THE LINNEAN

Newsletter and Proceedings of the Linnean Society of London

Edited by B. G. Gardiner

Editorial

We are now over half-way through our official Bicentennial Year which has already been marked by the issue of a special set of stamps (19 January 1988) and by a visit from the Queen and the Duke of Edinburgh (17 March 1988). However, since our first meeting was not held until the 18 March 1788 the actual Bicentennial Year still has a further 7 months to run. Like the Queen we have an official as well as an unofficial birthday! Accordingly this number of *The Linnean* is not only filled with bicentennial news and events, but also with apposite articles on the part our Society has played in Scientific London, on Robert Brown and on Pasteur; as well as with numerous letters emphasizing such varied aspects as our future rôle, the validity of a portrait of Gilbert White, the status of *Cepaea nemoralis* (L.) and which is the oldest biological society. All of this plus the long list of new members (see p. 11) augers well for the next century.

SOCIETY NEWS

Important Notices

The Bye Laws

(1) *General Review*

Council asks the Fellowship to note that a complete review of the Bye Laws has been instituted as a bicentennial activity. Any Fellow wishing to propose changes to the Bye Laws (1967) with amendments to 1984 is requested to state them in writing to the Executive Secretary as soon as possible.

(2) *Annual Contributions*

As recommended by Council, the Bicentenary Meeting adopted the proposal that the system previously used for assessing the level of Annual Contribution should be changed as from 1989 (for current rates see p. 14). This change has been necessitated by the inexorable rise in costs which has caused a loss to the Society and a major inequity as between those who receive two journals and those who do not. The last change was made four years ago.

It was agreed that the compensating measure should be confined to that necessary sensibly to cover the shortfall between the actual cost of a second journal and the nominal extra sum (£5) currently being contributed. The current rates for those who do not receive a journal, or receive only one will remain unchanged.

The following amendment is proposed:

Page 28. Delete whole page (including amendments to 1984) and whilst the review at (1) is underway, insert:

"28 Bye Laws of the Linnean Society

Appendix 1

Contributions

Fellows and Associates

The Annual Contribution to be paid is:

Fellows £30, Associates £15
(for entitlement to Journal see Chapter 17)

If a second Journal is required it will be charged at cost.

For those who do not wish to receive a Journal the Annual Contribution is:

Fellows £25, Associates £12.50

The Annual Contribution of any Fellow may be waived at the discretion of Council.

Student Associates

The Annual Contribution to be paid by Student Associates is £2.50.

Appendix 2

Composition

A Fellow of 20 years' standing who has reached the age of 65 may compound for five times the Annual Contribution. This may be paid in the form of five Annual Contributions. A second Journal may be purchased at the rate currently charged to Fellows but this charge is not subject to composition."

Dinner with the Anglo-Swedish Society

Their Majesties The King and Queen of Sweden have graciously accepted our invitation to attend the Dinner on 5 October 1988. The plan is to have the usual, brief formal presentations on their arrival. All being well, some members of both Societies will then be introduced informally, both before and after dinner, on the lines of our Reception last March.

The Anglo-Swedish Society has some 400 members and 23 Corporate Members. It was founded in 1919 to promote social and intellectual relations between the peoples of Great Britain and Sweden, and now enjoys charitable status. Its Patrons are HM The King of Sweden, HRH The Duke of Edinburgh, both Honorary Members of this Society, and HE The Swedish Ambassador.

If you wish to attend the Dinner please complete and return the white booking form noting the closing date.

The Bicentenary

Bicentenary Update

The plans for the bicentenary have been given previously—in *The Linnean* *3*(3) : 4–7, *4*(1) : 1–2, and *4*(2) : 1–6—and the formal report of the last session will be made in *The Proceedings* in the next issue. These notes therefore add some colour to our past activities and bring you up to date with details and modifications to the plans for the next session.

Meetings

With over twenty other societies and organizations involved in our programme we started holding joint meetings as long ago as April 1986. The first was the *Euphorbiales* meeting with the Phytochemical Society of Europe, already reported in *The Linnean* *3*(1) : 31. During the 1986–87 session we held a further six scientific meetings and one general interest lecture, and in the 1987–88 session, seven joint scientific meetings and one general interest lecture. All were held at Burlington House, with the exception of the *Euphorbiales* (Kew) and the *Ecology of Dungeness* (Egham). If statistics are anything to go by, 1456 have attended these meetings to date.

The following session effectively sees the end of the bicentenary series of joint meetings but, as a result of mutual approval, further joint meetings are now to be a regular, if less frequent feature of the programme. The BES, SEB, and the AAB are listed as initial contenders.

One of the outcomes of this programme has been a need to plan earlier and earlier. As you will have seen from the back covers we now look two years ahead and indeed the Programmes Committee will discuss 1990 when it meets next on 11 October 1988. Your suggestions for topics and cooperating societies will be welcomed.

It would be invidious to give a 'most successful' tag to any one meeting as to encompass such a diverse range of subject matter has called for some specialized and therefore less generally popular topics. The Pharmacological meeting was the best attended, indeed many late applicants had, sadly, to be turned away.

The Royal Reception

We understand that The Queen and The Duke of Edinburgh enjoyed their visit on 17 March 1988, and from other correspondence we have received so did the rest of their party as well as members of the Society. We were sad that we had to close the lists on the due dates and had to refuse late applicants. Two hundred and thirty-two were present at the reception and one hundred and sixty at the subsequent dinner.

The President presents a copy of *The Bicentenary History of the Linnean Society* to our Patron.

We note that one or two people did not manage to sign the Roll and Charter Book. If you were present at the Reception and did not sign, please ask to do so when next at Burlington House. There is no prize for being the last in the book—the Executive Secretary has already claimed that by so arranging the calligraphy!

Photographs of The Queen and Prince Philip in the Meeting Room may be seen on request to the Librarian when you next visit the Rooms.

Publications

The Bicentenary History of the Linnean Society, Gage and Stearn, is on sale at £25, £18.50 to members of the Society, from Academic Press. Three special leather bound copies were produced. One was presented to our Patron at an informal ceremony on 17 March 1988; the second will be presented to The King of Sweden on 5 October 1988; and the third to the author Professor William Stearn at the Bicentenary Meeting on 24 May 1988. This latter was felt to be appropriate on this unique occasion in recognition of his tireless and still continuing endeavours on the Society's behalf over so many years.

James Edward Smith (1759–1828): first President of the Linnean Society and his herbarium, W. T. Stearn. This is published in the *Botanical Journal Lin. Soc. 96*(3), 199–216, and not in the *Biological Journal* as announced in *The Linnean 3*(3) : 6.

Kimberley Research Project 1988, Western Australia

Planning for the project for which the field work is now complete was covered in *4*(2) : 5–6. Fund raising which was master-minded by Sir George Bishop, the past President of the Royal Geographical Society, led to attainment of the budget target of £101 000 in spite of many vicissitudes. We are indebted to him especially for his perseverance. The Expedition Office staff of Nigel Winser, Louise Henson and Katie Garrod are to be congratulated for keeping the letters and paper flowing and the excellent administrative back up. The field work started to a background of extremes of climate:

22 March "Heatwave, hottest temperatures for twenty years"
29 March "Camp cut off by floods—good news for botanists, not so for camp builders"

The fax and telex links between Australia and the Expedition Office at the RGS have been invaluable.

Further reports will appear in subsequent numbers and plans are afoot to hold a symposium to consider the scientific findings.

The Stamps

Acknowledging their generally acclaimed appeal, we received added publicity from the Post Office taking time on television and using 'our' stamps in their advertisement. Although they are now no longer generally on sale they are available until the end of the year from Philatelic Counters or the British Philatelic Bureau, Edinburgh EH3 5TT.

The Media

As we go to press we are aware that we have received coverage both in the United Kingdom and abroad:

TV	BBC	Stamps	Jan 88
Radio	Radio Cornwall	Miss Douglas	11 Jan
	Radio Sheffield	Prof. Calow	19 Jan
	Swedish Radio	Prof. Chaloner	18 Jan
	Radio 4 (World Science)	Prof. Gardiner, Dr Jarvis, Prof. Pye	Mar
	Radio 4 (Nat Hist)	Miss Douglas	28 Apr/1 May
Magazines	*BBC Wildlife*	The Rooms	Jan
	Philatelic Bulletin	Stamps & History	Dec/Jan
	Museum Post Rider	Stamps & History	Jan
	The Lady	Stamps	Jan
	The New Scientist	Society	11 Feb
	The New Scientist	KRP 88	17 Mar
	Association & Administration		June
	The World		July
	The Field		July
	Country Life		July
	The Biologist		July
Newspapers	*Times*	KRP 88	30 Dec 87
	Daily Telegraph	KRP 88	22 Dec 87
	Times	History	25 Jan 88
	The Cardiff Mercury	History	6 Feb 88
	Guardian	KRP 88	15 Mar 88
	Times (H. Ed. Sup.)	History	19 Mar 88
	Daily Telegraph	KRP 88	6 June 88

We have copies of all or most of the written coverage but would like to receive material for the archives of anything else of which you are aware.

