



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*

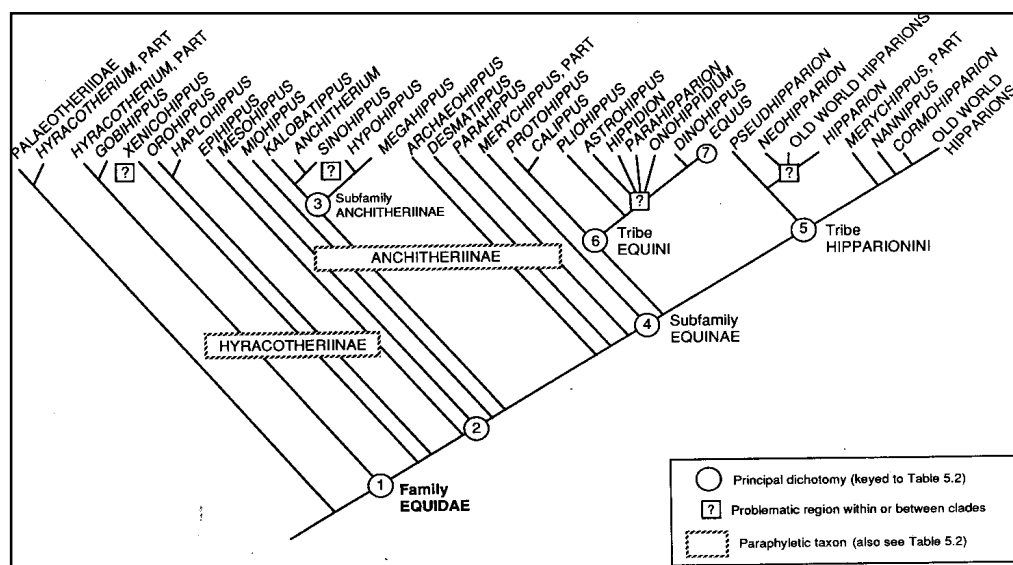
Edited by B. G. Gardiner

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Editorial

This issue contains an account of Darwin's South American fossils, the most enigmatic of which proved to be that of a fossil horse which co-existed with *Toxodon*, *Megatherium* and *Mastodon*. Previously, in 1851 Richard Owen had used the horse to illustrate his theory of the departure from the general type by formulating a series commencing with the fossil *Palaeotherium* and ending with *Equus*, explaining that the horse had got swifter by reason of its toe reduction to a single digit. Huxley's horse genealogy was more complex: from *Palaeotherium* it progressed to the three-toed *Anchitherium* in the Miocene, to *Hipparion* in the Pliocene, then to *Equus*. Huxley, in his North American lectures, paraded the horse as "demonstrative evidence of evolution".

With this presumed progressive evolution of the horses ["Of all evolutionary histories none is so widely known as that of the horse whose fossil record is remarkably complete." Colbert, 1961.] we have the source of one of the finest examples of ancestor- descendant relationships. During their evolution from *Palaeotherium* to *Hipparion* the horses were presumed to have increased in size from small dog-like animals to the size of sheep. The feet became three-toed and the teeth molariform for cutting up leaves. Then these horses allegedly emerged from their North American centre of origin at the beginning of the Pleistocene to spread into all continents. This rapid spread of *Equus* species was said to have been made possible by the drier conditions of the Miocene, causing the forests to shrink and give way to large expanses of grassland. Moreover, it is generally believed



Cladogram of the Equidae, including all recognized genera (see also Appendix II). Because the exact interrelationships are uncertain, the "Old World Hipparions" include *Stylohipparion*, *Cremohipparion*, *Proboscoidipparion*, and the *Sivalhippus* group. Compiled from numerous sources, including MacFadden (1976, 1988a), Hooker (1989) for *Hyracotherium*; Hulbert (1989), and work in progress. [From Bruce J. MacFadden, *Fossil Horses*, 1992, by permission of the Author and Cambridge University Press.]

(see, for example, J.Z. Young, *The Life of Vertebrates*, 1981) that the main course of horse evolution took place in North America, with migrations from time to time to South America and the Old World; the most continuous series of fossils so far described are from North America.

Thus these ancestor-descendant relationships were primarily based on fossil sequences and stratigraphy. The cladistic approach, on the other hand, recognises recent relatives purely on morphology, taking no regard of stratigraphy. One of the most recent cladistic analyses is that of MacFadden (1992, *Fossil Horses*, Cambridge University Press) who has shown (see cladogram on previous page, also his Appendix II) that the Family Equidae commenced with the fossil *Hydracotherium* in the early Eocene of both North America and Europe, while the sub-family Anchitheriinae, initially North American, by the Miocene had representatives in Europe, Africa and Asia. The Tribe Hipparionini contains the Miocene *Hipparion* which is found in North America, Europe and Africa, as well as *Merychippus* from the Miocene of North America. This tribe is the sister-group to the Tribe Equini which contains *Equus*. *Equus* itself first occurs in the earliest Pliocene of North America, the later Pliocene of Europe and Africa, but it is not represented in South America until the Pleistocene, where Darwin found it at Santa Fe on the 31st August 1833.

BRIAN GARDINER

Society News

The Queen's Birthday Honours List. Fellows will be very pleased to learn that two of our Fellows received knighthoods in the Queen's Birthday Honours List. Peter Crane, the Director of the Royal Botanic Gardens at Kew, was recognised for his services to horticulture and conservation work and Peter Harper, lately Professor of Medical Genetics at the University of Wales College of Medicine, for his services to medicine. Both are long term Fellows of the Society who have taken a real interest in our work and we offer them our warmest congratulations on their well-deserved honours.

The Society's premises. John Marsden reported on the on-going legal action in the last edition of *The Linnean* and those of you who attended the Anniversary Meeting on 27th May will have heard the more cheerful news that the (14 hour!) mediation proceedings on 16th March were successful. The Office of the Deputy Prime Minister agreed that it was happy to see the five learned societies continuing in their occupation of their rooms at Burlington House, provided the final agreement was "cost neutral" to the Government.

Negotiations are continuing on the exact terms of the leases, with four of the Societies acting together and using the same lawyers. Although things now look better than they did six months ago, the outcome is by no means entirely satisfactory: the Societies will still have to pay rent, insurance and the maintenance costs of the Courtyard after 2006. For the Linnean Society this will probably mean that our expenses will rise by 12-15% with no concomitant rise in income. It will be difficult for the Society to manage and reinforces the need for us to mount a major fund-raising effort.

The Society's premises. One of the results of the negotiations for a new lease is that the Societies have been encouraged to rationalise the space they occupy in Burlington House. This has led to an agreement with the Royal Society of Chemistry whereby they will take over the Linnean Society's two rooms in the north east of the Courtyard (which were used until last year by the Society for Experimental Biology). In return we shall get the Royal Society of Chemistry's flat above our Council room. We expect that in a year's time we shall also be able to take over the adjacent government flat, giving us a fine space that we can convert for use as an extra meeting room.

Meetings. There is a busy programme of meetings this autumn (see list on the back cover). On 28th October we are remembering our first female President, Irene Manton, and there will also be a book sale that evening. Come early to get a seat as it is sure to be a popular evening.

A few days later we have our first joint meeting with the Royal Institution, when Prof Steve Jones will be speaking on *Is Homo sapiens just another animal – or does he live up to his name?* Again we expect this to be very popular so book your seat (£5 for Fellows via the RI website www.rigb.org) as soon as possible.

There will be another very interesting evening on 18th November when Council member Dr Aljos Farjon will be speaking on the *Botanical Exploration of Kamchatka*. Then on Saturday 4th December we have this year's *Brogdale Lecture* when Mrs Angela Knight will speak on Raspberry Breeding Worldwide.

I am also glad to be able to confirm that this year's *Conversazione* will be at the Natural History Museum's Darwin Centre on Saturday 18th December. Dr Joe Cain will speak on the Scopes Trial. Christmas programmes get filled up very quickly so do put the date in your diary now.

The Tercentenary of the Birth of Linnaeus. We continue to plan for the Tercentenary in 2007. We were honoured with a visit by HE the Swedish Ambassador and two of his staff at the end of June and we hope to work closely with the Swedish Embassy during the next three years. We have also had preliminary discussions with Fortnum and Mason to see whether we can collaborate with them – their tercentenary is also in 2007.

Staffing. There have been major changes in the staffing of the office since the last edition of the *The Linnean*. I myself am new, and very conscious of how difficult an act I have to follow, given John Marsden's contributions to the Society over the last fifteen years. Also leaving is David Pescod, who has done such useful work as our Membership Officer and House Manager. David's work in dealing with membership has been taken over by our Finance Officer, Priya Nithianandan, but I am pleased to say that David will be in the office until the end of the year, working on special projects. We have appointed Dominic Clark to take over some of the house management duties. Dominic will also take over the facilities management work previously done by Janet Ashdown. That will enable Janet to concentrate on her work as Conservation Officer. Do call in at the office when you are in the area – Dominic and I will look forward to meeting you.

Awards. The awards of the Linnean Society are a wonderful way of recognising the achievements of people working in all sorts of fields. They can mean a great deal as the extract below from a letter from Lady Rosemary Fitzgerald to the President demonstrates:

“I do apologise for this mortifyingly late thank you note. Drought and dramas among my nursery plants have obliterated my desk time, but being awarded an honour such as the Bloomer medal by the august Linnean Society really did make sense of all the years I’ve spent in muddy fields and dusty herbaria, searching for small clues. The setting and manner of the awards is supreme as well – your flourish of the tricorne hat, from the crocodile throne, made that a top life-moment; and the kindness of the writers of my citation in mentioning my late Irish mentors (and their connection back to R.L. Praeger), allowed me to feel a real part of the botanical history which has always so drawn me. Very moving, sir, so may I thank the Society through you, and say that I am filled with wonder and gratitude. It is not often that a living botanist is allowed to see that their potterings may mean a little something after all.”

I am sure that we would all like to be able to respond as eloquently to an honour bestowed, and to capture the spirit of the Society so well.

ADRIAN THOMAS
Executive Secretary

Library

The summer months have seen the usual teams of students working on shifting and cleaning the book stock. This year we have concentrated on trying to get things in a taxonomic sequence in the Reading Room based on the Universal Decimal Classification. When we started re-shelving some years ago we began by bringing together the books on cryptogams as they were mostly already in one place. Those have now been moved into their logical sequence in the botany books. The rest of the main botany and zoology books now follow in taxonomic sequence, with bird and mammal books now in the shelves adjacent to the Book Lift. General biology, including conservation, evolutionary biology and ecology were re-shelved last year along the Piccadilly side of the Reading Room.

The re-shelving is not quite complete: we still have many books with geographical shelf marks, which are not part of the main fauna and flora sequence which are in the Lower Galleries. These are being shelved temporarily wherever space is still available, with an attempt to bring together ones with similar subject areas. We also have to sort out the applied biology books on agriculture, forestry, animal husbandry etc. which moved to the Upper Gallery last summer but have not yet been sorted out.

This year the team included Segolene Denis and Daisy DeBelle from France, Eleanora Piccini from Italy, Carmen Almansa and Ana Gil from Spain, Axel and Erik Anfalt from Sweden, Camille Lopreno from Switzerland, Sarah Brookes, Kate Conway, Alison Gayer, Eleanor Hingley, Nicola Morris, Lakshana Vakunthavasan and Kate Vernon



The Librarian, Gina Douglas, in the library with the first batch of students.

from UK.

