the primates, which greeted Darwin a century later.

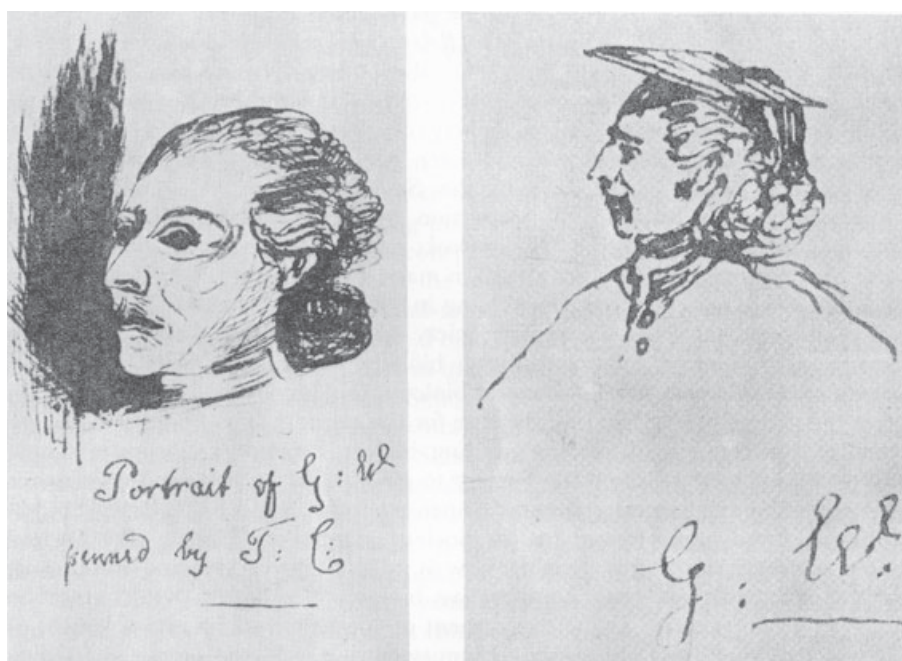
By the mid 18th Century, there was increasing belief that animals should not be treated cruelly, as upheld by Gilbert's elderly literary friend, Alexander Pope. This was paralleled by a belief in humanism towards people, yet slavery was abolished in Britain only in 1772, and women were burned at the stake until 1784. Adults and children were expected to stand surgery, without anaesthetic, unflinchingly, so this kindness to animals was novel. Gilbert was compassionate towards animals and people and he often gave money to needy villagers. He was good with children and numerous young Whites were deposited in "The Wakes Creche". He believed in equality for women as shown by his attitude towards them.

Gilbert was, however, a man of his time and in his youth was a crack shot with a sporting gun. He had no compunction in killing dozens of songbirds, which were raiding

his garden fruit or seedbeds, as well as for food. He also shot birds and mammals for identification or dissection. His gun, loaded with ballshot, was a useful deterrent against highwaymen. Gilbert travelled widely on horseback over the south of England up to the Midlands but no further, and never went abroad. He did not like coach travel. His mother died when Gilbert was nineteen.

In the 18th Century, people with a scientific bent usually went in for medicine or the church. There were only a few very wealthy scientists, such as Sir Joseph Banks and Henry Cavendish. Gilbert decided on the Anglican Church and entered Oriel College, Oxford, in 1739. The University was then in deep slumber but Oriel was better than most colleges as the dons still taught students. Gilbert's tutor was Professor The Rev'd. Dr. Edward Bentham, a distinguished theologian and literary scholar, a friend of Samuel Johnson, and an advocate of natural theology. He was Gilbert's lifelong friend. A close student friend was John Mulso, later a canon of Winchester, who encouraged Gilbert to write *The Natural History*.

On his graduation in 1743, Alexander Pope presented Gilbert with a copy of his translation of Homer's *Iliad*. His friend TC, thought to be T. Chapman, penned an ink sketch of him on the flyleaf of Volume 3. A later sketch in Volume 5 shows him when he was probably junior proctor in 1752 and Chapman senior proctor.



The sketches in Pope's translation of Homer's *Iliad*. Both sketches were figured in *The Linnean* 4(3):21.

After graduation, Gilbert attended a course of mathematics lectures by eminent Oxford Astronomer, Dr. J. Bradley. Gilbert was a good mathematician.

Soon after his ordination, White was made a Fellow of Oriel, which supplemented a slender income from curacies. He was later made Dean of Oriel College. Here he fell foul of Lord Northington, earlier R. Henley, who was campaigning for his candidate as the new Oxford Chancellor. Gilbert never kowtowed to anyone and so lost the chance of a Hampshire benefice under Lord Northington's patronage, because he had not treated the Lord Chancellor with the respect expected of his high office.

There was no possibility of the Selborne living because that was a Magdalen benefice and so Gilbert spent his days as curate of various Hampshire parishes, sometimes at Selborne. A peculiarity of 18th Century clergy was pluralism of livings. This meant that there were many posts of curate but lowly paid. Only later in life did Gilbert get a small Oriel Benefice in Northamptonshire, where he put in a curate to run it. He had good reason to stay at Selborne as a naturalist, because the area is especially rich in different habitats due to the geology, as found by The Gilbert White Field Studies Centre and the National Trust, a major landowner today.