Social Intercourse

You will know that we invited four Swedish Professors to the Bicentenary Meeting to mark our special connection with their country, and that we are being honoured by their King and Queen joining us on 5 October for dinner. On a different but no less important level we sent a general invitation to some 44 world, international or national biological organizations or bodies, and the eight Linnean Societies in other countries inviting them to be represented at our meetings and events during the course of the year. Most have replied and several have taken steps to be involved. At the meeting on 14 April 1988 we were delighted to welcome the first representative of another Linnean Society to visit us during the year, Rénee Thomas, Treasurer of the Société Linneene de Provence.

The Sixth Form Prizes

The first two winners, Jason Hones of Tiffin School and Tracy Stewart of St Michael's Roman Catholic Grammar School joined the Botanical Secretary and his students during the Easter vacation. Both were well involved; indeed, much to the surprise of the undergraduates, Jason came top in a mid-course test. As soon as he got home he wrote:

I wish to express my thanks for the Field Trip to Southern Spain organized by Southampton University in celebration of your Bicentennial. We left Gatwick Airport on April 8th for two weeks studying the flora and fauna of the Southern tip of Spain. We stayed in a small Hostal, in a town called Zahara de Los Atunes, near Cape Trafalgar. The weather was very hot, and the surrounding area of Sierras and dunes provided many diverse ecological niches. This provided a very useful insight into the wider field of Spain's ecology with special attention to entomology, bird-watching and botanical taxonomy.

The first week was spent studying insect and plant taxonomy, while the second week was spent studying marine life and preparing a project on any subject which had fascinated us during the previous week. The project finished with a written presentation and a fifteen minute talk.

The staff and undergraduates were very helpful and friendly. Tracy and I both enjoyed the field-course tremendously and have learnt much which has considerably improved our chances of attaining higher grades in our forthcoming exams.

Yours sincerely
JASON HONES

Bicentenary By-the-ways

You will have probably been regarding the bicentenary in a different light from our gleanings in the office:

Fallacy. The Post Office, by omitting the word 'biological' when abbreviating our handout made us out to be the oldest learned society. This caused a letter (to *The Times*) from the Executive Secretary of the Royal Society, our senior by some 117 years, *The Times* 19 February 1988.

Fame. A parcel from Riga, Estonia, was addressed simply to "GREAT BRITAIN, The Linnean Society".

Fortune. We were very sorry to disappoint several budding young philatelists who, hoping they had discovered a rarity, got their fathers to telephone us about the apparent omission of a 't' from the name of the fish on the 18p stamp.

Fitness. The word 'biotherapy' came to mind when we received a letter from a Fellow telling us he had been unable to get to any meetings as he had been in hospital. He attributed his recovery to being much cheered by a paper in the *Biological Journal* and infuriated by one in the *Zoological Journal*, "Both undoubtedly assisted the healing process. So did the stamp issue . . ."

Fraternization. Having discovered it was cheaper to fly from England to Malmoe than Malmoe to England one of our Swedish guests asked if we were not in fact trying "to get rid of those Scandinavians".

Flower Power. Trying out words, a two-year-old member of the family of a certain botanical past President said "Linnaeus". On being asked by his mother who or what Linnaeus was he replied, "Oh! That's the lady grandpa is always talking about".

Notes

A Tribute

Those of you who were not present at the Bicentenary Meeting, on the 24 May, may not have heard that Dr Doris Kermack was presented with a specially enscribed Gold Medal and made a Life Fellow at the wish of Council—for her unique contributions to the Society over so many years (see the next issue).

Refurbishment of Burlington House

The fabric of our building, built a hundred and twenty years ago (*The Linnean* 4(2):31), is now in need of extensive restoration. In particular, the lead on the flat roof areas has perished, some of the upper exposed stone work is heavily eroded and the Piccadilly frontage is generally ready for attention. The contract has been let by the Property Services Agency and the work, which is expected to start in the autumn, will last up to eight months. This will involve scaffolding, a temporary roof cover with much human activity and inherent noise. The contractors will be appraised of our programme but regret that inconvenience, especially from noise of the lead bashing and the stone repair and cleaning is inevitable.

You are asked to bear with this, to continue to use the Rooms and accept that life here will eventually return to normal. The quantity surveyor, on his initial visit remarked that dressing the lead would be especially noisy as it would be much thicker, ". . . but when completed, good for another two hundred years"— a good omen, perhaps.

Society Publications

Members of the Society are reminded that Academic Press gives them a 25% discount, on orders with cash, for purchases of all Society publications. Orders should be directed to the Society with a cheque made out to 'The Linnean Society of London'.

Journal Back Numbers

We have recently received a flush of enquiries from Fellows saying, "Wanted: good home for my Journals which I can no longer house". Offers vary from a few volumes to large numbers of back issues. We would very much like to be able both to accept and pass on all the kind offers we get, but we have neither the resources nor the capacity. We suggest that by direct correspondence between donor and possible donee we can facilitate exchanges between members of the Society. In our experience the only likely cost is that of collection/delivery. Please let us know, very briefly, if you have an offer, and watch these columns if you wish to add to your stock.

We always accept parcels delivered here free of charge and usually manage to pass them to known addresses in the third world or other places where sterling is short. However, some foreign embassies are most reluctant to co-operate and so any contact addresses you can provide will be most useful. Please see below.

(1) Emeritus Professor W. S. Lacey offers the following *free of charge* to anyone able to collect them. *Proc. Linn. Soc.*, 1952–68. *J. Linn. Soc., Botany* (later *Bot. J.*)

1939–88 (Vol. 96, 1–4) *Biol. J. Linn. Soc.*, 1969–88 (Vol. 33, 1–4) *Q. J. Geol. Soc.* (later *J. Geol. Soc.*), 1962–83. If you are interested please write to 75 Penrhyn Beach West, Penrhyn Bay, Llandudno, Gwynedd LL30 3NR, or telephone (0492) 45635.

(2) Also; available for collection almost complete runs of *Biol. J.*, 1969–84, *Bot. J.*, 1968–81 *Watsonia*, 1959–84 and *Field Studies*, 1967–85. Contact Mrs A. K. Millar, 68 Blenheim Drive, Oxford OX2 8DQ.

Illustrious Predecessors

The Society recently received the following letter which refers to a prestigious party including Bell, Bennett, Brown, Kippist and Yarrell amongst others.

From: Assistant Librarian, St Catherine's College, Cambs CB2 1RL

Dear Professor Chaloner,

I have recently mounted an exhibition in our Library for the Easter Term on John Ray, who was member of the college from 1644–46. While working on the exhibition I came across an item which might be of interest to members of the Linnean Society.

In 1844 a party from the Linnean Society including the then President and Secretary made a pilgrimage to the tomb of Ray at Black Notley in Essex and were entertained by J. H. Pattisson who lived in the house that had belonged to Ray. The Chelmsford Chronicle recorded the visit and this account was reprinted in one of the first Ray Society volumes of 1846, "Memorials of the John Ray . . .". The account records that the Linnean Society visitors all signed a copy of "Derham's Life and Remains of Ray" which belonged to Mr Pattisson, and it is this inscribed volume which I have now identified in our library, together with Pattisson's copy of the Ray Society volume including the note of the event. We presume they were donated to us by Pattisson or his descendants, but there is no actual note of this in our records.

I would be most happy to show the original to any representative from the Linnean Society.

Yours sincerely,

(Mrs) Avril Pedley

Professor T. A. Stephenson, F.R.S. (1898–1961)

I should be most grateful for any help that Fellows may be able to give me in the preparation of a biography of the marine biologist and artist Alan Stephenson. He began his scientific career with a series of papers on British orchids, beginning in 1918 in collaboration with his father, the Rev. Dr Thomas Stephenson. Simultaneously, he was developing his zoological skills under the guidance of H. J. Fleure, beginning with his taxonomic studies on the Actiniaria which culminated in the publication of his Ray Society monograph on the British sea anemones (1928 and 1935).

However, from 1928 during which year he led the shore party of the Great Barrier Reef Expedition, he concentrated solely on developing his theory of zonation on the world's seashores. During this time, TAS held professorships in

zoology at Cape Town (1930–1940) and Aberystwyth (1941–1961). Throughout his career, science and art were inseparable: in later years his drawing and painting became more abstract and less like his early miniaturist's style.

I am interested in meeting or corresponding with any of Professor Stephenson's past colleagues or students who could provide me with information based on personal experience or who could direct me to any of the more obscure published sources. Any information about his activities and acquaintances in the art world would be especially welcome, as would be records of the whereabouts of any drawings, paintings, letters, photographs or any ephemera, whether in institutional or private hands.