A number of users of the Library have made cash donations recently. These include Dr A B Lyall and Dr G Creber. Sums such as this are earmarked for Library expenditure and may be used for conservation or special purchases in the same way as funds raised from the annual Book Sale. We are also grateful to all who have presented us with books during recent months as listed below.

Donations

The following items were received by the Library during the period May to early August 2004. We are most grateful for all these gifts to the Library

- | | |
|--------------------|--|
| G.D.R. Bridson | Tekiela, Star, <i>Trees of Pennsylvania</i> . 244 pp. col. illustr., Cambridge, Mass., Adventine Pubs., 2004. ISBN 1-59193-047-2. |
| John Burton & NHBS | Robinson, Les, <i>Field guide to the native plants of Sydney</i> . 448 pp., illustr., maps, Sydney, Kangaroo Press, 1991. ISBN. 0-7318-1211-5. |
| Dr Brent Elliott | Clifford, Carl, <i>The Amphibia of British Columbia</i> , 62 pp., illustr. (Handbook no 2, B.C. Provincial Museum) Victoria, Don McDiarmid, (Government Printer), 1950.
Clifford, Carl, & Clement, W.A., <i>The freshwater fishes of British Columbia</i> , 2 nd ed. Revised, 136 pp., illustr. some col. (Handbook no 5, B.C. Provincial Museum) Victoria, Don McDiarmid, (Government Printer), 1953. |

- Cornwall, Ira E., *The Barnacles of British Columbia*, 69 pp., illustr., Victoria, Don McDiarmid, (Government Printer), 1950.
- Gaal, Arlene, *In search of Ogopogo, sacred creature of the Okanagan waters*. 208 pp., illustr., some col., Surrey BC., Hancock House, 2001. ISBN 0-88839-482-9.
- Guiguet, C.J., *The birds of British Columbia (woodpeckers and crows)*, 51 pp., illustr. (Handbook no 6 , B.C. Provincial Museum) Victoria, Don McDiarmid, (Government Printer), 1954.
- The publishers Jonsson, Marita, *Carl von Linné, boningar, trådgårdar och miljöer*, 204 pp., col. illustr., Stockholm, Forum, 2003. ISBN 91-37-12-58-1.
- The Galton Society Keynes, Milo, Edwards A.W.F. & Peel, Robert, eds., *A century of Mendelism in human genetics*. 160 pp., illustr., Boca Raton, CRC Press, 2004. ISBN 0-415-32960-4.
- Roy Goodman/APS Smith, Murphy D., *A Museum, the history of the cabinet of curiosities of the American Philosophical Society...* 213 pp., Philadelphia, A.P.S., 1996. ISBN 0-87169-960-5.
- Dr Jason Hilton Xao, Xishen (and others), *Bamboo Culm Anatomy of China*. 187 pp., illustr., Peking, Science Press, 2002. ISBN 7-03-010045-X.
- Dr Brian Hopkins Hopkins, Brian & Stanfield, D.P., *A field key to the savanna trees of Nigeria*. 39 pp., Ibadan, Ibadan University Press, 1966.
- Smith, John, *Distribution of tree species in the Sudan in relation to rainfall and soil texture*. 68 pp., maps & charts, Bull. No. 4, Min. of Agric., Sudan Govmt. Khartoum, 1949.
- Hunt Institute for Botanical Documentation White, James J. & Bruno, Lugene B., *Botanical watercolours from the Nationaal Herbarium Nederland* (catalogue of an exhibition). 64 pp., col. illustr., Pittsburgh, Hunt Institute, 2004. ISBN 0-913196-77-0.
- S. Raphael Redouté, Pierre-Joseph, *Choix des Plus Belles Fleurs*, CD-ROM of edition published in Paris, 1827–1833, (from copy held in the California Academy of Sciences), with commentary by Sandra Raphael. Octavo Editions, 2004. ISBN 1-59110-053-4.
- Royal Bot. Garden, Edinburgh Miller, A.G. & Morris, M., *Ethnoflora of the Soqotra archipelago*. 759 pp., illustr. some col., maps, Edinburgh, Royal Bot. Garden., 2004. ISBN 1-872291-59-7.
- Royal Bot. Gardens, Kew Stiff, Ruth, *The Flowering Amazon. Margaret Mee's paintings* (exhibition catalogue). 78 pp. col. illustr., Kew, Royal Botanic Gardens, 2004. ISBN 1-844446-07703.
- Upson, Tim & Andrews, Susyn, *The genus Lavandula*, 442 pp., illustr. some col., Kew, Royal Botanic Gardens, 2004. ISBN 1-84246-010-2.
- Wim Snoeijer Snoeijer, Wim, *Agapanthus, a revision of the Genus*. 320 pp.,

- Species 2000 Secretariat col. illustr., Portland, OR., Timber Press, 2004. ISBN 0-88192-631-0.
Bisby, F.A. (and others), eds., *Catalogue of Life, annual checklist 2004: indexing the world's known species*. CD-ROM, Los Baños, Phillipines, 2004. ISSN 1473-009X.
- Sussex Wildlife Trust Briggs, Mary, *Sussex Wild Flowers*. 214 pp., col. illustr., Henfield, Sussex Wildlife Trust, 2004. ISBN 1-898388-17-2.
- Systematics Association Williams, David M. & Forey, Peter, eds., *Milestones in systematics* (Special Publication Vol. 67). 290 pp. illustr., Boca Raton, CRC Press, 2004. ISBN 0-415-28032-X.
- Dr C.Violani Bernini, Franco (and others), *Atlante degli anfibi e dei rettili della Lombardia*. 254 pp., col. illustr., maps., Cremona, Pianura monograph no. 5, 2004. ISSN 1722-5507.
- Prof. S.M. Walters Walters, S.M., *100 years of Sciences in Cambridge, 1904-2004*. 32 pp., illustr. some col., Cambridge, Dept of Plant Sciences, 2004.

GINA DOUGLAS

Correspondence

19 April 2004

17 King Edwards Grove,
Teddington, Middx TW11 9LY

Dear Brian,

Your picture quiz in the April issue of *The Linnean* 20(2) p.22 shows what may be the earliest known photograph of one of my heroes: Philip Henry Gosse (1810–1888). Although he could not accept Darwin's ideas on evolution, he was a superb naturalist and a versatile microscopist. He published on a vast range of topics, but some of his most enduring work relates to the rotifers. This started in 1849, when he acquired a microscope, and culminated in the splendidly illustrated monograph of 1886, in collaboration with C.F. Hudson. Gosse's observations on the living animals have been neglected by some modern students of the group, but they can often provide answers to recently rediscovered questions.

Best wishes
JIM GREEN FLS

Dear Professor Gardiner,

19th April 2004

The gentleman featured in the Picture Quiz in the recent *Linnean* (2004, volume 20) is Philip Henry Gosse (as I'm sure you will be told many times over). Gosse (1810–1888) was regarded in his time as one of Britain's leading popular authorities on natural

history (often thought of as the Attenborough of his day) and was, of course, the subject of a recent *Linnean* article (2003, volume 19, pages 27–30). He is variously known as the tyrannical ‘Father’ in his son Edmund’s highly one-sided semi-autobiography ‘Father and Son’, the leading populariser of marine biology in the late 1800s and the author of ‘Omphalos’ which, in attempting to reconcile his devout religious beliefs with his love – and detailed knowledge of – geology only resulted in academic ridicule. Perhaps, like poor Lamarck, he is mainly known for his mistakes rather than for his very real contributions to our heritage of natural history. I have reviewed his life briefly (Lancaster 1995) and look forward to reading the article which will presumably follow about him.

He deserves a wider recognition.

IAN LANCASTER FLS

Lancaster I. (1995). Who was Philip Henry Gosse? *Biologist*, 42 (4): 176-177.

13 July 2004

Dear Brian

Elleray Cottage, Windermere,
Cumbria LA23 1AW

When I saw the mystery photo in the April *Linnean* I immediately thought it was Philip Henry Gosse but had no idea whether he translated Ehrenberg’s papers or was introduced to the LS by Thomas Bell. I then forgot about it. Recently I saw the photo again and felt I was right. By chance I leafed thro’ an older issue and saw that Bell proposed him for membership of the Society which, I suspect, clinches it, though I would never have known this but for pure chance! I suppose lots of other people know it.

Yours sincerely
GEOFFREY FRYER FLS

19.4.04

Dear Professor Gardiner

5 Roebuck Lane,
Buckhurst Hill, Essex IG9 5QR

I was delighted to be able (for the first time) instantly to recognise the subject of your Picture Quiz in the current (very interesting) newsletter. It is of course Philip Henry Gosse. ‘Father and Son’ has been a favourite book since I first read it when I was about 13.

Gosse looked a little like T.H. Huxley – the photograph of the building named after him* reminded me of the many hours I spent in the old Public Record Office researching its history in the files of the Office of Works and the Treasury Out Letters. Very superior beings at the Treasury, who distainfully enquired: ‘Who are these gentlemen, Professors Frankland and Huxley?’ who were agitating for equipment for their brand new (but empty) laboratories in 1872. It was Huxley’s idea to call the new institution ‘Normal

School of Science' but it didn't take and soon became the Royal College – it was an incredible building inside – did you go round it?

Best wishes

JEANNE PINGREE FLS

* *The Linnean* 20(2) p.3; Ole Seburg also got Gosse and will receive an appropriate mug. – Ed.

24 February, 2004

26 Pound Lane,
Aylsham, Norfolk NR11 6DR

Dear Sir,

I have been reading the recent “God and Darwin” correspondence in *The Linnean* with interest; Professor Berry's comprehensive letter especially. It seemed a comprehensive summing-up of the whole discussion, and I was applauding its magisterial pronouncements until I came to the remarks about genetic modification.

I am not a Christian, I deplore “creationism”, I do not believe in “God” if by the term is meant a transcendental Father who can produce divine offspring from a virgin, but I know from personal experience that there are other levels of existence than the material world available to our five senses, and I believe (I cannot say more than “believe” because I am no scientist) that quantum mechanics – insofar as this is understood until the current “string” theory is either proven or replaced by another – rather agrees with me. Of one thing I am certain: science and spirituality are allies; science being the gradual discovery by *Homo sapiens* of the laws of Nature, and spirituality being the apprehension of Nature within and without as the mind of our species evolves. (I suspect that we shall one day discover that Time is no more than a convenient dimension constructed precisely for that evolution, but my body will have been disposed of long before we reach that stage.)

However, while I am disappointed that Prince Charles, whom I admire, should speak of “the existence of a guiding hand” within Nature, I cannot agree that the present public suspicion of types of genetic modification can be reduced to “demonisation by many in agriculture”. One trembles before opposing the august announcement of the Royal Society, which approves GM, it seems, in all its forms, but I prefer Dr Winston's comment on BBC TV, when he was discussing the possibilities of curing, through inserting genes, certain genetic diseases in children, that when we inject genes from an unrelated species we do not know for sure what the effects will be on future generations.