White was a strong believer in the binomial nomenclature of species as perfected by Linnaeus. At this time, Linnaeus's former students travelled to distant and remote corners of the world to find and name new species. Most naturalists in Britain spent their time indoors identifying dead specimens. Gilbert, in contrast, was an outdoor naturalist, a keen observer with the naked eye of behaviour and ways of life of animals and plants. He considered himself best at ornithology and less good at entomology. He owned Linnaeus's works but when he saw cuckoos *Cuculus canorus* catching dragon flies over a pond, (letter 7 to Barrington), he wrote; "Notwith-standing what Linnaeus says, I cannot be induced to believe that they are birds of prey!".

A close friend of Gilbert was William Curtis, a medical man and Quaker from near by Alton, who went to London to start a garden and nursery. He was a good botanist, interested in grasses, and who also studied insect metamorphosis. He became a demonstrator at Chelsea Physic Garden and later Director. White sent him plants, such as Sea Kale to grow. He started *Curtis's Botanical Magazine*. Curtis was a founder Fellow of the Linnean Society of London in 1788, but Gilbert White never joined any society, as he did not like being couped up indoors at meetings. He commenced his *Garden Kalendar* in 1750 at the suggestion of Hales, and it is used to this day to lay out the large Wakes garden.

Gilbert's grandmother, his father, his sister and her husband all died at The Wakes within ten years, and so he became owner of the house in 1763. He was good at accounts and costed everything carefully. Once, fourteen Highland soldiers were stationed at Selborne and he recounted how they found food prices much higher than in Scotland but they were meticulously honest. His wealthy brothers, Thomas who had an ironmongery

business, and Benjamin, a publisher, helped out with funds and used The Wakes as a country venue for their families.

Although he was quaintly formal in letters, complained of by Mulso, he was a most sociable and companionable man to know. He purchased a marquee to erect in the grounds of The Wakes during the summer months. The first house party in 1763 was a joint venture between White and the vicar, the Rev'd. Mr. A. Etty, and was like a prolonged fête, lasting for all of June and July with over twenty friends and relations coming and going. The vicar's wife invited her three young cousins, daughters of the President of the Royal College of Physicians, Dr William Battie. They stayed for the whole two months and the lively girls flitting around the village had profound effects on Gilbert and his unmarried brother, Harry. Mulso called them sorceresses. Gilbert struck up a close friendship with nineteen-year-old Catherine, known as Kitty, and it was to her lengthy and detailed diary of all the frolics which went on in that long-ago summer, the happiest days of her life, that we know about this party. Gilbert electrified their hair, they picnicked on the High Beech Hanger, behind The Wakes, and went horse riding. On the wedding anniversary of the Vicar and his wife, a magnificent ball was held which lasted till the early morning. Gilbert was interested in music and was commended for singing popular songs to the harpsichord. There was plenty of food and wine, and beer brewed by Gilbert. But, although Gilbert always had an eye for the ladies, he never married. After two centuries, Kitty's diary, containing a letter and a poem from Gilbert, came back to The Wakes, having passed from her great grandson via Thomas Bell and R. Holt-White, and her portrait as a personable young lady now hangs in his parlour as the friend of Gilbert White. Later, Gilbert called on the Batties at their London residence. Dr. Battie belonged to a literary circle but although well liked in his profession was considered highly eccentric because he would see patients wearing casual dress, then unusual.

Hales died in 1760 and soon another Hampshire parson with a scientific bent came with his young wife to the parish of Steventon. The Rev'd. George Austen's special interest was microscopy and he would demonstrate the 'animalcules' in pond water or rain drops infused in hay. He also examined natural objects, such as fish scales, butterfly wings and the parts of flowers. He added to his income as rector by teaching small groups of boys, who as well as a general education, learned the basics of science. Gilbert, who never owned a microscope, must have been delighted to ride across country on horse back to visit his interesting new neighbour who was also interested in natural theology. His friend, Mulso, called him the hussar parson, as he did not like taking the sunken lane to Alton.

Austen had an extensive library and purchased new books from a Winchester bookseller, still trading today, now under the name of Wells. He read these works to his assembled young family, including five sons, two of whom became admirals, and two daughters, one of whom was the future novelist, Jane Austen. Jane was educated with the boys and was keenly interested in nature and country walking. She was fourteen when Gilbert published *The Natural History*. The two families remained acquainted for

three generations. When both George and Gilbert had long since gone, Jane's brother, James, who had taken over as rector from his father, rode over to see Jane when she lived with her mother and sister at Chawton near Selborne, and penned a poem for her, dedicated to Gilbert White. The following year his teenage daughter, Anna, was invited to a house party at The Wakes by the then owner, Gilbert's niece Mary.

Gilbert's brother, Benjamin, was a successful publisher of Natural History books and kept a bookshop in London's Fleet Street, patronised by literary persons and scientists. Benjamin White was the first publisher to the Linnean Society of London and produced their *Transactions* from 1791. Gilbert received the latest Natural History books from his brother. The bookshop was used as a kind of club and here Gilbert met Thomas Pennant, author of the book *British Zoology* and the Hon. Danes Barrington, lawyer and amateur naturalist. It was to these two gentlemen that White addressed the letters in *The Natural History*. At the suggestion of Barrington, Gilbert started to write his Naturalist's Journal of daily events of local nature.