R. B. WILLIAMS, F.L.S.
Norfolk House, Western Road, Tring, Herts. HP23 4BN

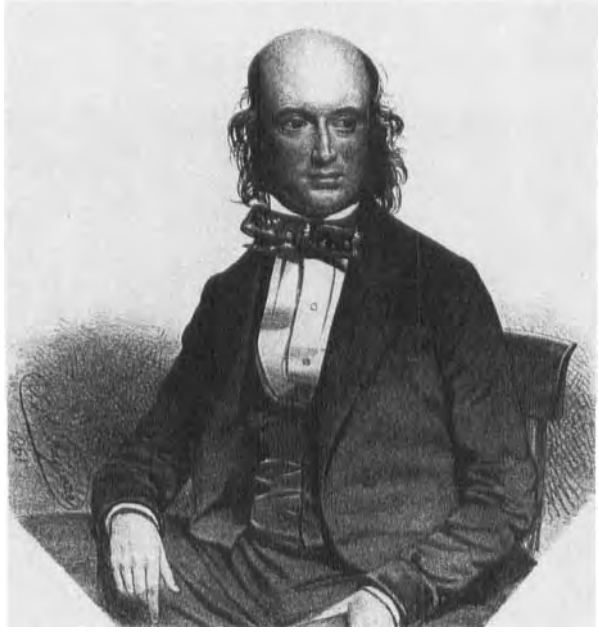
From the Archives

Pictured above is Linnaeus's lodestone, the only surviving remnant of his extensive mineral collection. The lump of uncrystallized magnetite is 70 cm wide × 70 cm high × 40 cm thick and has a brass case on the bottom of which is the following inscription: "From the Linnaean Collection—given to Studley Martin August 1873 by Lady Smith when in her 101st year".

Picture Quiz

Our last two picture quizzes (*4*(1): 6; *4*(2): 7) were linked by a common theme. The first picture was of Louis Agassiz an arch opponent of Darwin, the second was of Ernst Haekel, F.M.L.S., one of his greatest supporters.

The picture of Agassiz (1807–1873) is a pencil drawing by his first wife Cecile Braun (1809–1848) whom he married in 1833, made at Neuchâtel in 26th January 1835. Cecile was born in Carlsruhe and was trained as an artist. She was the daughter of the palaeontologist Alexander Braun. There were three children by this marriage: Alexander (1835) who succeeded his father at the Museum of Comparative Zoology, Harvard, Ida (1837) and Pauline (1841). There is an inscription on the back of the drawing written by Ida at the age of 94 (viz. in 1931) to her son. The drawing is now in the Library of the British Museum (Natural History).



Who and approximately when? (clue—not an architect). Solution by October to the Editor. As usual an old print will be awarded.

The picture of Haekel (1834–1919) is from a photograph by E. Tesch, Jena, published by the Linnean Society on the occasion of the Darwin–Wallace Celebration 1st July 1908.

There were four correct answers to this second portrait; from Stephen Jay Gould, F.M.L.S., Karl Mägdefrau, Gary Nelson, F.M.L.S. and Hilke Ruhberg.

Out-of-print Books

Besley's Books, The Saxon Bookshop, 4 Blyburgate, Beccles, Suffolk NR34 9TA, are preparing a catalogue of antiquarian and out-of-print books on Botany, Gardening and Natural History. Fellows should write direct to Besley's if they wish to receive this catalogue.

Deadlines

The closing dates for material for *The Linnean* are 2 September 1988 for the January number and 25 November 1988 for the March number.

Room Closure

The Rooms will be closed over the festive season from 23 December 1988 to 2 January 1989 inclusive.

Membership

We welcome the following who were elected on 24 May 1988:

Foreign Member

Academician Vladimir Koltun U.S.S.R

Fellows

Per Erik Ahlberg, B.A.
Malcolm Charles Alderidge, M.B.B.S., M.S., F.R.S.C., F.R.E.S.
Enid Allen, F.P.S., B.Pharm., M.C.P.P.
Alfred Anderson, B.Sc., M.Sc., Dip. Ed.
Sir Francis Avery Jones, C.B.E., M.D., F.R.C.P., F.R.C.S.
Michael David Bennett, B.Sc., Ph.D.
Prof. Fabio Bernini
Matthew John Biggs, Dip. Hort.
Prof. Norman Grainger Bisset, B.Sc., M.Sc., Ph.D., S.Sc., A.R.C.S.
Richard Orlando Blackburn, B.Sc., M.Sc., Ph.D.
Lars H. Breimer, B.A., B.M.&B.Ch., M.A., D.M.
Gavin Brooks, B.Pharm.
Carmen Rose Broom, B.S., M.S., Ph.D.
Rodney McGuire Burton, M.A.
Vincent Demoulin, Ph.D.
Prof. Dan Eisikowitch, B.Sc., M.Sc., Ph.D.
Linda Fellows, B.Sc., Ph.D.
Stephen Robert Gage (from Associate)
Brian Arthur Gale, M.A., B.A., M.I.Hort.
Andrew Somerville Gardner, B.Sc., Ph.D.
Richard John Gornall, B.Sc., M.Sc., Ph.D.
Marcus W. R. de V. Graham, M.A., D.Phil., B.Sc.
Huw I. Griffiths
Victoria Edwina Hallett
Edwin Daniel Hatch
Julie Hoare, B.Sc.
Naim Subhi Ismail, Ph.D.
Martin J. Jones, B.Sc., M.Sc., Ph.D.
Sandra Diane Knappe, B.A. Ph.D.
Dr Anthony J. M. Leeuwenberg
Prof. Jason Arthur Lillegraven, B.A., M.S., Ph.D.
Ann Miller McAndrew
Elizabeth Mary Mackenzie, B.A.
P. S. Meadows, M.A., B.A., F.G.S.
Jeremy John Midgley, B.Sc., H.D.E., Ph.D.
Peter Bennet Mordan, B.Sc., Ph.D.
Richard Alan Nichols, B.Sc., Ph.D.
Giuseppe Notarbartolo-di-Sciara, Ph.D.
Hideo Nakaya, M.S.
Ronald Malcolm Payne, F.R.E.S.
Michael Thomas Henry Quick
Stephen Vinaya Rai, B.Sc., M.Sc., Ph.D.
P. Martin Sander, M.A.
Michael David Saunders, B.Sc., M.Sc.
Robert Winning Scotland, B.Sc.
Vinod Kumar Sharma, B.Sc., M.Sc., Ph.D.
Penelope Jane Smart, Ph.D.
Djaja Djendoel Soejarto, B.Sc., M.A., Ph.D.
Theagarten Soliar
Tod Falor Stuessy, B.A., Ph.D.
Wafaa Kamal Taia
Michael Alan Taylor, B.A., D.Phil.
Koy Charles Thomson
Geoffrey Charles Timms, H.N.D.
Philip Bernard Hague Tinker, B.Sc., Ph.D., M.A., D.Sc., F.I.Biol., F.R.S.C.
Marcus Wyand Trett, B.Sc., Ph.D.
David John Trevan, Dip. Hort. Cert. Arb.
Angela Walters
Prof. Peter Vincent Webb, B.Sc., D.Phil.
L. A. Weir, B.Sc.
Annette Marie Birgitta Wiklund, B.Sc., M.Sc., D.Phil.
Vanaessa Winchester
Prof. Abraham Erasmus van Wyk, B.Sc., M.Sc., D.Sc., H.O.D.

Associate

Michael Wyse Jackson, B.A.

Student Associates

Philip A. Heneghan, B.Sc.,
David Crawshaw Thomas, B.Sc.
John Anthony Wiles, B.Sc.

Erratum:

In *The Linnean* 4(1):7, insert 'Dr' before Alberta M. W. Mennega.

Members of Council

The following were elected to serve on Council on 24 May 1988:

Frank Brightman, B.Sc., on retiring from the Natural History Museum, became Chairman of the South London Botanical Institute, and continues to edit the quarterly journal *Natural History Book Reviews*. He was a former President of the British Lichen Society, and is currently Chairman of the Society's Conservation Committee; he is also Deputy Chairman of the Conservation Association of Botanical Societies.

Michael F. Claridge, M.A., D.Phil., a graduate of the Department of Zoology and Entomology at Oxford University, is currently Professor of Entomology and acting Head of the Department of Zoology at University College, Cardiff (shortly to become part of the School of Pure and Applied Biology at the new University of Wales College at Cardiff). He is interested in all aspects of ecology, taxonomy and evolutionary biology. A longstanding and all pervading interest is in species problems and the process of speciation. His research is in the area of the interactions between green plants, insect herbivores and their predators and parasites, and the application of such work to pest management in the tropics. He is keen to encourage all aspects of field biology and has served at various times on the Councils of the British Ecological Society, the Royal Entomological Society, the Field Studies Council and previously of the Linnean Society.

David Frederick Cutler, B.Sc., Ph.D., D.I.C., is head of the Plant Anatomy Section of the Jodrell Laboratory, Royal Botanic Gardens, Kew. He is interested in systematic and functional plant anatomy, and particularly its application to problems of every-day life. He is Chairman of the editorial board of *Annals of Botany*. He was on Council of the Linnean Society 1966–69, 1978–84 and was Botanical Secretary from 1978 to 1984. He is currently Chairman of the Bicentenary Committee.

Peter Alan Henderson, B.Sc., Ph.D., is a graduate of Imperial College, London. He currently works for the Central Electricity Research Laboratories as an ecological modeller assessing the environmental effects of power stations and tidal barrages. His biological interests are varied, but his research has been mainly on fish and crustacean ecology and evolution. He has undertaken a number of trips to the Amazon to study the community ecology of forest streams and has recently completed a book on British ostracods. He has worked for a number of years as an assistant editor for the Journal of Fish Biology.