This is surely the crux of the argument about inserting genes. If they are from a related species, this is no more than a fast method of hybridisation, an age-old technique. But if, as in an early example, we insert (via a virus) a gene from a fish into a plant, this is a novel experiment, and not even the most learned of scientists in the present stage of understanding of the ecological network, developed over geological time, can tell us what the long-term effect will be. Darwin himself might well support the precautionary principle in such circumstances.

Moreover, the argument is not between “many in agriculture” and scientists, it is between scientists and scientists; there are other experts who take Dr Winston’s view. I have no time for the Divine Watchmaker (especially if he is of masculine gender), but as a Fellow I know enough to be conscious that I need to learn a great deal more about Nature, and in this I am not alone.

Yours very truly,
AVRIL FOX FLS

24 June 2004

9 Laburnum Road, Epsom, Surrey KT18 5DT

Dear Professor Gardiner

I expect that by the time this is read, most of the Fellows will know that the Royal Horticultural Society celebrated its 200th anniversary in March 2004; they might also know that it was founded (as the Horticultural Society of London, Royal Charter in 1861) within Hatchard’s bookshop in Piccadilly, just opposite the present east end of Burlington House. But I wonder whether many Fellows have noticed the commemorative plaque of the event, long attached to the shop’s front wall, a few feet above the fascia (*Photo courtesy of David Pescod*).



More interesting is a commemorative illuminated document which lists the seven participants in the foundation meeting. The document is usually to be found on a wall within the shop’s basement department but during the spring and summer it has been in the front display windows as part of an understandable promotion of books on gardens and gardening.

Chairman of the meeting was **John Wedgwood**, who is known to have had (and developed over a period of three years) the initial idea of forming a society which would

focus on garden-oriented horticulture, distinct from agriculture, botany and natural history. Wedgwood, the son of Josiah of pottery fame, was a banker with a serious amateur interest in plants and gardening, who later did well enough from a bank merger to retire early and follow his private interests more fully.

The other six founder members were: –

William Townsend Aiton, Superintendent of the royal gardens at Kew, succeeding his father.

Sir Joseph Banks, President of the Royal Society, and unofficial director of Kew; effectively Britain's chief scientist.

James Dickinson, Nurseryman in London, and a collector in his native Scotland, with a special interest in bryophytes; a founder member of the Linnean Society.

William Forsyth, Superintendent of St James's and Kensington Palaces' gardens; died only months after the Hatchard's meeting.

Charles Greville, Aristocrat and sometime MP and Lord of the Admiralty; strong interest in natural history and gardening.

Richard Anthony Salisbury, Gentleman and keen gardener who soon became Secretary of the new Society; once very friendly with Sir James Edward Smith, founder of our Society, but the pair apparently fell out over questions of nomenclature and taxonomy.

I understand from you, Sir, that all seven Horticultural Society founder members were FLS; regrettably, the Hatchard's commemorative document only designates four of them in this way.

The recent biography of Joseph Paxton by Kate Colquhoun indicates that the new Society leased a room for some years at the Linnean Society's premises, which I understand to have been off Regent Street. Shortly after our Society's move to Old Burlington House in 1820, the Horticultural Society took a 60 year lease on 33 acres of the grounds of Chiswick House for practical experimentation and observation. The property belonged to the youngish sixth Duke of Devonshire, along with Burlington House and other properties, including Chatsworth. In 1823, Paxton (who has been mentioned in this newsletter in a different context over the last two years or so) joined the garden staff at Chiswick; he had grown up in an artisan farming and market garden family. It seems that he developed quickly and well. Three years on, apparently following friendly, consultative encounters with the Duke in the gardens (to which the Duke had retained right of entry), Paxton was offered the position of Superintendent of Chatsworth's neglected gardens. The rest of the story of that career boost is history, the nature of it being readable in Colquhoun's book.

Yours sincerely
JEFF BULL FLS

Picture Quiz

Sir William Abbott Herdman (1858–1924)

William Herdman was educated at Edinburgh Academy and then at the city's University where, setting out to read medicine, he ended up a zoologist. His zoological enthusiasm was undoubtedly fired in 1879 when he became responsible for the tunicate collection amassed by the *Challenger* expedition (1872–76) and which determined a career largely in marine invertebrates. By the age of 22 he was Demonstrator in Zoology at Edinburgh and in 1881 at 23 he became the first Derby Professor of Natural History at Liverpool University, where he spent the remainder of his career, which culminated in a year's tenure of the Chair of Oceanography (1919–20). In retirement, he served for a time as the acting Vice-Chancellor of the University. He was elected an FLS in 1880 and an FRS in 1892. He was knighted in 1922.



Herdman was a scientist's scientist, working assiduously – he published a preliminary assessment of the *Challenger* collection within a year – completing his findings on the tunicates in three major papers, the last in 1888. He was an ardent supporter of fieldwork, not so straightforward in the marine environment. He set up a field station for the University on Puffin Island, off Anglesey, but this proved limited in biological scope and hazardous of access; anecdote has it that he lost both staff and students in the tidal races around the island. So, in 1892, he moved the field station to Port Erin, Isle of Man, where it subsequently enjoyed the reputation of one of the great marine laboratories of a maritime nation. Herdman found much of the money for the Port Erin Laboratory from his family pocket. Another substantial donor was an amateur biologist, Alfred Osten Walker FLS (1832–1925), whose great-nephew, Anthony Walker FLS, is also a marine biologist. A biography of A.O. Walker is in preparation by Prof. Geoff Moore FLS at the University Marine Biological Station, Millport. Sadly, in 2006 the Port Erin Laboratory is being closed by the University of Liverpool.

Herdman's personal life was marred by tragedy. He was twice married and widowed; his only son died on the Somme in 1916 aged 21 and he and his second wife endowed a chair of geology in the University in his son's memory. When his second wife died in 1922, he gave the University a new geology building with a donation of £20 000 – nearly £1 million in today's money. He died of a heart attack aged only 66 and is buried in Highgate Cemetery.

Herdman saw the need for affordable guides for students to marine invertebrates long before the Society's *Synopses* came on the scene in 1938. He published a memoir on *Ascidia* in 1899 and persuaded colleagues to write a number of others. He was involved with the fishing industry of the North West via the Lancashire Sea-fisheries Committee, of which he became a leading light, and to which he also provided a series of lectures for fishermen. For the Committee he set up a fisheries laboratory near Barrow-in-Furness.

Herdman was President of the Society from 1904 to 1907 and was the first to clasp a lady's hand during the admission of Fellows on 19th January 1905. His first Presidential address was devoted to margarosis – pearl formation, and its history and causation generally. Herdman had been enjoined in 1900 by the Colonial Office, the Royal Society and Professor Sir Edwin Ray Lankester, Director of the Natural History Departments of the British Museum, to study the pearl fisheries of Ceylon, now Sri Lanka. Lankester was also the founder of the Marine Biological Association in 1892. The pearl fisheries provided a valuable resource to the Government of Sri Lanka (oriental pearls were prized above all others), but production was capricious and from 1890 to 1900, the pearl fisheries had failed. In 1901, Herdman spent three months in Sri Lanka, collecting material which, on his return to the UK, was distributed to various colleagues for systematic analysis. From 1903 to 1905 Herdman contributed to and edited five volumes, in all over 1500 pages, on *Ceylon Pearl Fisheries and Marine Biology: a Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar*. It was the first text on tropical marine biology and formed the basis of Herdman's second Presidential lecture. One contributor to the series was Alfred Osten Walker FLS, who wrote on Amphipoda.

The nature of pearl formation had been considered by Rondeletius in 1558, who believed that they represented the encapsulation of parasites; in Sri Lanka, Kelaart (1857–59) believed additionally that grains of sand, or other irritant, could do the trick, as had Linnaeus a century before. A third explanation beyond the fanciful (dewdrops, lightning) was that pearls represented some pathological defect in the oyster's biochemistry. Herdman noted that in Sri Lanka, most of the pearls had at their cores a parasite, the cestode, *Tetrarhynchus unionifactor*, and he noted that pearl formation is “an unhealthy and abnormal process”. The Sri Lanka pearl oyster, *Margaritifera vulgaris*, is an intermediate host of *T. unionifactor*; the final host is the great ray, *Rhinoptera javanica*, which decimates oyster beds. However, as Herdman pointed out in his second Presidential lecture, by getting rid of the great ray, the population of *T. unionifactor* would also disappear and the result would be no pearls. The issue became academic with the development in the Far East of cultured pearl fisheries around that time. A number of other parasites, mainly trematodes, have been implicated in pearl formation in other parts of the world and in different molluscs.

Linnaeus had used a freshwater mussel, *Mya margaritifera*. The Society possesses 33 artefacts in its Collections, some of which resemble pieces of coal or are very small, but 4 or 5 are of jewel quality, although they do not compare well with oriental pearls. The Society also possesses at least some punctured shells from *M. margaritifera*. Some

years ago, the Gemmological Association and Gem Testing Laboratory (which scientifically evaluates gemstones for the jewellery trade) asked to be able to carry out non-destructive testing of the Society's pearls. The request was granted and a few weeks later I rang the Institute's director to ask what he had made of the pearls. Like the Swedish jeweller, he confirmed their status as genuine pearls and in answer to the obvious question what were they worth, said, "You've heard the expression *pearls beyond price*? Well, in the light of their provenance, yours are just that."

Linnaeus pursued the irritant route. Herdman summarises Linnaeus' findings as follows:

That in the formation of a pearl there is always some foreign matter – *peregrinum* – which is slowly covered by successive lamellae of calcareous matter (*nacre*) deposited by the mollusc;

That to induce pearl-formation when and where you wish, you must make a very small hole in the shell and insert a little round fragment of limestone fixed on the end of a fine silver wire;

That you must keep these artificial nuclei near the ends of the shell, so as not to interfere unduly with the animal's body; and

That the nuclei must, by means of the silver wire, be kept free from the shell so that the resulting pearls may not become adherent to it by a deposit of nacre.

That is all.

Rather more intriguing is the finding from papers in the Society's possession that Linnaeus, having discovered how to produce pearls *ad libidum*, sought to make the secret public for a suitable reward. Nine of Linnaeus' cultured pearls were cut in half by the Swedish Royal Jeweller and found to be identical to "natural" pearls. A subcommittee recommended Linnaeus be given 12000 silver dollars (£55 000 today), but there is no evidence that it was ever paid. On the other hand, the date (1761) *does* coincide with Linnaeus receiving his title and the secret *was* sold for half the recommended price to a Gothenburg merchant, who was also granted a patent by the King of Sweden. Maundy Gregory, thou shouldst be living at this hour!* It does not appear that the merchant, one Peter Bagge, made any use of the patent, but his grandson, Jacob, searching in his grandfather's papers after his death, rediscovered the secret in the early years of the 19th century. Fearing that Sir James Edward Smith, founder of the Society and purchaser of Linnaeus' intellectual estate, had a copy of the papers, he wrote to him in 1821 offering to share the exploitation of the secret with him. He received the classic brush off "I have no intention of carrying on the scheme – still less of paying £500 for any further information, nor, in short, of entering at all on the subject, for which I have no leisure."

* After WW1, Great Britain was on its uppers, and the Prime Minister of the day, Lloyd George, sought to swell the nation's coffers by discreetly selling peerages, knighthoods and other honours. His factotum in this improper task was a public servant called Maundy Gregory.