Gilbert spent some three months each year in London from Christmastide, staying with Benjamin's family or with brother Thomas. He would certainly have been taken to see the famous Vauxhall pleasure gardens near to Benjamin's home and then in their heyday. He could readily visit his friend, Curtis, at Chelsea Physic Garden, where he enquired from him on mosses, and because of his interest in exotic animals he no doubt went to see the Royal Menagerie at the Tower of London, which held a varied collection, including lions and tigers. The Tower produced an illustrated guidebook for tourists. When the Zoological Society of London's gardens opened at Regent's Park in the early 19th century, the Royal Collection was transferred there on the advice of the Duke of Wellington, a Fellow of the new society and Constable of the Tower.

Barrington invited Gilbert to meetings of the Royal Society where he liked their spacious elegant rooms at Somerset House. Here, he met Mr. Banks, later Sir Joseph Banks, and Dr. Daniel Solander, assistant Librarian at the British Museum, and Linnaeus' favourite student at Uppsala. He was later invited to Banks' London residence where he met Solander again. Gilbert took an immediate liking to these two brave, intrepid gentlemen and invited them to Selborne, but they were too busy preparing to take part in Captain James Cook's voyage to Australia and the South Seas in HMS *Endeavour* in 1771. Banks was established as a naturalist and explorer and took with him Solander as botanist, and two artists. The Royal Observatory Greenwich sent Charles Green, the astronomer who was also interested in natural history.

Captain Cook gave Dr. Solander a special mention in his account of this voyage, "..... an ingenious and learned Swede – who was particularly skilled as a disciple of Linnaeus and distinguished in his knowledge of natural history, likewise joined the expedition. Possessed of the enthusiasm with which Linnaeus inspired in his disciples, he braved danger in the prosecution of his favourite studies and being a man of erudition and capacity, he added no small éclat to the voyage in which he had embarked." Banks had promised to send Linnaeus specimens from Australia but because he later decided to undertake the

taxonomy himself, he failed to do so. This led to an acrimonious letter from Linnaeus to Banks, which unfortunately led to a rift between Linnaeus and Solander, who as the employee of Banks could not send his former teacher specimens on his own account.

Linnaeus visited England once in 1750 when he met the eminent naturalist, Sir Hans Sloane, but Gilbert never met him. Linnaeus had a very poor knowledge of English but Gilbert's brother, John, Chaplain of Gibraltar, once wrote to him on a query and had a prompt reply, as he had English speaking friends in Sweden.

Gilbert was very interested in Cook's voyages but had no wish to go to sea himself. He met the German naturalist, Johann R. Forster, and his son, J.G. Forster, on Cook's second voyage in 1772 in HMS *Resolution*. J.R. Forster was a pioneer ornithologist of Antarctica, New Zealand and the Pacific, and he wrote a catalogue of North American animals. Later he was made Professor of Natural History at Halle in Germany. At Cape Town, another former student of Linnaeus, Anders Sparrman joined Cook's second voyage as botanist.

Gilbert kept abreast of momentous world events and had four newspapers delivered each week. He had copies of *The Times* sent from London, probably by Benjamin, delivered the next day by the Royal Mail. He also read the *Hampshire Chronicle* which, before the railways, dealt with national news. A copy of this newspaper was delivered to village inns, including the Compasses, now the Queens Hotel, Selborne, every Monday when, as the resident clergyman, White read important items to illiterate villagers who gathered at a certain time to hear the news and drink the beer. Gilbert described to his niece Molly, in a letter, a drunken noisy stag party at this inn, which lasted two days. When E. Blanchard flew south over Selborne in his hot air balloon, Gilbert predicted its time of arrival and alerted suspicious villagers.

Gilbert's niece, Molly, and nephew, Jack, spent their childhood years at Selborne, educated by Gilbert. Later Molly became the sub-editor for *The Natural History* and Jack, who helped to transcribe the letters, became a surgeon at Salisbury. From a book which Gilbert advised Jack to read, he believed the age of the Earth was much older than in the Biblical account.

An annual visitor to The Wakes was Gilbert's close friend, the Rev'd. Dr. W. Horne, President of Magdalen, who came to oversee college affairs but, because Selborne was served by such poor roads until the mid-nineteenth century, only a few naturalists were induced to visit Gilbert at The Wakes. However, Mr. R. Skinner and Mr. W. Sheffield came together from Oxford, when in two weeks he was able to show them all the various local habitats.

The famous tortoise, Timothy, inherited by Gilbert from an aunt in Sussex, used to hibernate in The Wakes garden each winter, and he kept a record of its shell size and weight, on the local grocer's scales. The shell of this reptile is now at the Natural History Museum.

The idea of writing *The Natural History* came from discussions with Pennant and Barrington. From the start it was not a usual correspondence but the letters were contrived to give a balanced narrative of local nature. Personal letters were sent separately. Editing the letters took White 17 years, much to the distress of Mulso. Parts were transferred from one letter to another so that dates do not always tally, and the first few introductory letters were not sent. Replies to his letters were not printed so as to avoid diluting the narrative. Gilbert's flair for providing vivid word pictures was shown in his letter 9 to Pennant where he described three different species of warbler. He discovered the Harvest Mouse *Micromys minutus* at around the same time as Colonel G. Montegu, FLS, whom he knew.

Gilbert White was extremely well read and he knew of the discoveries of E. Jenner, FLS, of smallpox vaccination fame, and the development of young cuckoos in foster parent nests. However, he had not heard of Jenner's teacher, John Hunter, FRS, the distinguished comparative anatomist and surgeon, even though they were both interested in hibernation and natural history. He read the papers of the English Naturalist, John Ellis, FRS, a friend of Linnaeus and Solander, who discovered that corals are animals, and was also a distinguished economic botanist.