Martin J. S. Sands, B.Sc., is a principal Scientific Officer and Herbarium Coordinator at the Royal Botanic Gardens, Kew. He is a graduate of London University where he took an external degree in Botany while working at Kew. He has taken part in several expeditions, including one to Indonesia and Papua New Guinea (1969–70); as leader to New Ireland and Manus (1975); and at the moment is deputy leader of the Kimberley Project. His main interest is in Begonias and he has regional responsibility for Australia. Privately he has lectured on Hellenic cruises and led flower holidays in Greece.

Membership of Committees

This is the list approved by Council for 1988–89:

Bicentenary
Dr D. F. Cutler (Chairman)
Prof. E. A. Bell
Dr V. F. Eastop
Prof. J. G. Hawkes
Prof. D. L. Hawksworth
Mr G. Ll. Lucas
Dr F. H. Perring
Mr J. Massey Stewart
Dr N. K. B. Robson
Mr M. J. S. Sands
Miss M. E. Young

ex officio: The Officers

Collections Curatorial
Dr K. A. Joysey (Chairman)
Mr P. K. C. Austwick
Dr R. K. Brummitt
Mr P. S. Davis
Dr C. E. Jarvis
Mrs S. Morris

ex officio: The Officers,
The Librarian,
The Curators

Editorial
The Editorial Secretary (Chairman)
Prof. R. J. Berry *Biol. J.*
Mr J. F. M. Cannon
Dr S. L. Jury *Bot. J.*
Prof. B. G. Gardiner *The Linnean*
Dr D. M. Kermack *Synopses* Series
Dr H. M. Platt *Zool. J.*
Mr R. I. Vane-Wright

ex officio: The Officers
Ed. *J. Zool.* (Dr M. A. Edwards)
Review Ed. (Prof. J. G. Hawkes)
by invitation: Rep. of Society's Publishers
Dr R. S. K. Barnes, Joint Editor *Synopses* (EBSA)

Finance
Treasurer (Chairman)
The Rt Hon. The Earl of Cranbrook
Mr F. R. Goodenough
Dr C. B. Goodhart

ex officio: President, Secretaries
Chairman of the Library Committee

Kimberley Research Project
Mr M. J. S. Sands (Chairman)
Prof. W. G. Chaloner
Dr D. J. Galloway

Flora Europaea Trust Fund
Botanical Secretary (Chairman)
Mr A. O. Chater
Prof. D. M. Moore
Dr S. M. Walters

ex officio: President, Treasurer

Grants
President (Chairman)
Vice Presidents
Dr J. S. Churchfield
Prof. J. G. Hawkes

ex officio: Treasurer, Secretaries

Library
Mr G. Ll. Lucas (Chairman)
*Mr R. E. R. Banks
*Mr J. Collins
Prof. P. M. Daniel
*Mr R. G. C. Desmond
*Miss S. M. D. Fitzgerald
*Mrs S. Gove
*Dr J. Sheppard
Mr D. P. Taylor-Pescod
Dr P. F. Yeo

ex officio: The Officers
*Not Fellows

Medals and Awards
President (Chairman)
Vice Presidents
1 Botanical, 1 Zoological } member of Council who attended Separate Meetings of Council
Treasurer, Secretaries

Natural History
Senior Secretary (Chairman)
Prof. R. J. Berry
Dr R. A. D. Cameron
Mr E. F. Greenwood
Dr D. A. Goode
Dr F. H. Perring
Dr M. R. D. Seaward

ex officio: President

Programmes
Zoological Secretary, Botanical Secretary } Chairmen
Dr J. H. Crothers
Dr K. A. Joysey
Mrs V. M. Purchon (Sixth Form Lectures)
Dr P. M. Rainbow
Dr D. Rollinson
Dr D. A. S. Smith
To attend when so desired: Group organizers (as listed on the Meetings Card)

ex officio: President, Treasurer

Nominations for the session 1989–90 and for the 1989 Awards

Council will meet on 12 January 1989 to consider nominations for Officers and members of Council and Foreign Members to be balloted for at the Anniversary Meeting on 24 May 1989. Council encourages the Fellowship to make recommendations for all the above, and also to volunteer to sit on the Committees. See *The List* pp. 2–5, and pp. 11–13 of this number.

Annual Contributions for 1988/89

If these have not been remitted they should be sent without delay. Although there is a proposal that these should be changed see p. 1, for the current year they remain: Fellows £35, £30 or £25, Associates £20, £15, £12.50 according to the number of Journals taken, and Student Associates £2.50.

Fellows with access to U.S. dollars should note that their Annual Contribution may be paid in dollars as we hold a U.S. dollar account here in London—but United States dollars only, please.

Meetings

17 September 1988 at 19.30. **Britain's Pioneer Orchidologist: John Linley.** This evening lecture will be given in Glasgow by Professor W. T. Stearn as a bicentenary scheduled event during the Orchid Conference. This conference is being organized jointly by the Scottish Orchid Society and the Glasgow Botanic Gardens from 15–18 September 1988; see Other Meetings (p. 18).

20 October 1988 at 10.30 ***Heathers and Heathlands.*** Bicentenary joint meeting with the Botanical Society of the British Isles. See the blue booking form.

Agenda for Society business

1. Admission of Fellows.
2. Minutes of the Bicentenary Meeting held on 24 May 1988.
3. Ballot for the election of Fellows, Associates and Student Associates.

Programme

10.00–10.30	Coffee and registration.
The Diversity of Heathers.	
10.30–10.35	Welcome by Professor M. F. Claridge, P.L.S.
10.35–11.10	*Heathers and heathlands.* Professor C. H. Gimingham, University of Aberdeen.
11.10–11.40	*Heathers of Ireland.* Dr E. C. Nelson, National Botanic Gardens, Glasnevin.
11.40–12.10	*Heathers from South-west England.* Mr A. Byfield, Nature Conservancy Council, Lyndhurst.
12.10–12.40	*Heathers of Europe and adjacent areas.* Mr D. C. McClintock, Platt, Kent.
12.40–13.00	Discussion.
13.00–14.00	Lunch.
13.45	Linnean Society business.
The Biological Impact of Heathers	
14.00–14.30	*The different types and importance of British heaths.* Miss L. Farrell, Nature Conservancy Council, Peterborough.
14.30–15.10	*Managing heather for game and livestock.* Dr R. Moss, Institute of Terrestrial Ecology, Banchory.
15.10–15.40	Tea.
15.40–16.15	*The Invertebrates of Heathland.* Dr N. Webb, Institute of Terrestrial Ecology, Furzebrook.
16.15–16.50	*An assessment of the importance of heathlands as habitats for reptiles.* Dr I. F. Spellerberg, University of Southampton.
16.50–17.10	Summary and discussion. Professor C. A. Stace, President of the Botanical Society of the British Isles.
17.10	Meeting finishes.

9–10 November 1988 at 9.30. ***Evolution and Extinction.*** Bicentenary joint meeting with the Royal Society at their house, 6 Carlton House Terrace, London SW1Y 5AG. See the enclosed registration form.

Programme

Wednesday 9 November 1988

SESSION I

The Nature of the Problem

Chairman: Professor W. G. Chaloner, F.R.S., Royal Holloway & Bedford New College, Egham, Surrey.

09.30–09.40 Chairman's introduction.
09.40–10.10 *Modelling macro-evolution.* Professor J. Maynard Smith, F.R.S., University of Sussex, Brighton.
10.10–10.25 Discussion.
10.25–10.55 Coffee.
10.55–11.25 *What, if anything, are mass extinctions?* Dr A. Hoffman, Polish Academy of Sciences, Warsaw, Poland.
11.25–11.40 Discussion.
11.40–12.10 *Establishing synchronism of events.* Professor C. H. Holland, Trinity College, Dublin, Ireland.
12.10–12.30 Discussion.
12.30 Lunch.

SESSION II

Evolution and Extinction in Plants

Chairman: Professor C. H. Holland.

14.00–14.30 *Evolution and extinction: plants and plankton.* Professor A. H. Knoll, Harvard University, Massachusetts, U.S.A.
14.30–14.45 Discussion.
14.45–15.15 *Plants at the K/T boundary.* Dr R. A. Spicer, Goldsmith's College, London.
15.15–15.30 Discussion.
15.30–16.00 Tea.

Evolution and Extinction in the Marine Realm

16.00–16.30 *Ammonoid extinction events.* Professor M. R. House, University of Hull.
16.30–16.40 Discussion.
16.40–17.10 *Pattern and process in trilobite extinctions.* Dr R. A. Fortey, British Museum (Natural History).
17.10–17.20 Discussion.
17.20–17.50 *The biology of extinction.* Dr D. Jablonski, University of Chicago, Illinois.
17.50–18.00 Discussion.
18.00 Close.
18.00–18.45 Reception.

Thursday 10 November 1988

SESSION III

Evolution and Extinction in Terrestrial Vertebrates

Chairman: Professor A. Hallam.

09.00–09.30 *Mass extinction amongst vertebrates and the quality of the fossil record.* Dr M. J. Benton, Queen's University, Belfast.
09.30–09.45 Discussion.
09.45–10.15 *The K/T boundary and the last of the dinosaurs.* Dr A. J. Charig, British Museum (Natural History).
10.15–10.30 Discussion.
10.30–11.00 Coffee.
11.00–11.30 *Patterns and rates of extinction among Neogene and Pleistocene perimediterranean mammals.* Dr J.-J. Jaeger, P. & M. Curie University, Paris.
11.30–11.45 Discussion.