Clue: Wrote on Observations on the winter sleep of Animals and Plants and Plant Pathology.

Jacob thus failed to exploit the patent and in 1871 had copies made in Swedish and English, which were given through an intermediary to the Society and which Herdman was able to use for his first Presidential lecture and demonstration.

Since 2001, some of Linnaeus' pearls have been part of an exhibition *Pearls* organised by the American Museum of Natural History in various US cities. Currently (July 2004) it is in Midland, Michigan. Forays further afield in Canada and Japan are planned before the exhibition reaches the Natural History Museum in London in 2006.

I am grateful to the Royal Society Library for the use of books and papers in connection with this article.

JOHN MARSDEN

Darwin and South American Fossils

In his autobiography Darwin wrote:

During the voyage of the *Beagle* I had been deeply impressed by discovering in the Pampean formation great fossil animals covered with armour like that of existing armadillos; secondly, by the manner in which closely allied animals replace one another proceeding southwards over the Continent; and thirdly, by the South American character of most of the productions of the Galapagos archipelago, and more especially by the manner in which they differ slightly on each island of the group; none of the islands appearing to be very ancient in a geological sense.”

In his Pocket Book for the year 1837 he wrote:

“In July opened first note book on Transmutation of Species – had been greatly struck from about the month of the previous March on character of South American fossils and species on Galapagos Archipelago. These facts (especially latter), origin of all my views.”

Later in his autobiography his son notes that the discovery of the South American fossils had a special importance as a point in his father’s life when his speculation on the extinction of these extraordinary creatures and on their relationship to living forms formed one of the chief starting points of his views on the origin of species¹.

The starting point was in fact Punta Alta where he unearthed, for the first time the fossilised remains of enormous animals that he recognised at once as being similar in all respects, apart from size, to living counterparts. In his Journal, in which he recorded his daily activities throughout the voyage of the *Beagle*, the entry for Saturday September 22nd 1832 reads:

“We staid sometime on Punta Alta about 10 miles from the ship; here I found some rocks. – These are the first I have seen and are very interesting from containing numerous shells and the bones of large animals.

Sunday 23rd – I walked to Punta Alta to look after fossils; and to my great joy I found the head of some large animal embedded in a soft rock. – it took me nearly 3 hours to get it out. As far as I am able to judge, it is allied to the Rhinoceros. – I did not get it on board till some hours after dark.”

Part of the entry for October 8th reads:

“After breakfast I walked to Punta Alta, the same place where I have before found fossils. – I obtained a jaw bone which contained a tooth: by this I found out that it belongs to the great ante-diluvial animal the *Megatherium*². This is particularly interesting as the only

1. Darwin also made the point that all fossils fit into the same hierarchy as living species.

2. Owen later showed that this was in fact the glyptodont *Hoplophorus* and that Darwin had also brought back not only *Megatherium* but also three other new edentates: *Toxodon*, *Mylodon* and *Glossotherium*. However, Darwin should not have confused *Megatherium* with *Hoplophorus* since he had with him Thomas Falkner’s: *A Description of Patagonia* 1774, which on page 55 gives descriptions of the bones of giant armadillos apparently common along the banks of the Carcarania and Parana rivers.



Rhinoceros (*Scelidotherium*)

specimens in Europe are in the Kings collection at Madrid, where for all purposes of science they are nearly as much hidden as in the primeval rock."

Unknown to Darwin, that same year (1832) the collections of the Royal College of Surgeons had been enhanced by the addition of the fossil remains of a *Megatherium* discovered in the banks of the river Salado, near Punta Alta and presented by Woodbine Parish, His Majesty's Consul. This specimen was the first, large fossil mammal to be seen in the United Kingdom and it roused considerable interest; Buckland lectured on it at the British Association meeting in Oxford 1832.

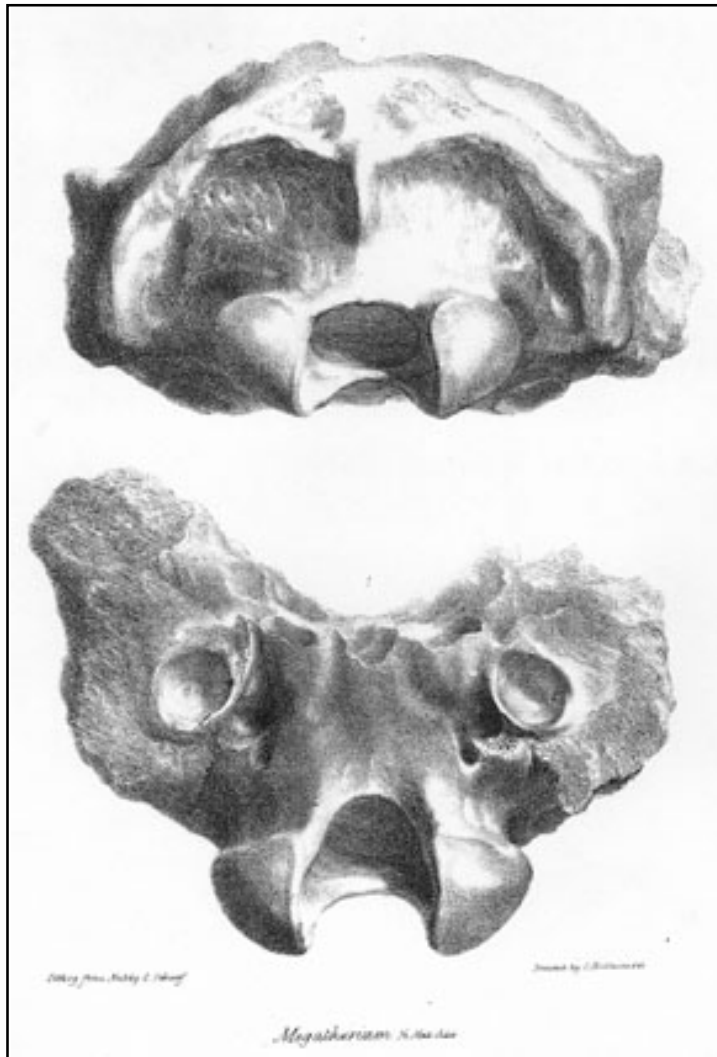
In November 1832, Darwin had the good fortune to meet Mr Oakley, who had collected Woodbine Parish's *Megatherium*, who not only gave him directions to where it had been found, but was also able to verify which bones belonged to *Megatherium*. At the end of November 1832 Darwin sent home two casks of fossil bones and marine shells by packet from Montevideo. The larger portions of the *Megatherium* were sent on by Henslow to Clift at Surgeon's Hall (viz. Royal College of Surgeons) and were subsequently exhibited at the next British Association meeting in Cambridge in 1833. Darwin's second consignment of fossils, which contained the head of *Megatherium*, was dispatched from Buenos Aires in August 1834.

The *Beagle* made sail to the south and eventually reached Monte Hermoso and Darwin went ashore with the Captain, 19th October 1832:

"Had the good luck to obtain some well preserved fossil bones of two or three sorts of gnawing animals. – One of them must have much resembled the Agouti but it is smaller."

Almost a year later: Saturday 7th August 1833, Darwin rode to Punta Alta in order to superintend the excavations.

"In N. America bones of horses have been found in close proximity to those of *Mastodon*; and I at St FJ Bajada found a horses tooth in the same bank with parts of a *Megatherium*; if it had not been a horses tooth, I never should have for an instant doubted it being coeval



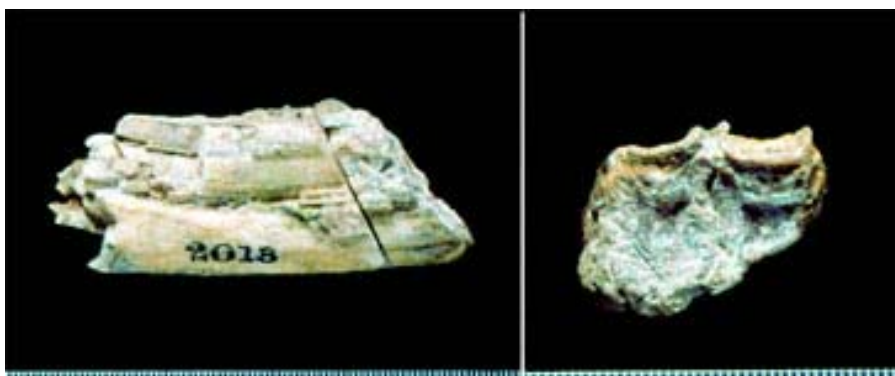
Megatherium

with the *Megatherium*. – Yet the change of habits proved by the frequency of the arrow heads, convince me that the horse was not an original inhabitant.”³

Darwin found a second fossil horse’s tooth very similar to that from Santa Fé, on the 31st August 1833: “My guide or Vaccinno not having come, I rode to Punta Alta, in order to superintend the excavation of the bones”. It was here, in the Pampaeian deposits of the bay of Bahia Blanca that he recovered the second tooth. Thus Darwin had found a horse’s tooth at Punta Alta with extinct edentates and *Toxodon*, while the one found at Santa Fé was associated with *Toxodon*, *Mastodon* and *Megatherium*.

3. This passage must have been written at least five weeks after the events described.

Although Darwin believed that the horse co-existed in the same district as *Megatherium*, Owen, who at that point had not seen the horse's teeth, did not believe him! Initially Darwin had doubted that the two horse's teeth (one from Santa Fé, one from Bahia Blanca) could be contemporaneous with other fossil bones found at Punta Alta. However, after reading Beechy 1831, in which it was noted that horse's bones had been found alongside those of fossil elephants, he was finally convinced that the horse had co-existed with *Megatherium* and *Mastodon*.



Darwin's two fossil horse teeth from Punta Alta (M16557) and Santa Fé (M16558) both left upper molars. Both mentioned in *Zoology: Voyage of Beagle* p.108. © The Natural History Museum, London.

The following January Fitzroy sailed south surveying the coast as he went and eventually reached Port St Julian where Darwin was put ashore: "and I found some interesting geological facts".

His finds included what turned out to be the remains of the most interesting of his fossil mammals – a huge Llama-like animal the size of a camel, later named by Owen *Macrauchenia patachonica*. Darwin cogitated on all this information remarking "That although several gigantic land animals which formerly swarmed in South America have perished, yet that they are now represented by animals, confined to that country; and though diminutive in size, possess the peculiar anatomical structure of their great extinct prototypes".

In September 1833 Darwin journeyed from Patagonia to Buenos Aires. On the 30th September: "crossed the Arroyo del Medio and entered the Province of St Fe."

"October 1st: Started by moonlight and arrived at the R. Carcavãna by sun rise ... I staid here the greater part of a day. Searching for bones in the cliff ... I found a curious and large cutting tooth. Hearing also of some "Giants" bones on the Parana, I hired a canoe; there were two groups of bones sticking out of a cliff which came perpendicular into the water. The bones were very large, I believe belonging to the *Mastodon*. – they were so completely decayed and soft, that I was unable to extract even a small bone."

Nevertheless he did send some fragments of teeth and portions of skeleton to England where Owen pronounced that, although it was insufficient to determine the species exactly it was more nearly allied, if not identical to, *Mastodon angustidens*, and unquestionably distinct from *Mastodon giganteum* of the United States.