An example of Gilbert's scientific ability was shown in *The Natural History* (letter 30 to Barrington), where he mentions that a French anatomist concluded that cuckoos could not incubate their own eggs because the position of the crop would make it uncomfortable. So he obtained a dead cuckoo and found the anatomy as described, but then his brilliance showed as he examined a Nightjar *Caprimulgus europaeus* of the same size which incubated its eggs and found the positions were the same. The hypothesis was, therefore, wrong.

It was believed generally in the 18th century, including by Linnaeus, that swallows hibernated for the winter. Gilbert published two papers in *The Philosophical Transactions of the Royal Society* on swallows, martins and swifts and was very interested in their behaviour. Although he thought that late broods might hibernate, he knew from his brother, John, at Gibraltar, that swallows migrated through there to and from Africa. He set about trying to beat out stragglers from hiding places in winter without success but did not seem too surprised. The idea of hibernating birds later seemed absurd, until 1947, when the Common Poor Will *Phaenoptilus nuttallo* of the south west of North America, was found to hibernate in winter.

The late 18th Century saw the height of the agricultural revolution and enclosures but Selborne, without a resident Lord of the Manor, was a freewheeling community and changes were slow to occur. In letter 40 to Barrington, Gilbert suggests that if someone could produce grasses with two blades instead of one it would increase yields, the essence of modern plant breeding. In letter 34 to Pennant, he suggested that reduction in numbers of insect pests on crops would also be beneficial. Gilbert grew many new vegetables in his garden, such as potatoes, only recently popularised.

Gilbert White's only book *The Natural History and Antiquities of Selborne* was published just before Christmas in 1788, dated 1789. It was well acclaimed immediately and Mulso had a copy purchased for the Winchester Cathedral Chapter. Through his book Gilbert came to know Robert Marsham of Norfolk with whom he frequently corresponded, although they did not meet personally as neither then felt able to travel long distances. Marsham was an authority on trees and 12 years older than Gilbert. A popular edition of *The Natural History*, edited by J. Marwick, FLS, was published in 1804 and a copy was sent to James Edward Smith, first President of the Linnean Society, by White's publishers. Smith greatly admired Gilbert White. The antiquities section of the book has rarely been reprinted, but recent interest in history and archaeology has led to renewed appeal. This book passed through numerous editions and has never been out of print, becoming one of the most published works in the English language. New editions have been edited by prominent naturalists of their day and currently there are hardback and paperback editions in print.

On the death of his brother John (Jack's father) in 1781, his widow came to The Wakes as housekeeper to Gilbert. Gilbert White died in July 1793, probably of bronchopneumonia and pleurisy. At his request, he was buried at the back of St. Mary's Church beneath a simple headstone marked G.W. The large stone slab in the nave inscribed to Gilbert White is to his grandfather. In 1830, a magazine article on Selborne led to a surge of interest in this Arcadian home of Gilbert White, at a time of "dark satanic mills", and the interest never wavered.

Sir Joseph Banks, the longest ever serving President of the Royal Society, was made the first honorary member of the Linnean Society of London Solander having died some years earlier. Pennant was made an honorary member the year after Gilbert's death.

Many later naturalists were inspired by White. The colonial naturalist, Sir George Grey's uncle, had married a niece of Gilbert White, and so he was brought up on *The Natural History*. Darwin acknowledged that his interests had been stimulated by reading White, and he was induced to extend Gilbert's studies on production of vegetable mould by earthworms (letter 35 to Barrington) in his own monograph on the subject. The broad panorama of life provided by natural theology and suggestions made by White were to help Darwin to his theory of evolution. Gilbert remarked in letter 11 to Barrington, "the two great motives which regulate the proceedings of the brute creation are love and hunger", which Darwin interpreted as sexual selection and natural selection.

Thomas Bell, Professor of Zoology at King's College London in the mid-19th Century, was another follower of White, and on his retirement purchased The Wakes from Gilbert's great nieces. He published an important two-volume edition of *The Natural History*, including additional information on White. Darwin met Bell on his return from the voyage of HMS Beagle when he was disposing of specimens he had collected. Bell was especially interested in crustacea. Their mutual interest in Gilbert White made them close friends. Bell was a good administrator at the Royal Society and Zoological Society of London, and as President of the Linnean Society of London. He proposed Darwin for the



Entrance to St. Mary's Church, Selborne, decorated in commemoration of Gilbert White's death.

Fellowship of the Linnean Society and invited him to dinners of the Linnean Club. When the famous papers on Natural Selection by Darwin and A.R. Wallace were delivered to the Linnean Society in July 1858, Bell was in the Chair but neither of the authors were present, their papers being read by the zoological secretary. Bell did not allow discussion and the little more than thirty fellows attending, although highly stimulated, would have been glad to get away, as that summer became known as the great stink when the overpowering stench of the Thames as an open sewer drove many out of the capital. Parliament contemplated moving to Hampton Court or the Law Courts to Oxford. This was to lead to the building of a new sewage system for London.

Bell's often quoted remarks that nothing of importance had occurred during the year were no accident as he considered Darwin's theory objectionable. But the two men remained very close friends.

Gilbert White was a short, slim, upright man with straight features and a courtly manner. No known portrait of him exists and his only likenesses are the two ink sketches in his copy of *The Iliad* now in the British Library, and which are accepted by the National Portrait Gallery. An alleged portrait of White, often used to illustrate him in the 20th Century, is now considered to be an early 19th Century fake. This bogus portrait was once printed in *The Linnean*¹ but was noticed by John Clegg, a former curator of the Gilbert White museum. Having written to the editor explaining the fraud, the two authentic sketches were printed in this journal (see p.32).