Which Causal Factors?

Chairman: Professor W. G. Chaloner, F.R.S.

11.45–12.15 *The case for extraterrestrial causes of extinction.* Professor D. M. Raup, University of Chicago, Illinois.
12.15–12.30 Discussion.
12.30–14.00 Lunch.

SESSION IV

14.00–14.30 *Climatic causes.* Professor S. M. Stanley, Johns Hopkins University, Baltimore, Maryland.
14.30–14.45 Discussion.
14.45–15.15 *The case for sea-level change as a dominant causal factor in mass extinction.* Professor A. Hallam, University of Birmingham.

15.15–15.30 Discussion.
15.30–16.00 *Natural extinction on islands.* Professor M. H. Williamson, University of York.
16.00–16.15 Discussion.
16.15–16.30 Tea.
16.30–16.45 Private meeting for Fellows of the Royal Society.

Man and Extinction

16.45–17.15 *Man-related extinctions: patterns and causes.* Professor J. M. Diamond, UCLA School of Medicine, Los Angeles.
17.15–17.30 Discussion
17.30–18.00 *The rise and fall of Homo sapiens, sapiens.* Mr C. Tudge, BBC Science Unit, London.
18.00–18.15 Discussion.
18.15 Close.

24 November 1988 at 18.00. **Buffon: Le Jardin des Plantes, Yesterday, Today and Tomorrow.** This general interest lecture has been arranged to commemorate the bicentenary of the death of Buffon on 17 April 1788.

A buffet supper will be arranged on conclusion. See the gold booking form. As the previous meeting will not be in the Rooms the lecture will be preceded by a brief business session.

Agenda

1. Admission of Fellows.
2. Minutes of the business meeting held on 20 October 1988.

15 December 1988 at 10.15. ***Research Developments in the Study of Parasitic Infections.*** Bicentenary joint meeting with the British Society for Parasitology, see the pink booking form.

Agenda for Society business

1. Admission of Fellows.
2. Minutes of the business meeting held on 24 November 1988.

Programme

09.45–10.15 Registration and coffee.
10.15–10.20 Welcome by Professor M. F. Claridge, P.L.S.

Chairman: Dr B. M. Ogilvie, President British Society for Parasitology.

10.20–10.25 Opening remarks. Dr B. M. Ogilvie, The Wellcome Trust.
10.25–10.55 *Antigens of parasitic helminths in diagnosis, protection and pathology.* Dr R. M. E. Parkhouse, M.R.C., Mill Hill, and Dr L. J. S. Harrison, Edinburgh University.
10.55–11.00 Discussion.
11.00–11.30 *Nature and nurture: overcoming constraints on immunity.* Professor D. Wakelin, Nottingham University.
11.30–11.35 Discussion.
11.35–12.05 *Trypanosome sociology and antigenic variation.* Professor K. Vickerman, F.R.S., Glasgow University.
12.05–12.10 Discussion.
12.10–12.40 *Implications of genetic exchange in the study of protozoan infections.* Dr D. Walliker, Edinburgh University.
12.40–14.00 Lunch.
13.45 Linnean Society business.

Chairman: Dr D. Rollinson, British Museum (Natural History).

14.00–14.30 *Parasites live and die in a non-linear world.* Professor R. M. Anderson, F.R.S., Imperial College, London, and Professor R. M. May, F.R.S., Oxford University.
14.30–14.35 Discussion.
14.35–15.05 *From the bench to the field: control of parasitic infections within primary health care.* Dr M. Tanner, Swiss Tropical Institute.
15.05–15.10 Discussion.
15.10–15.40 *Novel biochemical pathways in parasitic protozoa.* Dr A. H. Fairlamb, London School of Hygiene and Tropical Medicine.
15.40–15.45 Discussion.

15.45–16.15 Tea.
16.15–16.45 *Molecular insights into parasite development and adaptive specialization.* Dr A. E. Bianco and Dr R. M. Maizels, Imperial College, London.
16.45–16.50 Discussion.
16.50–17.20 *Molecular approaches to DNA diagnosis.* Dr D. C. Barker, Cambridge University.
17.20–17.25 Discussion.
17.25–17.35 Closing Remarks. Professor R. E. Sinden, Imperial College, London.
18.00 Buffet Supper in Library.

21 January 1989 at 09.55. ***British Mammals, Past, Present and Future.*** This bicentenary joint meeting is being held on a Saturday at the request of the Mammal Society but it will follow the normal format.

Agenda for Society business

1. Admission of Fellows.
2. Minutes of the business meeting held on 15 December 1988.
3. Ballot for the election of Fellows, Associates and Student Associates.
4. First reading of Certificates of Recommendation for the election of Foreign Members and Fellows *honoris causa.*

Programme

09.30–09.55 Registration.
09.55–10.00 Welcome by Professor M. F. Claridge, President of the Linnean Society.
Chairman: Professor R. J. G. Savage.
10.00–10.15 *Chairman's introduction.* Professor R. J. G. Savage, Bristol University.
10.15–10.45 *British mammals in the Tertiary.* Dr J. J. Hooker, British Museum (Natural History).
10.45–11.15 *The Quaternary origins of the modern British mammal fauna.* Mr A. Currant, British Museum (Natural History).
11.15–11.45 Coffee.
11.45–12.15 *The domesticated and feral mammals of Britain.* Dr J. Clutton-Brock, British Museum (Natural History).
12.15–12.45 *The eradication of muskrats and coypus from Britain.* Dr L. M. Gosling and Mr S. J. Baker, Coypu Research Laboratory.
12.45–14.15 Lunch.
14.00 Linnean Society business.
Chairman: Professor R. J. Berry.
14.15–14.45 *Seals and man—a changing relationship.* Mr W. N. Bonner, British Antarctic Survey.
14.45–15.15 *Population changes of greater horseshoe bats studied near Bristol over the past twenty-five years.* Dr R. D. Ransome, Dursley, Glos.
15.15–15.45 *What future for British red squirrels?* Dr R. E. Kenward and Miss J. L. Holm, Furzebrook Research Station, Institute of Terrestrial Ecology.
15.45–16.15 Tea.
16.15–16.45 *The changing otter population of Britain.* Dr D. J. Jefferies, Nature Conservatory Council.
16.45–17.15 *The future of badgers in Britain.* Mrs P. Cresswell and Dr S. Harris, Bristol University, Dr R. Bunce, Merlewood Research Station, Institute of Terrestrial Ecology, Dr D. J. Jefferies, Nature Conservancy Council.
17.15–17.45 *New approaches to field studies of mammals: experiences with marine mammals.* Miss S. S. Anderson, Dr M. A. Fedak, Dr P. S. Hammond, Dr J. Harwood, Mr A. R. Hiby, Mr B. J. McConnell, Dr A. R. Martin and Mr D. Thompson, Sea Mammal Research Unit, Institute of Terrestrial Ecology.
17.45–18.00 *Chairman's concluding remarks.* Professor R. J. Berry, University College, London.

Other Meetings

1988

August
28 Aug –2 Sep Seventh International Palynological Congress, Brisbane, Australia. 7 IPC Uniquest University of Queensland, St Lucia, Qld, 4067 Australia.

31 Aug –3 Sep *Chemistry and Chemical Taxonomy of Bryophytes.* International Symposium. University of Saarlandes, FRG. Details from: Prof. Dr H. D. Zinsmeister, D-6600 Saarbrucken.

September

5–9 *23rd European Marine Biology Symposium.* Details from: Prof. J. S. Ryland, University of Wales, Swansea SA2 8PP.

7–10 *Simposi Internacional de Botanica.* Lleida, Spain. Details from: The Secretariat of the Symposium, Institut d'Estudis, Ilerdencs de la Diputacio de Lleida, Catalunya, Spain.

13–15 *Towards a More Exact Ecology.* BES Symposium. University of Oxford.

12–17 *Phenotype Responses in Aquatic Ectotherms.* Trinity College, Dublin. Details from: Dr J. C. Aldrich, Dept of Zoology, Trinity College, University of Dublin, Dublin 2 Ireland.

15–16 *Science and Civilisation under William and Mary.* Discussion meeting. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

15–18 Orchid Conference and Show. Glasgow. Details from: The Curator, Botanic Gardens, Glasgow G12 0UE. See also under Society Meetings.

October

13–14 *Biotechnology: Spinks eight years on.* RS/SERC. Discussion Meeting. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

17–21 *23rd IUBS General Assembly,* Canberra, Australia. Details from: Secretaries of the Organising Committee, c/o School of Applied Sciences, Canberra College of Advanced Education, PO Box 1 Belconnen ACT 2616 Australia.

November

3 *Leeuwenhoek Lecture: Leeuwenhoek and Anglo Dutch scientific collaboration,* Prof. A. R. Hall. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG

7 *Sir Joseph Banks Lecture,* Sir David Smith, F.R.S. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

25–27 *Second International Congress on Truffles.* Spoleto, Italy. Details from: Prof. B. Granetti, Dipartimento di Biologia Vegetale, Universita de Perugia, Borgo XX Guigno, 74 0 6100 Perugia, Italia.