Subsequently Darwin committed his thoughts to his Red Note Book [1836–1837]:

“In the history of South America we cannot drive into the causes of the losses of the species of *Mastodon* which ranged from equatorial plains to Southern Patagonia – To the *Megatherium* To the Horse – one might fancy that it was so arranged from the foresight of the works of man.

Feeling surprise at *Mastodon* inhabiting the plains of Patagonia is removed by reflecting on the nature of the country in which the Rhinoceros lives in South Africa: the same condition is applicable to the Siberian camel.”

Later he notes: “Inculcate well that horse at least has not perished because too cold – with discussion of Camel”.

Then he takes up the story of *Macrauchenia* the giant fossil Llama: “Should urge that extinct Llama owed its death not to change of circumstances, reversed argument knowing it to be a desert. Tempted to believe that animals created for a definite time – not extinguished by change of circumstances”.

In his Journal of Researches for the same period he writes:

“I am far from supposing that the climate has not changed since the period when the animals lived. – Did not explain why they had vanished. Certainly it is a marvellous fact in the history of the mammalia that in South America a native horse should have lived and disappeared to be succeeded in after ages by the countless herds descended from the few introduced with the Spaniard colonists”.

Meanwhile Darwin continues with his thoughts in Notebook B for 1837:

“Although the horse perished from South America the jaguar had been left and the fox and bear. The fossil horse generated in South Africa – zebra and continued⁴. Perished in America. Why did not fossil horse breed in South America. – It will not do to say period unfavourable to large quadrupeds – horse not large. Seeing how horses and elephants reached South America – It is a wonderful fact horse, elephant and *Mastodon* dying out about the same time in different quarters.”

Towards the end of Notebook B Darwin writes:

“Whether extinction of great South American quadrupeds is difficulty on any theory without God is supposed to create and destroy without rule. But what does he in this world without rule? The destruction of the great mammals over whole world shows there is a rule. South America and Australia appear to have suffered most with respect to extinction of larger forms. Edentata and Marsupials have been almost destroyed wherever animals existed”.

4. Dr Andrew Smith had already informed him that South Africa supported many large mammals in spite of its relatively dry climate.

Interestingly it is near the close of this Notebook in which Darwin wrote: “I first thought of selection owing to struggle” [viz 1838]. At about the same point in time Darwin made the following entries in Notebook C:

“Fact of elephant same species Borneo, Sumatra, India, Ceylon perhaps shows great persistency of character. Hence *E. primigenious* over a wide range and *Mastodon angustidens*.”



Toxodon

In Notebook E for October 1839 he ruminates:

“If hereafter *M. angustidens* be found to be inhabitant of South America and it is embedded with almost recent shells – shows that progression of change in Mollusca is somewhat similar in two hemispheres. It might be worth investigating whether *Megatherium* and *Mastodon* are co-embedded in N. America. *Mastodon* found at Timor.”

Finally in the *Origin* Darwin writes:

“When I found in La Plata the tooth of a horse embedded with the remains of *Mastodon*, *Megatherium*, *Toxodon* and other extinct monsters which all co-existed with still living shells at a very late geological period I was filled with astonishment for seeing that the horse since its introduction by the Spaniards into South America has run wild over the whole country and has increased in numbers at an unparalleled rate, I asked myself what could so recently have exterminated the former horse under conditions of life apparently so favourable. But how utterly groundless was my astonishment! Professor Owen soon perceived that the tooth, though so like that of the coexisting horse belonged to an extinct species. Had this horse been still living but in some degree rare, no naturalist would have felt the least surprise at its rarity; for rarity is the attribute of a vast number of species of all classes, in all countries”.

Thus we realise how that initial discovery by Darwin, in 1832 at Punta Alta, of the

fossilised remains of enormous animals, similar in all respects but size to living counterparts, was the source of his deliberations on extinction. In the *Origin* he wrote:

“The theory of natural selection is grounded on the belief that each new variety and ultimately each new species is produced and maintained by having some advantage over those with which it comes into competition; and the consequent extinction of less-favoured forms almost invariably follows. ... but we know that species have not gone on indefinitely increasing, at least during the later geological epochs, so production of new forms has caused the extinction of about the same number of old forms. ... Thus it seems to me, the manner in which single species and whole groups of species become extinct accords well with the theory of natural selection.”

However, it was the five weeks spent in the Galapagos archipelago in 1835 which had convinced him that species can change and divide. What had impressed him was not only its South American nature but also that “none of the islands appeared to be very ancient in a geological sense.” When he returned to London John Gould informed him that nearly every Galapagos bird represented a new, endemic species. In the *Origin* Darwin notes: “In the Galapagos Islands there are 26 land birds; of these 21 (or perhaps 23) are peculiar”. As we now know Darwin’s finches (a unique cluster of 13 new species) provided the final evidence needed for his explanation of natural selection and the transmutation of species.

BRIAN GARDINER

Laughter in Paradise: Herbert Spencer’s Will

*A lecture given by the retiring Executive Secretary
at the Linnean Society Rooms, 1st April 2004.*

This is not a scientific discourse, but a modest detective story with occasional digressions. I had received a copy of Spencer’s will, and two codicils, from the Secretary of the Zoological Society of London (ZSL) in 1993. He noted that the ZSL was a beneficiary of the will, and implied that the ZSL had not so far benefited from it. I was also asked whether I could shed light on the will.

Spencer was born in 1820 and died in 1903. Probate was granted to his two executors and the sum he left behind was £18,091:3s:3d. In today’s money, that amounted to nearly £1M, according to tables provided by the House of Commons Library. Spencer never married and had no children. He did make personal bequests to kin, friends and retainers, which I estimate totalled £2650. Estimate, because a small number of bequests to his household, which included a pianist, are for additional salary payments, which are not quantified. He also insisted that no payments were to be made to his retainers unless they were in his employment at the time of his death. With payments to Trustees (below), Executors and other expenses, the sum left to distribute, the residual estate was around £15,000.

For the ZSL, for the Linnean Society, and for ten other named societies, the will contained promise of things to come. After “such period as may be needed for fulfilling my expressed wishes (below) but not exceeding the lifetime of all the descendants of Queen Victoria who shall be living at my decease and of the survivors and survivor of them and for twenty one years after the death of such survivor”, any assets – printing plates, shares, stocks, funds, securities and other property – should be sold by the Trustees who “shall give the sum realized in equal parts to the Geological Society the Geographical Society the Linnean Society the Anthropological Institute the Zoological Society the Entomological Society the Astronomical Society the Mathematical Society the Physical Society the Chemical Society and the Royal Institution and the British Association.” The Royal Society got no mention. Spencer was not an FRS.

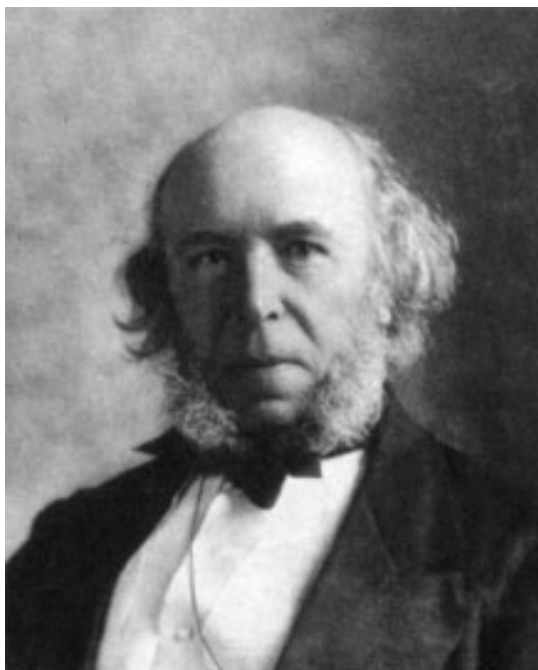
The ZSL Secretary also indicated the two princes and one princess believed alive on 8th December 1903 – the date of Spencer’s death – and still alive in 1993. These were in error. I was able to work out (from Whitaker’s Almanack) that the longest lived direct descendant of Queen Victoria alive on 8th December 1903 was King Olaf V of Norway. This was confirmed by the Archivist at Windsor Castle. Olaf V was a great-grandchild of Queen Victoria, born on 7th February 1903, died on 17th January 1991. This pointed to a final date for the distribution of the residual estate early in 2012.

Who was Herbert Spencer?

Herbert Spencer was a 19th century philosopher and biological scientist. Today we should have described him as a self-taught intellectual. He was born in 1820 in a terrace house in Derby. His father and grandfather had both had philosophical bents – his father was a schoolteacher, which then, as now, did not betoken material wealth. Spencer’s capabilities were undoubtedly sharpened when a relative paid for him to attend a local public (private) school for two teenage years. His first job, briefly, as a teenager, was as a printer’s devil, followed by a period of 9 years as a railway engineer at a time when railway expansion was under way. Spencer discovered, however, that his real *métier* was as a writer of articles, pamphlets and eventually a significant number of books on matters in which the Victorians were interested, such as biology, psychology and, especially, sociology, and which at that time they could understand. Today that is no longer true. He became a sub-editor of *The Economist*. Due in no small part to success in the USA, his earlier writings made him wealthy and conspicuous. He ranked with Darwin in national esteem and is sometimes described as “the father of sociology”.

Spencer’s experience as an engineer led him to consider living things from a mechanical standpoint and he sought the explanation of behaviour and other biological phenomena in these terms. These days we say that living systems obey the laws of physics and chemistry, which were in Spencer’s day being formulated. He believed, as many have done both before and after him, that the solution to the many apparently unexplained mysteries of life lay in observation and reasoning. This may have been why he held Darwin and Wallace in such esteem. He knew both well, particularly Wallace, who reciprocated the admiration.

Like Darwin, Spencer (left) was a valetudinarian and his life beyond the age of 40 was a considerable struggle against ill-health, although he lived to the ripe old age of 83. Whilst he never married, he enjoyed a dalliance, as apparently did others, with George Eliot (Marian Evans), who died in 1880. Spencer certainly possessed the capacity for original thought. He supported much of Darwinism – he coined the term “survival of the fittest” – and observed that in man there was social evolution, knowledge passed down the generations, which followed a different evolutionary pattern to Darwin’s Natural Selection. Both Darwin and, again especially Wallace, found Spencer’s argument compelling. Spencer further suggested that the phenomenon was to



be found in animals, something that has only very recently been documented in detail. Less perceptive commentators have damned these ideas as Lamarckian (Spencer himself did not disagree with this). The ideas were, nevertheless, encapsulated in the “Baldwin Effect”, after James Mark Baldwin, who wrote about them in 1896. From similar considerations, Dawkins has coined the term “meme” as opposed to “gene” in his first book, *The Selfish Gene*. Spencer’s biggest failing was the tenacity with which he clung to his views, which gave the impression of obstinacy. Unkindly, some have drawn comparisons between Darwin, seen as the devoted family man, and Spencer, seen as a procrustean and cantankerous bachelor.

Spencer’s will, including two codicils, is a complex affair. Its 10 pages of 10 point type begin with directions for his cremation and burial in Highgate Cemetery, with or without a secular ceremony.