A favourite sermon of Gilbert White was based on the parable of the Talents. He certainly made the most of his talents to posterity when he wrote *The Natural History of Selborne*.

¹ The Linnean – January 1988, 4 : 1 p.29

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R.I.C. SPEARMAN

ANIMA NATURALITER CHRISTIANA

Sub-titled GILBERT WHITE

A poem by

ALASDAIR EOIN ASTON M.A.

of Pembroke College

which was awarded The Seaton Prize
at Cambridge University 1994

I.

Of Adam de Gurdon

Is my burden

His dwelling stood

In Temple Wood

Who saved the shroud

Like sun in cloud

That wrapped the Lord

When slain by sword

Of Adam de Gurdon

Is my burden

He crossed the sea

To be with me

When airs of Spring

Set wandering

The risen bird

The risen Word

And reft from cross	Each time he made
And laid in foss	His long crusade
To rise again	To touch my heart
And clean the stain	With sharpest dart
Of Adam de Gurdon	Of Adam de Gurdon
Is my burden	Is my burden

II.

At dusk I saw you pacing the cedar walk
 Drawing your gown about you as you went
 In earnest conversation with yourself
 Or else in learned colloquy with God,
 No doubt attentive to His slightest Word.
 But also finding space to air your views
 On matters like the Nature of the Soul,
 The future of the Universe and Man,
 His duty to the animals, or Time, . .
 The length of its duration and the End.
 Around you in the garden flows the night
 From lawn to mead to woodland on the hill
 And further off to stars, a rising moon
 Above the lights from villages spread far.
 This is the turning-point, here you take stock
 Of everything that grows, above, below,
 And all that lives and moves and has its Being
 Within the natural parish of your love.
 Circling your head each evening are your thoughts
 Winging their way forever to our minds.

III.

Mouse, as an element of landscape,
 Unusual; a crackle in the hedge
 Becomes bold by starlight,
 Hesitates,
 Takes stock of autumn
 Then leads her scampering brood –
 Handfuls past heaven –
 Foraging Fierce and Fearless into the wood
 You dare at last to breathe:
 The terrible marauders passed you by
 As scarcely worth a bite.

Indoors, another matter. Winter's night
Draws him across the stone. Your monolith
Lets fall a careless crumb, another one ...
You fall into his trap and find it fun.

IV.

The green beetle grades the grass-blade
Millimetre by millimetre,
Guides the gaze
Upwards and out
To the tree.
To species
Through synonym
Through genotype
To genus.
To family
To superfamily
To order.
To class
To phylum
To kingdom.
To life.
Dizzied,
The eye descends
To the powdered, granulated, emerald weevil,
Its antennae waving,
Its elytra bright.
All learning is little
And therefore dangerous.
There is so much to be grasped.

V.

Tonight the small white moths
Are dropping out of the moon
And running rings on the stone,
Mistaking it for a lake.

These are the Water Veneers
Who have left one home for another
In hope to discover a mate.

Round and round they go
On a surface that is firm,
That will not give them their wish

And round and round you go
Trying to send them away,
To tell them this is just stone,
The shining path not a pond.

None of them hears what you say,
Intent as they are on desire,
Caressing the softness of dew
With their spirits of fire.

VI.

Your feet could tell the way the landscape altered
After your eye had taken in the sky
And massing clouds had broken up and faltered
Your feet could tell the way the counties lie.

One was a steady slope where sheep unnumbered
Moved at a steady pace away from rain
And light broke loose, its suddenness encumbered
By solid flocks that kept it back again.

Another was a ring of chimes and churches
Hidden by woods and folded under hills,
Telling the times through wind-assisted lurches –
Bells into clamour, clamour into stills.

The last was heavy clay that clung together
Leaf on the boot and moisture to the dry
So that you had the edge on any weather –
And knew the truth of how the land would lie.

VII.

Almighty and most merciful God,
Who made all things and creatures,
Protect, we pray Thee, the immortal soul
Of this Thy Servant, Gilbert White,
Who, although not vicar of this parish,
Yet cared all his long life for all its people,
Its children, its nature and all its brute creation.
May he be granted peace who gave us peace.

Amen.

Ecce Ascalaphid

Ascalaphids are a small group of insects which are relatively little studied, when compared with others such as Rhopalocera or Coleoptera. Devotees of the latter are legion, as are books on those insects. A number of short papers have been compiled on the Ascalaphidae but books are few. Some volumes on insects in general do include a short section on Neuroptera, but rarely more than one or two species.

The first serious paper thereon was by R. McClachlan, FLS which appeared in the *Linnean Society Journal (Zoology)* Volume XI, May 1871, entitled 'An Attempt towards a systematic Classification of the Family Ascalaphidae', pp 219–276. Not until 1908 did a complete volume become published, the author being H.W. Van der Weele (*Collections Zoologiques du Baron Edm. De Selys Longchamps*. Fasc. VIII 'Ascalaphidae Monographisch Bearbeiter'). This dealt with Ascalaphids on a world-wide basis. It is now somewhat out of date as many new species have since been discovered.

The Hieroglyphics in the tombs of the ancient Egyptians in the Valley of Kings at Luxor in Egypt depict numerous animals, birds and insects. Although carved in stone, they are executed so well that there is no doubt about the species in most cases. In 2001 the illustrating artist Theresa Dowland was examining hieroglyphics in the tombs and recognised one carving as an Ascalaphid. This occurred quite often and was later to be found in the carvings in most of the temples along the Nile.