December

4–8 *Diversity '88.* Entomological Society of America's national conference and exhibition. Galt House, Louisville, KY. Details from: 4603 Calvert Road, College Park MD 20740, U.S.A.

13–16 *Protein Production.* Fourth Annual Symposium on Biotechnology. University College, London. Details from: Mrs B. Cavilla, c/o Institute of Biology, 20 Queensberry Place, London SW7 2DZ; Dr T. J. R. Harris, MRC Collaborative Centre, Mill Hill, London.

1989

February

1–2 *DNA Methylation and Gene Regulation.* Discussion meeting. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

April

4–6 *The Scientific Management of Biotic Communities for Conservation.* Southampton University. British Ecological Society.

5–6 *The Deep Sea Bed: its physics, chemistry and biology.* Discussion meeting. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

26–27 *Animal Cell Growth and Differentiation Factors.* Discussion meeting. Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

June

1–2 *Life at Low Temperatures.* Royal Society Lecture. Details from: The Scientific Meetings Secretary, Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

August

22–29 *5th International Theriological Congress.* Rome, Italy. Details from: 5th Int. Theriological Congress, c/o Dipart. di Biologia Animale e dell'Uomo, Universita di Roma 'La Sapienza', Viale dell'Universita 32, I-00185, Roma Italy.

September

4–8 *Tropical Lichenology.* British Museum (Natural History). Details from: Dr D. J. Galloway, F.L.S., BM(NH).

6–8 *Major Evolutionary Radiations. Systematics Association Symposium.* University of Durham. Details from Dr P. D. Taylor, Department of Palaeontology, British Museum (Natural History), Cromwell Road, London SW7 5BD.

1990

December

2–9 *XXth International Ornithological Congress.* Christchurch, New Zealand. First circular from: Dr B. D. Bell, Sect. General, XX Int. Ornithological Congress, Dept. of Zoology, Victoria University of Wellington, Private Bag, Wellington, New Zealand.

Correspondence

Gonville and Caius College,
Cambridge

28.4.88

Dear Editor,

Cepaea nemoralis (L.) and *C. hortensis* (Müller)

Although fortunately neither Her Majesty nor His Royal Highness appear to have noticed anything amiss with the exhibits put out in the Library for their visit to Burlington House on 17th March, it is to be hoped that shells of the land-snail *Cepaea hortensis* (Müller) from the Linnaean collection will not in future be shown labelled as *Helix* (= *Cepaea*) *nemoralis* L., or at any rate not without some explanation of the circumstances.

This was given in 1920 in a paper by Kennard & Woodward (*J. Linn. Soc.* *34*: 208), who thought that the original specimens, if there ever were any, had probably been lost before the collection was brought to England, and that the gap was filled by new specimens which happened to be of the very similar sibling species *C. hortensis*. This had already been correctly recognized as distinct by O. F. Müller as early as 1774 (who may possibly have sent these shells to Linnaeus in Sweden, although it is more likely that they were added by J. E. Smith early in the XIXth century), but the distinction was apparently not recognized by Linnaeus, nor generally accepted by conchologists until many years later. The situation was complicated by both species being highly polymorphic, in parallel with each other, for banding patterns and shell colour. But the shells now in the collection at Burlington House are *not* Linnaeus's original types for his species.

The diagnosis (*nomen specificum legitimum*) of *Helix nemoralis* given in the 10th (1758) edition of the *Systema Naturae*, p. 773, does not suffice to distinguish it from *hortensis*, although Müller himself was in no doubt that the species named *Helix nemoralis* by Linnaeus was indeed the one now known as *Cepaea nemoralis*. Linnaeus did however refer to three previous books in his *protologue* of the species, namely those by Niccolo Gualtieri (1742), James Petiver (1695–1703), and Martin Lister (1678), the latter providing an illustration which is clearly of *C. nemoralis*, with a dark lip rather than the white lip characteristic of *C. hortensis*. In the absence of the original type specimens, Linnaeus's reference to this illustration is sufficient to establish his *Helix nemoralis* as the species now known by that name. This is just as well, since the mind boggles at the confusion which

would result had there been any doubt about the matter, in view of the many hundreds of papers dealing with these two species published over the past 40 years, including several by yours truly,

C. B. GOODHART

Lesney Cottage, Middle Road,
Winchester, Hants. SO22 5EJ.

12.12.87

Dear Editor,

In the latest number of *The Linnean* the statement is made, once again, that this is "the oldest biological society of the World" (p. 30). Many Scots believe and assert that the Royal Physical Society of Edinburgh has the prior claim (for its title is misleading: it is not concerned with physics). Isn't it high time that this matter was looked into? Certainly the Royal Physical can justly claim seniority in at least one respect: in the early nineteenth century it absorbed the Natural History Society of Edinburgh, which was founded by Smith in 1782 while a student at the University—well before his move to London and his acquisition of the Linnaean collections.

Yours sincerely,
D. E. ALLEN

Windrush,
Grange-over Sands,
Cumbria LA11 7AG.

21.12.87

Dear Professor Gardiner,

I read with great pleasure Dr Roy Porter's paper on "The Social and Intellectual Climate for Natural History in 18th century England" in the January 1988 issue of *The Linnean*, but for the sake of accuracy I feel that I must point out that the picture of Gilbert White on page 29 is not now accepted as an accepted likeness of him.

Much discussion has taken place over this particular portrait and it was rejected by the family as early as 1913. The only authentic likenesses are two small pen-and-ink drawings in White's own copy of Pope's translation of Homer's *Iliad*, which was presented to him by Pope on his graduation at Oxford. The set of volumes is now in the British Library. These pictures show a straight, pointed nose, a receding forehead and a narrow chin and lower jaw, features which the portrait used as your illustration do not show.

Extensive enquiries have shown that no authentic portrait of Gilbert White was ever painted.

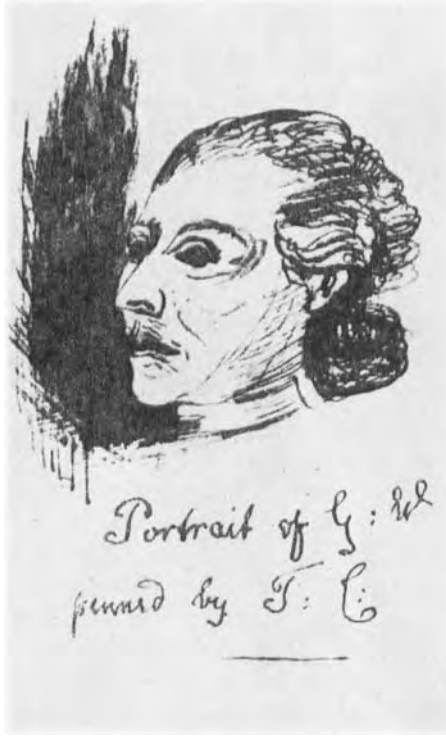
The whole subject of likenesses of Gilbert White in descriptions and artistic representations is ably described in a recent paper by Dr June Chatfield, the present Curator of the Oates and Gilbert White Museum, Selborne: "Likenesses of the Reverend Gilbert White", *Proc. Hampsh. Field Club Archaeol. Soc., 43,* 1987, 207–217.

Yours sincerely,

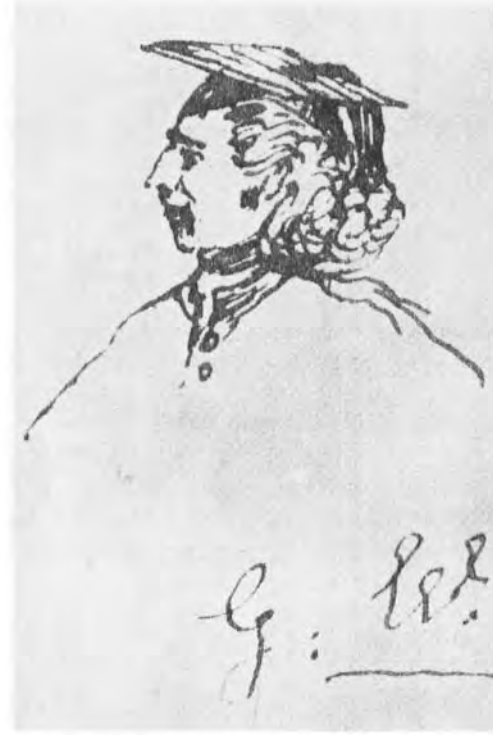
JOHN CLEGG
Fellow *honoris causa*
Former Curator of the Oates and
Gilbert White Museum.

P.S. The British Museum have always responded favourably to requests to allow copies of the two drawings to be reproduced, and you may like to approach them.

Reprints of Dr Chatfield's paper are available from her at "Wakes", Selborne, price £1.45.



Young G.W.



Older G.W. with wig

Editor's note: I selected the illustrations for Dr Porter's paper. The copy of Pope's *Iliad* mentioned above has on each of the flyleaves in vols III & V a pen and ink portrait of a head over which are the letters G.W., beneath that in vol. III are the words "portrait of G:W: penned by T:C:". In this latter drawing (vol. III) White is depicted as a young man with his hair tied back by ribbons; this drawing must be prior to April 1747 since after that date he usually wore a clerical wig. The second drawing (vol. V) is much smaller and is a profile of an older man wearing a mortar board.