The creation of a Trust

The residue of his estate (the £15,000 mentioned above) was placed in trust and three Trustees were appointed to carry out Spencer’s wishes. Who were the trustees? One, Hon. Auberon Herbert, died in 1906. Henry Bastian FLS FRS, another Trustee, had been Spencer’s GP for some years, and died in 1917 aged 80. He was an early author on the origin of life, but not really much beyond spontaneous generation. Dr. David Duncan might have been a younger man, but he had spent 20 years in India in the education service, and may not have enjoyed the best of health. In fact, he died in 1923. University College was asked to appoint succeeding Trustees, but there is no evidence that they did.

Trusteeship was passed from one group of Trustees to the next. In 1916, Sir Arthur Keith FLS FRS (of Piltdown fame) and Major Leonard Darwin (son of Charles) were appointed Trustees. Leonard Darwin was much into eugenics (as were many others at the time) and was for many years President of the Eugenics Education Society. In 1924, after the death of Dr. Duncan, Sir David Prain FLS FRS, President of the Linnean Society 1916–1919, was appointed a Trustee. Prain rose from humble Scottish origins, graduating as a botanist from Aberdeen University, saving enough as a teacher in Kent in two years to enable him to qualify in medicine at the same university. He became a military surgeon in India and is referred to in the Society's proceedings in the early part of the 20th century as Lt. Col. Prain. He became Director of Kew Gardens in 1905, the year he became an FRS, retiring aged 65 in 1922. Prain was not alone in choosing for his first Presidential Address *What the Linnean Society is and whither its destiny?* We never seem to find the answer to that question! Prain also set up the Goodenough Fund in 1919 for Fellows who fall on hard times. Obituaries of Prain in 1945 did instance the Trusteeship, which gave me a valuable lead into the Trust – an article in the *Times Literary Supplement* (below). Darwin, Keith and Prain were to remain to the end of this saga. Spencer's Trustees, who shared 30 guineas annually, were enjoined to keep on publishing both Spencer's own books and a couple of his father's, entitled *Inventional Geometry* and *Lucid Shorthand*. To these were to be added material which the Trustees had themselves commissioned, "so long as it shall yield a profit".

Spencer should have known better – he himself lost £3250 in publishing his *Descriptive Sociology* before his death. His support of unfettered free enterprise did not endear him to the intellectual elite in the first 30 or so years of the twentieth century although he showed acute and ground-breaking insights into the role of armaments in the building (and disintegration) of human societies, which have proved all too correct even today.

The Trustees lost increasing sums on publishing. In addition to keeping some of Spencer's books in print, they published 11 new books from 1903–1934 under the general editorship of Henry Tedder, Secretary and Librarian of the Athenaeum. Tedder died in 1924, and the mantle passed to T.W. Hill, Tedder's deputy. The 11 new books were: his autobiography in two volumes, which appeared in 1904 and a book on the life and works of Herbert Spencer by one of the original Trustees, Dr. David Duncan in 1908. Both these books had been specified by Spencer in his will. He was no shrinking violet. The Society's Library copy of Duncan's book was presented originally by Spencer's Trustees to Wallace. Wallace's name on the flyleaf is perhaps the sole merit of the book! Spencer had also asked that the *Descriptive Sociology*, when as complete as the Trustees could make it – the Trustees extended the original eight volumes by another eight – should be revised, rearranged and brought up to date. The Trustees sought agreement in the High Court to water down this proposal, replacing it in late 1934 by an appraisal – *Herbert Spencer's Sociology* – by Dr. J.E. Rumney, who was paid £225 for writing it. The payments made to authors, to publishers and to the Trustees themselves during the commissioning of these 11 books and reprinting older ones, coupled with an office rented by the Trustees in Whitcomb Street, just the other side of Piccadilly Circus, and with the



“Descriptive Sociology”

legal costs of High Court appearances, must, in my opinion, have consumed much of Spencer’s residual estate. But why did Spencer fall so quickly in public esteem?

The books were extremely large – 50x33cm – much too large for bookcases. According to Hill, the very size of the books was their downfall. Certainly their downfall could have caused serious injury! Spencer had attempted to summarise all the information he (and paid minions) collected in huge tables. Just think what he might have achieved with Microsoft Excel! In the volumes of *Descriptive Sociology* published after Spencer’s death the format was changed (again by permission of the High Court!). Yet Spencer’s books, and books about Spencer, remained passé. It seems to me that a more likely culprit for their demise was the ferment in the biological sciences at the time. For example, in 1894, the Royal Society set up a Committee, chaired by Francis Galton, for conducting statistical inquiries into the Measurable Characteristics of Plants and Animals. Other members included Francis Darwin and Edward Poulton (who preceded Prain as President of the Linnean Society and published the first paper on speciation mechanisms in 1903). In 1897, the Committee petitioned to be called the Evolution (Animals and Plants) Committee. Money was obtained for practical work – *Experimental Studies in the Physiology of Heredity* – at Cambridge and elsewhere under William Bateson, who

became Secretary to the Committee.

The work of the Committee must, if carried through to even a modest conclusion, have laid bare the outlines of the new science of genetics, but it was scooped. Its first report was in 1902, *after* the rediscovery in 1901 of Mendel's genetics by de Vries. Bateson's first report in 1902, noting Mendel's rediscovery, observed that "at the time of publication (of Mendel's paper in 1866) the announcement of the principle of Natural



Inside *Descriptive Sociology*

Selection had almost completely distracted the minds of naturalists from the *practical* study of evolution. The labours of the hybridists were believed to have led to confusion and inconsistency, and no one heeded them any more". In ignorance of Bateson, I came to the same conclusion 100 years later in a review of a book *A Century of Mendelism*. By 1902, the biological and clinical literature was carrying applications of the new science of genetics to the human condition. The first of these considered by the Evolution Committee was polydactyly, a dominantly inherited disorder. Then in 1901, Archibald Garrod noted that the conditions for the appearance of alkaptonuria (black urine caused by an accumulation of homogentisic acid), namely first cousin marriages, fitted with the idea of recessive inheritance after Mendel. Otherwise, the disease was very rare. These findings were "extraordinarily interesting evidence" of the correctness of Mendel's hypothesis, according to Bateson. Bateson's summary of Mendel's work in the *Royal Society Evolution Reports* is masterly. Bateson's co-worker was Miss Edith Rebecca Saunders, who became one of our first lady Fellows in March 1905. Her portrait is to be found in *The Linnean* in 1995 in an article by A.D. Boney. The new genetics sank Spencer, just as Darwin had sunk Mendel in 1866.



Edith Rebecca Saunders

The Secretary had said that the ZSL had never received anything from Spencer's will and I was disposed to believe him. Where were the books relating to financial matters? Whilst I was convinced that Spencer's million had been spent, I had no proof, only circumstantial evidence. Spencer had clearly retained his affection for the railways, since he encouraged his trustees to "invest the net proceeds (of his residuary estate) in the debenture preference or guaranteed stocks or shares of any Railway Company in Great Britain which at the time of the investment shall have paid a dividend on its ordinary stocks or shares for the last half year prior to the date of investment....". Fortunately, Spencer's Trustees weren't encouraged – they had "power at their discretion from time to time to vary such investments into or for others of the kinds prescribed" and they used it. Some may recall that, 27 years earlier, Lewis Carroll noted in his *Hunting of the Snark*, the effectiveness of "threatening (the Snark's) life with a railway share".

Dénouement

Then I was aided by two fortunate circumstances. I owe a debt of gratitude to an American scholar and FLS, Richard Milner, who put me in touch with Bob Carneiro, of the American Museum of Natural History, now also an FLS. Bob was kind enough to send me a photocopy of a rare book *Herbert Spencer Betrayed* by Alfred W. Tillett, published by P.S. King and Son in London in 1939. From this I was able to glean details of the changes in the Trustees, above, and much more. Next, the Royal Society's obituary of

Prain, cited an article by T.W. Hill in the *Times Literary Supplement (TLS)* of 6th February 1937, which confirmed the trusteeships and financial details. This latter reference also noted that Spencer's papers and those of the Trust were located in the Athenaeum; now they are in the University of London Library Archive Section. I doubt they are electrifying reading! The *TLS* also noted that details of the financial transactions of the Trust were held by a firm of solicitors called Scott Bell & Co; my enquiries of the Law Society have revealed that Scott Bell and Co underwent a series of mergers, finally becoming Horsey Lightly Fynn of Newbury in 2000. The Spencer will financial details have not been found and are not housed with the rest of the collection in the University of London Library. These details constitute, I think, the only missing piece of this jig-saw.

Tillett had been incensed by the last book published by the Trustees on Spencer, Dr. Rumney's *Herbert Spencer's Sociology*. He regarded it as a serious slander and when the Trustees failed, in his opinion, to take his claims seriously, like Old Father William, he took to the law. It is impossible to believe that the Trustees did not have foreknowledge of Tillett's concern and intentions, which were generally to leave no stone unthrown. Little seems to be known about Tillett, save that he wrote another book, which was published in 1912. We must assume that by 1934 he was getting on a bit. However, in 1935, having gained the agreement of the 12 learned societies, the Trustees sought an opinion from the Attorney-General, who is the final arbiter of the public interest in matters concerning charitable trusts. The Trustees asked the Attorney-General – more legal costs – whether they could wind up the Trust, given the escalating losses from publishing Spencer's works and works on Spencer. The Trustees felt that they had carried out the “expressed wishes” of Spencer honourably and Spencer had himself indicated that once the Trustees had fulfilled his wishes, their work was at an end. Moreover, losses on publication were contrary to Spencer's wishes. Nor were the Trustees “getting any younger”. The Attorney-General agreed that they could, indeed, wind up the Trust and it was wound up in 1936.

Tillett, needless to say, did not agree with the Trustees approach to the Attorney-General, accusing them of seriously misrepresenting the facts of the case, although he was careful to avoid accusing the Trustees of bad faith. Despite the Trust having been wound up in 1936, Tillett obtained in 1939 counsel's opinion that there was little point in carrying on with his case against the Trustees – “It appears to us that there is no further step which can be taken in the matter (of alleged breaches of trust).” As Tillett himself concludes, “To most readers this postscript (of *Herbert Spencer Betrayed*) will appear to be a superfluous mass of uninteresting detail.... no stone has voluntarily been left unturned.... had the Trustees not been able to shelter behind their Release proceedings would long since have been taken – taken solely out of respect for Herbert Spencer.” Ironically, and notwithstanding his *laissez faire* views, Spencer's own sociological work, free of the taint of genetics, enjoyed something of a revival in the 60s and 70s when genetic explanations of behaviour in, e.g. Ed Wilson's *Sociobiology*, and, more recently, in the work of the molecular biology pioneer, Seymour Benzer, on *Drosophila*, were published. The imputation that genetics played a key role in development and behaviour

was felt to put at risk those changes to the social fabric which some sociologists and biologists saw as desirable ends.