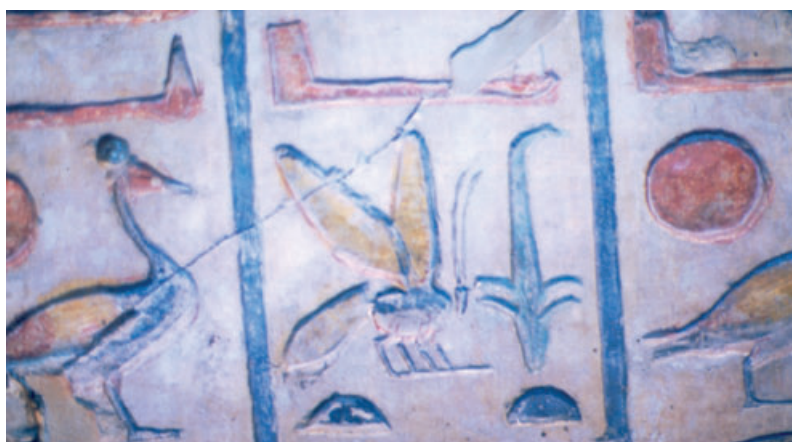


Figure 1. Ascalaphid figured on a British Museum carving from Luxor.

Although only in outline, there can be no doubt about the identity of this Hieroglyphic. One extremely diagnostic point in Ascalaphids is the long antennae with a large club at the extremity. Although the shape of the club may vary slightly between species, it is mainly heart-shaped. (See the Ascalaphidae of the Afrotropical Region (*Entomologica Scandinavica*, Supplement 41, 1992, p17, by Tjeder & Hansson.) Seen from a dorsal view (Figure 2) the club is large and heart-shaped. When seen from a lateral (side) view, the clubs are no thicker than the flagellae and cannot be discerned. The Hieroglyphic (Figure 1) depicts the insect from a lateral angle, although it may face right or left. From

this view the clubs cannot be seen, or only as a continuation of the flagella and of the same thickness.

Some authors describe the hieroglyphics as representing Hornets, Bees or Wasps (Kritsky, G. & Cherry, R. (2000) *Insect Mythology*, is an example) but the only other group of insects which are similar to Ascalaphids are Dragonflies (Odonata). These have exceedingly small antennae, very difficult to see. Although Ascalaphids have large eyes (they are termed Owl-flies in America), those of the Odonata are even more pronounced.



Figure 2. Ascalaphid - dorsal view

At the time of the construction of the Egyptian tombs, around five thousand years ago, it is thought that the area of the Nile basin was tropical rain forest interspersed with open grassland. The area has gradually dried out, becoming desert, except for the territory each side of the Nile, where the water irrigates the adjoining land. The Sahara desert is still expanding yearly, especially in the south. The smaller oases are shrinking and some have disappeared over the last hundred years.

In a lithograph from a painting by David Roberts RA, completed in 1838, there is a view from the ruins of Karnak at Luxor, looking down the Nile and with the Valley of the Kings in the distance. There were no buildings whatsoever between the Temple of Karnak and the Nile, nor on the farther bank as far as the hills. The plains are painted a pale green by the artist and must have consisted of grassland. This is ideal territory for Ascalaphids, which can be numerous in the right areas. They are predatory insects and hunt smaller flies and aphids, capturing them on the wing. They would have been well-known to the Egyptians five thousand years ago. At the present time, they are distributed all over Africa, with the exception of the deserts.

In some of the hieroglyphics all wings and limbs are clearly shown. There are, however, instances of persons with only one leg showing, the other leg presumably behind the visible one. Horses usually have all four legs depicted, especially if there is movement, but some are carved with just one fore- and one rear-leg visible. No doubt this is for clarity. In the Ascalaphid Hieroglyphic only two wings are shown, one front and one rear wing. As Ascalaphid wings are hyaline, it would be too difficult to show the other pair through the nearest pair of wings, especially when carved in stone. The exact shape of the various parts of the body leave no doubt as to the correct identification of the Ascalaphid.

There are a number of books available on how to read hieroglyphics. One such book describes the Ascalaphid as a Bee. Another booklet describes the insect as a bat, with six legs and two pairs of wings: most extraordinary.

I wish to express my thanks to Soichiro Kinoshito of Osaka, Japan for the Ascalaphid *Hybris subjacens* Walker which was used for the photograph (Figure 2). This insect is more like the African species than the European types, the latter being much smaller.

M.J. DAWSON FLS

Book Reviews

The Cane Toad. The History and Ecology of a Successful Colonist, by Sir Christopher Lever. Westbury Academic and Scientific Publishing, Otley, UK, 2001, xxvii + 230 pp., line drawings, Wb ISBN 1-84103-006-6. Price £44.

In his preface, Lever recounts the dismissive and contemptuous attitude with which biologists have traditionally viewed the study of invasive species. Thankfully this is no longer the case, indeed the problem of invasives has reached international prominence with the IUCN's Species Survival Commission Invasive Species Specialist Group, and a new scientific journal (*Biological Invasions*: Kluwer Academic Publishers) dedicated to understanding and resolving invasion problems. For many species, the history of introductions remains sketchy, resulting from an unknown introduction of individuals over an undefined period. The cane toad, *Bufo marinus*, has long been regarded as one of the best documented invasive species. In many cases, it is known exactly how many individuals and the precise date when these toads were deliberately released in the belief that they would control unwanted insect pests, particularly in sugar cane plantations. For this reason the introductions have long been considered important in terms of an evolutionary experiment in allopatric divergence, population bottlenecks, and speciation via genetic transillience – the subject of the book's shortest chapter.