Field Studies Council Research Unit,
University Department of Zoology,
17.3.88 Cambridge.

Dear Editor,

The encouragement of comparative biology

We read with interest the Editorial by Professor Gardiner (1988, *Linnean 4(2):* ii–1) and the letter by Dr Bisby (1988, *Linnean 4(2):* 13–14). We thoroughly endorse the support for comparative biology, and of taxonomy in particular, that they advocate. We agree that the Linnean Society should see the support of comparative biology as its prime rôle.

The Society already performs a valuable function in providing a forum for the presentation and discussion of recent advances. Likewise the Society's journals are an important outlet for publication in this field of biology.

When we seek an answer to the question as to why relatively few biologists are seeking employment, let alone obtaining employment, in basic comparative-biology research we persistently encounter an overriding impediment. The available funds for this biology are severely limited and, consequently, the number of posts also. While all areas of biological research are under-funded at present, comparative biology seems to be particularly hard hit.

Since the 1976 NERC report (*The Role of Taxonomy in Ecological Research*, NERC Publications series B, no. 14) there have been regular reports highlighting the shortage of taxonomists. Despite this the level of funding and number of posts in comparative biology continues to decline. If the trend continues this area of biology could once again come to be dominated by amateurs, as in the early days of the Society. Indeed it is not without significance that a substantial proportion of recent volumes in the Royal Entomological Society's series of *Handbooks for the Identification of British Insects* have been written by amateurs (albeit, in many cases, by retired professionals or professional biologists earning their living in some other branch of biology).

We propose that the Linnean Society should become involved in the generation of funding for comparative biology. By analogy with the Royal Society's rôle in its support for general biology, this involvement will take three forms. First, it will entail getting the case for the support of comparative biology heard in the councils of existing funding bodies. Secondly, substantial funds need to be invested to allow the Society to give grants on a far more generous scale than the small sums currently dispensed from such as the Percy Sladen Memorial Fund administered by the Society at present. Thirdly, the Society should generate funds that would allow it to establish a growing number of research fellowships in basic comparative biology. The latter should embrace junior fellowships aimed at the recruitment of younger workers into this field of biology, bringing fresh ideas and commitment, as well as senior fellowships allowing the experienced biologist to enter or continue in this field. Not only do key works in taxonomy tend to be produced by the more experienced worker, but large and complex taxa frequently require several years of intellectual effort and investment before such key works are possible.

With adequate funding for comparative biology, Professor Gardiner's vision of a "rosy" future for comparative biology could certainly prove to be justified.

We believe the Society could best celebrate the traditions of its past by taking the lead in seeing that this vision becomes a reality.

Yours sincerely,

R. H. L. DISNEY & Y. Z. ERZINÇLIOĞLU

In a kind letter regarding Sheen Cottage, one time home of Richard Owen (*The Linnean 4(1)*:4), Mr Henry Shearman writes to tell me that his grandparents subsequently occupied the Cottage and that he well remembers sailing his toy boat on 'Owen Pond'. He also adds that the Cottage was demolished in 1951 but that you can still find traces of the original foundations through the grass and shrubs.

The Biological Societies of London 1870–1914
Their interrelations and their responses to change

The years between the outbreak of the Franco-Prussian War and the start of World War 1 were years which witnessed a tremendous acceleration in scientific discovery and activity. For science in Britain especially, and for biology here in particular, they constitute a period that is characterized by a certain underlying unity and that is sharply bounded at both ends by events so profound and far-reaching in their effects as to make it a more real entity than most such constructs of chronology. Its starting-point, indeed, is marked in this country by a milestone which is scarcely less conspicuous, and certainly of a much more readily perceived significance, than the opening of a new and decisive bout for dominance over the European land-mass. For 1870, very conveniently, also chanced to be the year of W. E. Forster's Education Act, which not only ushered in at last an education system underwritten by the State but required at the same time the new Elementary Schools that were to be created to include in their curriculum a grounding in science. Just two years after that, the Natural History Department of the Royal School of Mines moved from its cramped location in Jermyn Street to more spacious quarters in South Kensington; and there, released at last by the provision of a laboratory, Huxley forthwith introduced his historic crash-course in the elements of biology for the first of those who were going to have the task, in turn, of introducing the subject into the schoolrooms. During the eight years that followed, the flower of a whole academic generation passed through this South Kensington filter, as imbibers of the course or, more important, as its expounders, and went on from there to instil in the universities, in the training colleges and in the schools the new experimental approach and the novel theoretical concerns that gave to the then incoming tide of learning an appearance sharply different from all that had preceded it.[1]

By the year 1870 it is thus by no means anachronistic to speak of the *biological* societies of London—rather than of its societies of natural history. Though it

would be some years yet before they would feel the full impact of the growing professionalization, 'biology' was coming into use increasingly as a handy collective term for a natural history confined just to zoology and botany, now that geology, the traditional third member of the sisterhood, was beginning to grow away as it was beginning to grow up—and would soon cease to be generally thought of as belonging to the same family at all.[2]

Yet despite the ferment that zoology and botany were undergoing intellectually, on the whole this was a quiet and rather uneventful period structually for the societies that represented them in the metropolis. After the intensely competitive years earlier in the century, the 'Twenties and 'Thirties more particularly, when a layer of new bodies had thrust their way into being and those that already existed lived under the ever-present threat of breakaway moves by discontented factions, the scene had become comparatively settled. Disregarding for the moment the several, unpretentious bodies that had appeared in the suburbs, the ones which had survived that period of turbulence now numbered essentially four. In order of age these were the Linnean (founded back in 1788) the Zoological (a semi-offshoot of that[3], in 1826), the Entomological[4] (another Linnean offshoot, in 1833) and the Microscopical[5] (born six years after that, in 1839). All identified themselves with London in their titles. In addition, there were of course various societies that concerned themselves with medicine, but although those concerns were in large part biological that was a world quite apart and for that reason they can justifiably be excluded from consideration. Similarly, while there was also a steadily-growing chain of further national societies with a more specialized focus (the Conchological in 1874, the Mycological in 1896, the Ecological in 1904 . . .), and one or two of those perhaps had some claim to be classed as metropolitan in so far as their activities were predominatly London-based,[6] they were too markedly different in character from the major, propertied societies and were too far removed from the centre of the stage to count sufficiently in this particular context.

Of the four, the Zoological Society was far and away the largest, starting off the period with a subscribing membership of around 3000 and finishing up with nearly 5000 by 1914. But then it was—as it still is—a remarkable triple cross: part scientific society, part research institute and part public spectacle. Reflecting this, a high proportion of its membership was no more than nominally scientific, subscribing essentially for access to the zoo on privileged terms.

Next in size at the opening of the period was the Microscopical, rather unexpectedly. This had over 400 Ordinary Fellows by 1870 and another 200 more twenty years later. Yet subsequently, as we shall see, its membership was to plunge to make it the smallest of the four by far.

In third place came the Linnean, doggedly preserving its commitment to the whole of natural history in its antiquated eighteenth-century sense. With a subscribing membership of around 500 at the start of the period, this was to remain much the most static, its numbers fluctuating between 700 and 800 for a full half-century from 1883.

By contrast, the Entomological expanded very markedly—but with the advantage of starting from a much lower base. It began as easily the smallest, with little more than 200 subscribing members, but by the close of the period it

was nearly two and a half times that size, with well over 500.

Nineteenth-century membership figures, however, must be treated with some reserve. Learned societies in that era were quite extraordinarily reluctant to remove the names of defaulters from their lists. A gentleman met his debts, the contemporary code insisted—and to intimate otherwise was the mark of the lowest type of tradesman. In consequence membership registers, both published and unpublished, tended to be more than a little misleading and are not to be read as statements of the strict position such as we are accustomed to read into their present-day equivalents.

The differences between the four societies in size are in no way accounted for by the differences in the cost of belonging, for it was the two with the higher subscriptions which had the largest memberships (at any rate at the end of the period). These, the Linnean and the Zoological, had closely comparable rates, £3 annually in both cases on top of an admission fee of £5 in the case of the Zoological and £6 in the case of the would-be slightly grander Linnean. In sharp contrast, the Entomological asked less than half as much: a mere guinea

Crisp

to enter and then two guineas yearly. The Microscopical came in between (though only just), charging two guineas for admission and then the same amount on an annual basis.

These rates were of a striking and enviable stability, in all four societies remaining quite unchanged throughout the period we are considering—and indeed for very many years after it. The Linnean and the Entomological did not find it necessary to raise their subscriptions till the steep inflation just after the

end of the First World War, and the Zoological held out against an increase till even as recently as 1958—and even then it was approved only after a prolonged and acrimonious battle.[7]

Although the rates bore some proportional relationship to the societies' respective financial commitments, there was a considerable element of symbolism in them as well. This was a chief reason, quite apart from the stability of the currency, why they were kept undisturbed for so long. They functioned in part as symbols of corporate good health, a standing testimony to competent stewardship of the society's affairs. They also functioned, more importantly, as symbols of the particular social level which the respective societies saw themselves as attaining. The Linnean and the Zoological, creatures of an earlier era, continued to make a point of recruiting in the aristocracy and for long, like the Royal, had preferred to be headed by men more distinguished for their social position than for any particular scientific accomplishments. Status in the wider world beyond science mattered much to them: they were, in effect, just learned appendages of that exclusive stretch of the metropolis that we know as 'Clubland'.