Epilogue

So we come to the end of our story. From Tillett's book and the *TLS*, I learned that the Trustees *had* availed themselves of their freedom to ignore Spencer's investment recommendations. In that they did rather well, leaving half of his residual estate (£7500) exactly where they found it, invested by Spencer, and which more than doubled in value over the 33 years of the Trust. Not a railway share to be seen! The residue of the estate in 1936 was consequently worth close to what the whole estate had been worth in 1903 (£18,000) although inflation had reduced its value by half. After a significant distribution to Spencer's surviving next-of-kin, £14,892 was distributed to the 12 learned societies, the Linnean Society's share being £1241 – some £35,000 at today's prices. This is duly acknowledged in the 1936 *Proceedings of the Linnean Society*. The solution to the Zoological Society's puzzle was right there in my own office!

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JOHN MARSDEN

Postscript

Laughter in Paradise concerns four members of a family set to inherit under a relative's will, provided that they each perform some named task completely out of character. For example, Alistair Sim, a pompous magistrate in the film, must serve 28 days in one of HM Prisons. Their unwelcome, but educative, labours completed, the four discover from the family lawyer (Wilfred Thesiger) that their relative didn't leave a bean.

The first images of Homer's Swallowtail (Lepidoptera: Papilionidae)

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Introduction

With a female forewing length of up to 90 mm or more, Homer's Swallowtail, *Papilio homerus* Fabricius, 1793, is the largest true swallowtail found in the New World (Bailey, 2003). According to Donovan (1834), recounting the circumstances of its original description, "this magnificent *Papilio* ... was among the number of rarities of the insect race which Fabricius met with in the Entomological Cabinets of the English Naturalists." Fabricius' account is, however, based on a painting (Fig. 1), and not directly on a specimen, as Donovan goes on to relate: "Fabricius saw the drawing of this insect in the Collectanea [sic] of Paintings formed by the ingenious hand of the indefatigable and liberal Naturalist the late William Jones, Esq. of Chelsea, and was so delighted with its grandeur ... that he determined ... [to] define the species by an appellation more than usually superlative."

Jones was among the early supporters of the Linnean Society, elected to the Fellowship in 1791, and himself a great authority on butterflies and their classification (Jones, 1794; Salmon, 2000). But where did Jones get access to the specimen of *homerus* that he painted, who collected it – and was Jones really the first person to make a portrait of what Donovan referred to as "Homer's Butterfly"?

Sir Hans Sloane was the first naturalist to visit Jamaica, the only place where *Papilio homerus* is known to occur. Sloane arrived there in December 1687 and stayed for 15 months (de Beer, 1953). Although he collected numerous butterflies (Brown & Heineman, 1972), and travelled near Mount Diablo (de Beer, 1953) where the species has been reported (Kaye, 1926; Emmel & Garraway, 1990), this remarkable insect was apparently unknown to him. *Papilio homerus* occurs in middle to lower montane forests, descending to about 150 m (Brown & Heineman, 1972), with many of its best-known localities occurring at 500–600 m in the Blue Mountains of eastern Jamaica. It also occurs in the adjacent John Crow Mountains, and there is still a significant population in the Cockpit Country, towards the opposite, western end of the island (Emmel & Garraway, 1990; Bailey, 2003).

The English captured Jamaica in 1655, and continued the practice of bringing African slaves to the island. Some ran away to join forces with escaped Spanish slaves and the few surviving aboriginal people. These so-called "Maroons", relatively safe in the mountains, organised raiding parties to plunder the English settlers on the lands below. Controlled from their headquarters at Nanny Town in the Blue Mountains, and



Figure 1. William Jones' images of *Papilio homerus*, made 1783–1785.
Digital photograph prepared by Rennison Hall from Jones' original painting (OUM, Oxford).

Accompanying in the Cockpit Country, the raids continued for many years, despite serious attempts by the British to stop them (Brown & Heineman, 1972). In 1734 the colonists finally succeeded in subduing Nanny Town and after that, or perhaps from about 1740 when a peace treaty was signed, the British were able to explore the mountainous hinterland (Bailey, 2003).

Thus the original material of *Papilio homerus* was probably collected by English explorers and brought to Britain sometime after 1734. Jones' painting was made from a

specimen in the Dru Drury Collection (see below), and was just one of a large number of images making up the famous but unpublished *Jones' Icones* (now in the University Museum Oxford: Waterhouse, 1938). All six of Jones' volumes were studied by Fabricius during 1787 (Gaonkar & Vane-Wright, submitted). According to Salmon (2000), and records held in Oxford, Jones completed his entire *Icones* during 1783–85. If so, then Jones' image is certainly not the oldest painting of this wonderful insect. Here we report two older and very beautiful images made by Henry Seymer (Figs 2, 3), indicating that Homer's Swallowtail was first collected before 1769. Thus if we are to discover which explorer first found Homer's Swallowtail in nature and brought specimens to England, we should focus on the period 1734–1768.

Henry Seymer (1714–1785) and Henry Seymer jnr (1745–1800)

The entomological activities of Henry Seymer and his son Henry Junior, who lived at Hanford in Dorset, have been given only limited recognition. So far as we are aware they never published any of their work, but it is evident that Henry senior, in particular, was a fine and dedicated naturalist with a wide range of interests, notably in botany, mineralogy, palaeontology, malacology and entomology (Richard Pulteney correspondence; Lambert, 1811; Perceval, 1983; Dance, 1983; Gage & Stearn, 1988). What little has been published about them mainly concerns their pioneering efforts on the British Lepidoptera, as revealed by Perceval (1983, 1995) and Salmon (2000). A portrait of Henry Seymer senior hangs in the Linnean Society rooms at Burlington House; unsigned, it is attributed to Thomas Beach 1738–1806, who studied under Reynolds. For many years this well-known painting erroneously and confusingly carried the dates of Henry Junior, and this is repeated in Gage & Stern (1988: 193) and Salmon (2000); this has now been corrected.

Less well known is the active pursuit, by both father and son, of exotic natural history, including conchology (Dance, 1983) and lepidopterology. Evidently Henry senior employed agents in London "to secure any collections that might be brought to this country by voyagers ... [and] he maintained a very extensive correspondence with the naturalists of his time ... [including] Drury" (Lambert, 1811). The Natural History Museum has copies of a few letters from Dru Drury to Seymer covering the period 1770–1775, and from these it is evident that Seymer "exchanged and purchased exotic specimens through Drury" (Perceval, 1983). Perceval (loc. cit.) continues: "In a sale of part of the library of Sir Humphrey de Trafford in December 1905, a book of 70 drawings of exotic butterflies with manuscript descriptions by Seymer made £30, a considerable sum at that time (report in the *Field* on 16th December 1905). I wonder where the book is now."

72 paintings of exotic Lepidoptera by Henry Seymer and Henry Seymer jnr

In 1992 one of us (HWDH) purchased a set of 72 paintings of exotic butterflies and moths set against floral backgrounds. The 72 sheets, all of uniform size (*ca* 340 x 275 mm), were in a decrepit Victorian leather binding inscribed *Butterflies and Plants, by Henry Seymer, and Henry Seymer, Junr*. With a few exceptions all are signed "HS" and/



Figure 2. Image of *Papilio homerus* made by Henry Seymer in 1768. Seymer's legend (on a separate sheet) indicates Jamaica as its origin, noting "Not in Linn[aeus] very rare." This exquisite painting also depicts two Jamaican hawkmoths: *Cocytius antaeus* (Drury, 1773 = *jatrophae* Fabricius, 1775), and the smaller *Xylophanes tersa* (Drury, 1770). The small moth at the top is also noted as coming from Jamaica, but the arctiid (lower right: *Utetheisa* sp.) is recorded as from "New York". The plants are identified by Seymer as granadillas (Passifloraceae).

or "HS jun", in a way consistent with the signatures noted by Perceval (1983). There is no doubt that these are all genuine paintings by the father and son team. Each sheet has a year date, indicating that Henry senior worked on the set from 1755 up to 1783, a couple of years before his death in 1785, with his son joining in from 1772 onwards. Whether or not these are one and the same as the "70 drawings" ex libris Sir Humphrey de Trafford noted above or another, previously unknown set is not yet clear. Given that the Hughes set was obtained indirectly from a member of the Seymer family, this rather suggests that the set of 72 referred to here is not the set of 70 noted by Perceval, and that we are thus unable to answer Perceval's particular question as to its whereabouts. However, this newly discovered or re-discovered set of Seymer paintings is of great interest to the student of tropical lepidopterology, and is the subject of ongoing research by the present authors (Vane-Wright & Hughes, in prep.).

The Seymer paintings of *Papilio homerus*

The first of the two Seymer images of Homer's Swallowtail was made by Henry senior and is dated 1768 (Fig. 2). It shows the butterfly in dorsal view with the wings outstretched. Although necessarily made from a dead, "set" specimen, it is very reminiscent of the insect in life, as shown in photographs published by Emmel & Garraway (1990), New & Collins (1991) and Bailey (2003). The quality of Seymer's image is outstanding, arguably the equal of Hewitson's best work (in Doubleday, 1848: pl. 4: Fig. 4) and the fine contemporary illustration by Richard Lewington in Smith *et al.* (1994), better than the excellent watercolour of a set specimen by Marjorie Favreau that graces Brown & Heineman (1972), far more accurate than the late Victorian image by Edith Blake illustrated in Gilbert (2000), and incomparably superior to the pallid figure that appears in Riley (1975). In several ways it is superior to Jones' paintings (Fig. 1) and even the Hewitson figure, most notably in the far better shape of the main, asymmetrical hindwing 'tail'. Seymer's *homerus* dominates his beautifully arranged plate, which also features four moths and intertwined cuttings of three flowering plants (Fig. 2).

The 1773 plate (Fig. 3) is, we presume, one of a number of joint father and son efforts, with Henry junior given credit for the plant and the *Acraea* (top right), the legend stating "Plant & N^o 2. H.S Jun". By analogy with numerous other joint efforts in the set, Henry senior must be credited with responsibility for the *Historis*, *Pachliopta* and *Papilio homerus*, but in this case the remainder of the legend simply states "Rest Capt. Davies 1773." From the style and execution, we are sure Henry senior did paint these three butterflies; we return to the matter of Captain Davies below. In this case the *homerus* is shown in what Seymer refers to elsewhere as "profile", with the wings folded but with a little of the anterior margin of the forewing upperside just visible. Although the artist could never have seen the butterfly in life, "in the evening and during occasional rains the insect sits with compact, folded wings" (Avinoff, quoted in Brown & Heineman, 1972: 336). This superb painting shows the lovely underside pattern with great subtlety.

Who obtained the original material of *Papilio homerus*, and what became of it?

Like so many of the new species introduced in the 1793 *Ent. Syst.*, and as already recounted, Fabricius' description of *Papilio homerus* is based entirely on an illustration in the unpublished Jones' *Icones*. This was based, in turn, or so it would appear at first sight, on one or more specimens in the Latham Collection (Fabricius, 1793: 181, who notes "Dom. Latham"). The name "Latham" appears on the Jones figure (Fig. 1), and was presumably accepted without question by Fabricius. This, however, was a mistake. Like many of the Jones illustrations, his image was prepared from a specimen in Dru Drury's collection, as clearly established by Donovan (1834). If so, the original specimen on which Jones' figure is based, if it survives, is most likely in the Macleay Collection, in Sydney. Donovan gives an account of how Drury's single specimen of *homerus* was sold as Lot 305 on Saturday May 25th, 1805, to John Francillon, for "four pounds sterling", and was subsequently sold on again, after Francillon's death in 1817, to "Alexander Mc'Leay, Esq. [F].L.S." MacLeay emigrated to Australia in 1825, taking his vast

entomological collection with him (Gage & Stearn, 1988). The Drury specimen should be searched for in Sydney, as it is the only candidate for an authentic name-bearing type for the nominal species *Papilio homerus*.