From the oldest introduction to Barbados *circa* 1833 to the reported appearance of the cane toad on the Caribbean island of Carriacou as recently as 1999, the bulk of the book is taken up with detailed descriptions and faithful transcription of what historical documentation exists of introductions of the cane toad to over forty separate locations world-wide. Each locale is described geographically, together with clear maps showing estimated distributions. Indeed one of the most pleasing aspects of the book is the wealth of new information on the current status of cane toad populations. These are assembled through a number of recent studies as well as Lever's own personal observations, and communications from herpetologists and natural historians from the four corners of the toad's naturalised distribution. In effect, Lever's book is the authority on the status of cane toad populations at the end of the 20th century.

Lever reveals a surprising array of local perceptions to introduced populations of cane toads. Australians have long since publicised their fear and loathing of an introduction now regarded as a national ecological disaster, for which Lever summarises in two chapters the many studies on impacts and biological control methods. This is contrasted with some island communities where the toad is even reported to have a 'protected status' for what are considered to be its positive control effects on local 'pest-species'.

In the majority of cases, however, the exact distribution of the toad remains unknown, but there are suspicions of high levels of ecological impact. And here lies the crux of this and many other stories of invasive species: where they occur in developed countries and are considered pests, the wealth of scientific investigation is in stark contrast to the plagues that continue unabated and unstudied in the world's economically disadvantaged areas. In order to begin to assess and compare the impacts of a single invasive species, three independent factors are required: the total area occupied, abundance, and some measure of the impact per individual. In nearly 200 years of detailed documentation of introductions and invasions, these factors have not been assembled for any of the cane toads' current or historical distributions.

Despite the presence of a number of reviews concerning cane toad invasions, Lever's book is a current synthesis of a bewildering array of literature, and consequently contains an extensive bibliography. This standard reference will appeal to a wide audience from students of invasive biology to anyone, anywhere who lives with the daily croaking reminders of introduced cane toads.

G. JOHN MEASEY

Monkey Gland Treatment

Trials of the Monkey. An Accidental Memoir. Matthew Chapman, Duck Editions 2000, ISBN 0-7156-3002-4, Price £14.99.

Matthew Chapman is a direct descendent of Charles Robert Darwin, and works 'in the media' in the USA. He confirms the layman's worst suspicions of media folk: his early life was intellectually undistinguished, he has made an awful lot of money in Hollywood movies, he was promiscuous like his mother, née Clare Darwin, and he seems also to have inherited her liking for alcohol. The book is dedicated to his mother "who dropped off the perch a few years back". This sets the tone of the book – somewhat irreverent and in-yer-face – and we can see that linguistic elegance is not inherited. Charles Darwin, one suspects, would have approved only of the money. Despite Chapman's early obsession with sex, he does not appear to have been particularly progenitive that he is aware of – Darwin would not have approved of that either – and now lives a largely blameless life in New York with a second wife and daughter. The book is in significant part autobiographical and portrays a rake with a talent for screenwriting who has left his youth and middle age behind him. It is not for this reviewer to do more than note that Chapman's early life was spent in the house once inhabited by Rupert Brooke and latterly by Jeffrey Archer, but there is more than a suspicion of an *apologia pro vita sua* about this book.

A colleague suggests that Chapman revisit the famous 1925 Scopes' trial in Tennessee. Apparently the trial is now rerun every year as a tourist attraction. But before Chapman can get to see the rerun (unsurprisingly, he misses it), he takes a look at the local folk, their lifestyles and beliefs. Tennessee is a little different from California or New York.

Chapman is a racy raconteur and the book is a fine read, although not one for a great aunt at Christmas. He captures well the fervour of the basically decent, devout but misguided, burghers of Dayton who seem not to have made a link between hellfire religiosity and their physically and intellectually impoverished station in God's own country. There's even humour there: Dayton boasts a clothing store called JR Darwin's ("Darwin is right – Inside") and on offer is a pin with "Your Old Man's A Monkey" on it. Chapman finds the persistence of this parody of Christianity and rejection of modern science depressing ("If we came from monkeys how come there's hundreds of monkeys in the world an' you don't never see no man come outta one of 'em? Bull-sheeeit! Tha's what evolution is."). Chapman rehearses the arguments of the original trial and, to a reviewer whose sole acquaintance with Deep Southern derives from just those films for which, perhaps, Chapman is a screenwriter, he picks out wonderfully both the dialect and dialectic of contemporary local preachers ("Heyall is a Lake of Fah"). Yet although numerous polls tell of a wider American disenchantment with the theory of biological evolution¹, this has not led to Americans flocking to the Deep South, presumably because at least some of those sceptical of evolutionary theory have spotted that religious fundamentalism does not sit well with economic progress. Though the mills of God grind slowly, Darwin himself noted "I can see no limit to the amount of change, to the beauty and infinite complexity of the coadaptations between all organic beings, one with another and with their physical conditions of life, which may be effected in the long course of time by nature's power of selection"². Amen to that, but a little faster, please.

¹ MOORE, R. 2002. The sad status of evolution education in American schools. *The Linnean* **18**(3): 26-34.