Was one of Dru Drury's collectors the source? Whatever the truth regarding the source of the specimen used by Jones, we can make the reasonable assumption that, at that still early date, not many butterfly collectors would have reached Nanny Town and worked in the Blue Mountains beyond. So it would be quite possible that the Seymers obtained their specimen or specimens, perhaps *via* Drury, from the same original source. Henry Seymer made his first image of this species in 1768, when Jones would have been just 18 years of age. Salmon (2000) indicates that *Jones' Icones*, all 1500 of them, were painted in the three-year period 1783–1785. If so, then Jones' work was done when the efforts of the Seymers had come to an end, but before their collection was sold in 1786 (Perceval, 1983). We can conclude that it is plausible that Seymer obtained his material



Figure 3. "Profile" of *Papilio homerus* made by Henry Seymer in 1773, at lower right. This painting also depicts another swallowtail, *Pachliopta hector* Linnaeus, a species from India and Sri Lanka. The other two butterflies are nymphalids: the larger, Neotropical species is *Historis odius* (Fabricius, 1775), while the smaller *Acraea issoria* (Hübner, 1816) (= *vesta* Fabricius, 1787) from Asia has its wings fully outstretched. The plant is *Cneorum tricoccum* (spurge olive).



Figure 4. Image of *Papilio homerus* by W.C. Hewiston, made ca 1845 (from Doubleday, 1848: plate 4).

from Drury, who mostly retained only “short series” in his collection (Salmon, 2000: 114). Under this scenario, the Seymer and Jones images could have been painted from material that ultimately came from the same source, but probably not the same specimen. However, further twists to this tale suggest the possibility of a different conclusion.

Captain Davies. Very few of the 72 plates mention anything other than the year when painted, which of the two Seymers made the particular images, and the Latin names of the species (often added later, on accompanying sheets). Two plates by Henry junior from 1773 have the word “Oxford” added, suggesting they might have been painted or based on material from there, and another bears the name of Henry Smeathman, a leading contemporary naturalist and collector who supplied Drury, among others, with material (Gilbert, 2000). One of the very few other plates to bear any such additional information is the 1773 “*homerus* plate” that, as already noted above, somewhat mysteriously bears the name “Capt. Davies” where we might have expected to have seen “H.S.” (Henry Seymer senior). Could the *homerus* specimens have been brought from Jamaica by Davies? Captain Davies lived in Shooter’s Hill, Kent, and was known to both Drury and Seymer (letter from Drury to Henry Seymour [sic], circa August 1772, Drury letters folio [257]; see also folios [204], [208]: Sherborn, 1937). From the Society’s Pulteney records, it seems that Davies visited Hanford House in 1772 and again in 1775 (Seymer letters 83, 111, in Pulteney correspondence). So far, however, we have not found evidence of a direct connection between Davies and Jamaica. Moreover, if 1772 were the first connection between Davies and Seymer, it is too late for him to have been the source of the *Papilio homerus* depicted in the 1768 painting.

The Duchess of Portland. A second twist concerns Margaret Bentinck (née Cavendish-Harley, 1715–1785), the celebrated Duchess of Portland, outstanding collector and bibliophile, and mother of a future Prime Minister of Great Britain (the third Duke of Portland, PM briefly in 1783, and again in 1807–09). As noted by Lambert (1811), “the ... Duchess of Portland frequently presented him [Henry Seymer] with rare specimens ... from her noble cabinet”, and he states that she visited Seymer at Hanford frequently from about 1773 onwards, almost up to the time of her death (they both died in 1785). The second Duke of Portland, William Bentinck (born about 1708, died 1762), was Margaret’s husband. His father, Henry Bentinck, first Duke of Portland, was Governor of Jamaica from 1722, dying there on 4th July 1726. Given this link to Jamaica, is it possible that the Seymer’s *homerus* specimens came not from Drury, but *via* the Duchess of Portland? And maybe Drury received the *homerus* (and perhaps other Jamaican insects painted by Jones) from Seymer, or directly from the Duchess herself? The 72 Seymer paintings are replete with images of Jamaican insects, such as the two hawkmoths in Fig. 2, both species being named by Dru Drury shortly after this plate was completed.

Many of the classic localities for *homerus* lie in Portland Parish (Brown & Heineman, 1972; Riley, 1975), reflecting this connection. The Portland area of Jamaica was so named in 1723, after the first Duke. To add a further twist, after her death in 1785, the Duchess’ Lepidoptera collection was purchased by Drury (Salmon, 2000). If Jones’

illustrations of *homerus* were painted as late as 1785, could they have been made that year from Drury's latest accession, the late Duchess' collection? Under this scenario, it is just possible that the two Seymer images and the Jones paintings were all made from the same specimen. Edward Donovan was a confidant of Drury and worked on his collection, but his rather speculative account of how Drury acquired the swallowtail, written many years later, sheds no clear light on this question (Donovan, 1834).

However, while the Portland connection is attractive, it is clear from the Pulteney correspondence (Seymer letter 80) that Seymer did not actually meet the Duchess in person until July 1772. Subsequent letters show that Seymer and the Duchess did exchange specimens, but Seymer remarks several times on the poor quality of her presents to him, while on at least one occasion she was apparently thrilled with some of the insects that he sent to her ("she was in raptures with ... two or three new flies I lately sent her": Seymer to Pulteney, letter 87, dated Dec. 26 1772). This all seems to suggest that it is unlikely that the Duchess would have been the source of Seymer's *homerus* specimen, and certainly not at such an early date as 1768. If we eliminate the Duchess on these grounds, what of Drury? If Drury had received such a swallowtail by 1768, or even 1773, surely he would have asked Moses Harris to paint this magnificent insect for one of the three volumes of his *Illustrations of Natural History* (Drury, 1770–1782). Thus we return to Seymer's own connections as the possible source – including the possibility that he supplied one of these huge butterflies to the Duchess, and by this route the species eventually became known to Drury and Jones.

Ellis and Robins. Did Seymer have any direct links to Jamaica? Lambert's (1811) brief memoir again gives assistance. It seems that "John Ellis Esqr. a gentleman of large property in Jamaica and a particular friend of Mr Seymers at his recommendation undertook to make as compleat [sic] a collection of drawings of the natural history of that country as could be procured" (Lambert, op. cit.). He was to do this with the assistance of a natural history illustrator from Bath named Robins, a man proposed to Ellis by Seymer. According to Lambert's notes, Ellis and Robins spent 10 years in Jamaica amassing thousands of illustrations of wildlife, which they intended to present to the British Museum. Just before Ellis set out to return to Europe, Robins was drowned. Ellis and the huge collection of drawings were also doomed: the *British Queen* on which he embarked was lost in a terrible storm, the same storm that was "fatal to the *Ville de Paris* and so many other vessels" (Lambert, 1811: 6). Some drawings were sent back to England over the years, and survived according to Lambert in the collection of Ellis' son, John Ellis junior, who lived in London at (where else other than!) Portland Place. Could the luckless Ellis, his "particular friend", have been the source of the many Jamaican insects in Seymer's collection? Or could it have been the equally unfortunate Robins? In the Pulteney correspondence there is clear evidence that Robins sent natural history specimens to Seymer from Jamaica (e.g. Seymer letter 86, dated 14th December 1772). Oddly enough, the same letter also notes that Captain Davies had "been so good to send some curious flies [sic]".

To establish whether or not Robins could have been the source of the *homerus*

specimen painted by Seymer in 1768, it is necessary to establish when he went with Ellis to Jamaica. If we take the 10 years noted by Lambert literally, and that this period ended with Ellis' death at sea, then the date of the loss of the *Ville de Paris* would provide the critical information. A captured French warship named *Ville de Paris* foundered off Newfoundland in September 1782, along with several other vessels of the British Navy, with the loss of some 3500 lives. If this is the event to which Lambert refers, then it would seem that Ellis and Robins must have started their project around 1772, too late for Robins to have been the source of the "1768" *homerus*. As noted above, by the end of 1772 Robins was sending material to Seymer, but this could have been his first consignment. But if we presume that Ellis, "a gentleman of large property in Jamaica", was himself only *returning* to Jamaica in 1772, it remains a possibility that he was Seymer's earlier source of so many rare and wonderful Jamaican insects. Perhaps it was such earlier success that caused Seymer to persuade Ellis to undertake his grandiose scheme in the first place.

Whatever the precise history, it seems almost certain that the first – and arguably finest – paintings of *Papilio homerus* were made by Henry Seymer in 1768 and 1773. These paintings were surely made well before the celebrated images of Jones, and 20 years or more before Fabricius brought the existence of this wonderful, and now regrettably threatened species, to the attention of entomologists worldwide – and so beyond just that tight coterie of mid-18th century English aurelians. Meanwhile, we continue our search for the connection to Jamaica, focusing on Captain Davies, the Duchess of Portland, Robins and John Ellis. Any pointers from Fellows of the Society would be most welcome.

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The Linnean Society Programme

2004

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|-----------|---------|--|--------------------|
| 14th Oct | 6pm* | THE GENETICS OF ANIMAL BODY PLANS
Peter Holland FLS FRS | |
| 21st Oct | 6.30pm | BOOK LAUNCH: <i>FROM THE ENDS OF THE EARTH</i>
by Christian Lamb FLS | |
| 28th Oct. | 6pm | IRENE MANTON FLS FRS (1904–1988).
First Female President of the Linnean Society of London:
A Centenary Biography.
Barry Leadbeater | Book Sale** |
| 1st Nov. | all day | RECENT AVIAN EXTINCTIONS
With the British Ornithologists' Union | |
| 3rd Nov. | 7pm | IS <i>HOMO SAPIENS</i> JUST ANOTHER ANIMAL –
OR DOES HE LIVE UP TO HIS NAME?
Steve Jones FLS
(A joint meeting with and at The Royal Institution, Albermarle St.
Tickets – £5 for Fellows, £8 non-Fellows.) | |
| 18th Nov. | 6pm | BOTANICAL EXPLORATION OF KAMCHATKA, RUSSIA
Aljos Farjon FLS | |
| 4th Dec | 11am | BROGDALE LECTURE: RASPBERRY BREEDING WORLDWIDE
AND THE PROGRAMMES AT EAST MALLING RESEARCH
CENTRE
Angela Knight | |
| 18th Dec | 3pm | CONVERSAZIONE <i>At the Natural History Museum Darwin Building</i>
With a talk on the Scopes Trial by Joe Cain FLS | |

2005

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| 27th Jan | 6pm | TAXIDERMY: ART, SCIENCE AND BAD TASTE
Pat Morris FLS | |
| 20-21st Jan. | | The New Phytologist Conference
THE ROLE OF EXTRA-CELLULAR MATRIX IN
CONTROLLING PLANT DEVELOPMENT | |
| 6-8th April | | THE PALMS: AN INTERNATIONAL SYMPOSIUM
ON THE BIOLOGY OF THE PALM FAMILY | |

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

**Books for the Book Sale gratefully received before the date of sale please.

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