² DARWIN, C.R. 1859. *Origin of Species*. London: John Murray p153.

JOHN MARSDEN

The Palaeobotanical collections of the late Alan Wesley

The July edition of the *Linnean* (**18**(3), 2002) carried an admirable obituary detailing the life and work of the palaeobotanist Alan Wesley, by H.L. Pearson. It also contained, however, a few inaccuracies with regard to the fate of Alan's palaeobotanical collections following his retirement from the University of Leeds in 1988 which should be clarified. Alan very rarely, if ever, visited the University after his retirement in 1988, and on his departure from the then Department of Plant Sciences, his fossil collection was left in a store room at the back of the departmental tea-room which also doubled as the Herbarium. In 1994, when the space occupied by these specimens was required, the collection was essentially split into three parts. The collection was originally offered to the Natural History Museum. Following a visit by personnel from the NHM Department of Palaeontology, approximately 30% of the Wesley collection was transferred to London. A further 30% was given to the Yorkshire Museum at York, and the remainder transferred to the Department of Earth Sciences of this University. Alan played no part in the distribution of his specimens, and was probably completely unaware of the process at the time.

Some years later in 1997, after the move of the now renamed School of Biology from the Baines Wing of the University into the new Louis Compton Miall Building (see Baker & Edmonds, *The Linnean*, 14(3): 41–48 (1998)) and the consequent move of the University biological collections into a suite of accessible rooms with good display facilities, the Curator of Palaeontology at the York Museum and Dr Jane Francis of the University Department of Earth Sciences, both offered to return the Wesley specimens in their possession back to the University of Leeds Herbarium. This transfer was completed by late 1997. Then in 1998, Pamela Radford, a palaeobotanist, offered to sort Alan Wesley's fossils on a part-time and voluntary basis. During this, Pam not only sorted, but also cleaned and labelled the specimens, as well as entering them onto an Access database. This fossil collection is now housed in new, catalogued boxes in a store room, and the database is available from the Herbarium on request. Also during this process, Alan was persuaded to come back into the Department, and indeed then thoroughly enjoyed sorting through and 'rediscovering' his fossil collection. His memory of each of the specimens was profound and he was able to identify many nameless and obscure fossils. Sadly, just as these 'working' visits were becoming more frequent, Alan was taken into hospital where he died shortly afterwards.

During his visits, Alan had intimated that his palaeobotanical books should ultimately compliment his fossil collection in the Herbarium. After his funeral, Pam Radford was invited to sort through his books, pamphlets and reprints, and transfer them to the University. In view of the large numbers of volumes involved, Pam was assisted in this process by Dr Sandy Baker, the current Curator of the University Zoological Collection. The transfer was completed in early 2001, since when Pam has been sorting through this literary collection, and again entering them onto a database. This process is now more or less complete, and the database is again available on request. Alan's palaeobotanical books and pamphlets have now been rehoused in a very fine mahogany cabinet in the Biology Museum. They include many articles collected during his Italian research and some contain hand-written notes. We also have many of his general botanical books, and a large number of microscopical slides sectioned from fossils.

Although Alan's finest specimens were undoubtedly selected by the NHM where they are now housed, we believe that those retained here constitute an interesting and valuable collection. They include a unique reference collection from the North Yorkshire Jurassic beds as well as many acquired from the Indian "Upper Gondwanas". Now that these fossils are complimented by both Alan's reference books and his slides, we believe that the Wesley collection housed at the University forms a valuable palaeobotanical working resource. It is hoped that the two databases containing the palaeobotanical and the book collection will be available on the University web-site in the near future. However, we also intend to publish them – perhaps in the *Linnean*, as soon as possible.

JENNIFER M. EDMONDS,
Curator of the Herbarium, University of Leeds

The Linnean Society Programme

2003

27th–30th April		International Polyploid Conference (with RBG Kew) † Andrew Leitch FLS at RBG Kew
24th May*	2 pm	Anniversary Meeting
18th–22nd Aug.		Systematics Association 4th Biennial Meeting † Prof. Chris Humphries FLS & Gordon Curry
22nd–29th Aug.		<i>Species Plantarum 1753</i> – meeting in Uppsala
25th Sept.	6 pm	HUXLEY & THE RATTLESNAKE Jordan Goodman
2nd Oct.		ROBERT HOOKE (1635–1703) COMMEMORATION † Paul Kent with and at Christ Church, Oxford
16th Oct.*	6 pm	NATURALIZED SPECIES: Book Sale** THE ECOLOGY OF SUCCESSFULLY INTRODUCED SPECIES Sir Christopher Lever FLS
23rd–24th Oct.		LONG TERM DATABASES AND ECOLOGICAL CHANGE † Terence Langford FLS, University of Southampton
8th Nov.		THE MYSTERIOUS ORIGINS OF THE ENGLISH APPLE The Brogdale Lecture Barrie Juniper, Plant Sciences, University of Oxford.
21st–22nd Nov.		COLOUR (with Inst. Mech. Eng. and others) † Michael Collins, University of South Bank and David Cutler FLS, RBG, Kew
11th–12th Dec.		ALEXANDER VON HUMBOLDT Walter Lack FMLS, Botanischer Garten u Botanisches Museum Berlin-Dahlem.

Unless stated otherwise, all meetings are held in the Society's Rooms.

For further details please contact the Society office or consult the website

– address inside the front cover. * Election of Fellows † Organisers

** All books gratefully received, preferably before the day of sale please