Stainton

The Entomological was entirely different. One of that brood of new bodies hatched out by the middle classes when they invaded the cultural life of the Capital in strength in the 'Thirties, it was notable from the first for its relatively informal atmosphere, for its general air of youthfulness, and for the great extent to which its members were practising naturalists and not mere posturing *dilettanti*: as William Swainson put it, there was "no *quackery* in its composition".[8] The ill-fated Botanical Society of London had been preponderantly youthful too and proud of its non-exclusive character and of the

fact that most of its members were practical exponents of the subject, similarly.[9] Bodies such as these sprang from a separate tradition and are best seen as merely the centrally-positioned flagships of the great fleet of natural history societies and field clubs that flourished out in the suburbs and in the province beyond.

The scientific community that the four major metropolitan societies catered for was predominantly a zoological one, it will have been noticed. It is true that botany had no internal chasm to compare with that which early caused the entomologists to adopt an existence quite apart from the other followers of the science (and the hiving-off of the students of birds, as the British Ornithologists' Union, in 1858, had made this disunity of zoology doubly apparent). But the lop-sidedness was also the result in large measure of a historical accident. In the great formative period for corporate science in the metropolis, the 'Twenties and 'Thirties, two specialist societies for botanists had indeed arisen here. One, the Botanical Society of London, gradually attracted to itself most of the abler field botanists scattered throughout the country and grew to reasonably impressive dimensions (ultimately, with about 250 subscribing members, much the size achieved by the Entomological at the opening of the 1870s), but it foundered after twenty years from an insoluble conflict of aims compounded by maladministration.[10] Its most valuable activity, the postal exchange of herbarium specimens, was fortunately kept up and operated within the framework of a small, unambitious club; but although this was run from London for a time later in our period, it subsisted without premises and can hardly be ranked as metropolitan. The other, with a confusingly similar name, the Royal Botanic Society, was essentially a horticultural body and had as its *raison d'être* a large botanic garden inside the Inner Circle of Regent's Park.[11] Initially this establishment was seen as a potential rival to Kew, the royal gardens having declined into a rather run-down state; and there were active plans to build it up into the national centre for botanical science that Kew had earlier given promise of becoming. To this end the Society began amassing herbaria and even came within an ace of being left the enormous Fielding collection which in the end went to Oxford.[12] Then, unluckily for the Society's hopes, Kew acquired Sir William Hooker as Director and the backing, at last, of Her Majesty's Treasury; the botanical community thereupon switched horses and the Regent's Park establishment reverted to its pristine horticultural purity.

The disappearance of these two societies left a hole in the scientific life of the Capital which has never been more than partly filled since (for although the body that was to evolve into the Botanical Society of the British Isles became permanently London-based from 1939, it has never seen itself as specifically metropolitan and has never organized a regular programme of meetings there). With nowhere else to go, the botanists necessarily piled into the Linnean, tilting even more disproportionately in their direction a society that had already forfeited its proper share of the zoologists to its latecoming rivals.

Ever since the separate societies for zoology and botany had come into being the rôle of the Linnean had indeed been problematical. Its acquisition of the Linnean collections had had the effect of making it unduly inward-looking, over-content to fill the rôle of custodian of a shrine. By the 'Forties it had become tightly exclusive, insecure financially and moribund intellectually. There was a dearth of papers for reading at its meetings and the meetings

themselves were but thinly attended. On one occasion no more than five Fellows were present apart from the President and the Secretary.[13] Absurdly, papers were not allowed to be discussed, for fear of provoking controversy of the kind that regularly racked—but also animated—the contemporary Geological Society; and the evening tended to deteriorate as a result into (as Edward Forbes wryly put it) "but sleeping draughts".[14] By 1851 the condition of the Society was such that an anonymous reviewer in the leading botanical journal of the day, the *Phytologist*, was driven to voice the regret of "all right-minded men of science to see it sinking, as it were, into a state of lethargy and inanity". It was, he declared, in a "mesmeric coma", and he went so far as to express the hope that "the somnolency which at present oppresses it may not be the sleep of death".[15]

Bell

At that point, luckier than it deserved, the Linnean acquired a man of uncommon drive and vision as its President. This was Thomas Bell, a dental surgeon who had gravitated to the Chair of Zoology at King's College, London. During his eight years in office Bell shook the Society back to life and propelled it in a variety of new directions.[16] One of these he eventually got round to in 1858. In that year, in his Presidential Address, he deplored what with hindsight could be seen to have been the near-suicidal action of the Linnean's zoologists in helping off the ground the scientific side of the fledgling Zoological. He

acknowledged, however, that that new society had had the irresistible attraction of a much greater financial ability at time to advance their branch of science. The unintended results of those breakaways of twenty-five to thirty years before was that the separate activities of the four metropolitan societies that now catered for zoology were carried out at a combined expense which would be very much lessened if only they could be brought together under the aegis of a single body. He stopped short of proposing an outright merger: that, he must surely have recognized, was by then hardly practical politics. More surprisingly, he rejected even the next-best solution: an arrangement whereby members of the other societies could join the Linnean on preferential terms. Instead, distinctly lamely, he came up with the suggestion that the other three societies should communicate to the Linnean such papers as might be especially suitable for publication in its *Journal* or *Transactions*.[17]

Nothing came of this, but it was a promising augury of a closer moving-together. In the meantime, no doubt, there was a good deal of discussion off-stage (though how extensive this was, and what form it took, we shall only know when the history of these societies has been pushed beyond published matter and internal records into the underworld of private papers). Certainly, there were key individuals who straddled two or more of the societies and were thus favourably placed to help things along. William Yarrell, an extreme case, had been simultaneously Secretary of the Zoological and Treasurer of the Entomological, and in the second of these capacities he latterly doubled up as Treasurer of the Linnean as well. Some years after his death H. T. Stainton, the virtual mainstay of the entomological, served a five-year term as Zoological Secretary of the Linnean. Similarly, Frank Crisp was both Secretary and Editor of the Microscopical while also Treasurer of the Linnean. It is all too easy to forget this persisting, and surely influential, cross-membership. We badly need a prosopographical study to establish how widely and how deeply it reached.

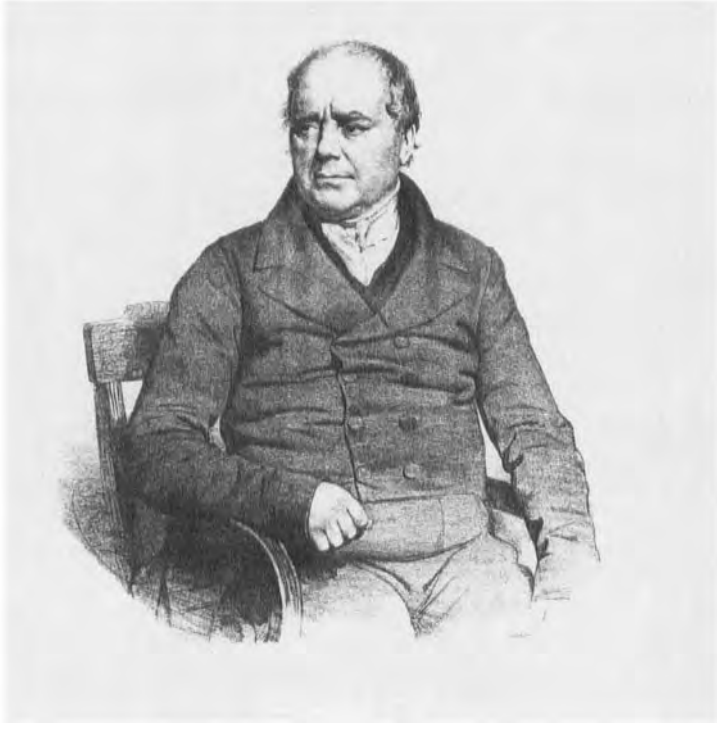
In 1854 the Government purchased Burlington House from the Cavendish family for the express purpose of accommodating a number of the leading metropolitan societies. Originally only four of them were earmarked for this precious, rent-free privilege, namely the ones that were occupying space in Somerset House which the Treasury coveted for housing the Registrar General and his staff. Two years later, however, it was agreed that the number could be extended to include the Linnean.[18]

It was lucky for the Linnean that the Zoological was irremovably tied to its menagerie; while the Entomological and the Microscopical, for their parts, had too specialized an image and clearly ranked lower in mere seniority and substance. But all these other three could have made good use of the Burlington House premises nonetheless,[19] and it cannot have been without some pangs of guilt that the Linnean moved into its palatial new residence in the spring of 1857. That this was just one year before Bell made his Presidential overtures is probably not a coincidence. The Linnean must surely have sensed that it owed it to its less fortunate sisters to offer them some share in the benefits of this publicly-funded windfall.

Even so, nine years had to pass before any sharing of the Burlington House rooms materialized. Already by then, for quite some time, the Zoological had found its Scientific Meetings were being noticeably less well attended and its thoughts had turned to running a joint programme with one or more of the

other societies instead. In the event it did not go quite this far: for the winter session of 1866–7 it chose to hold its meetings indeed in the Linnean's rooms, but it timed them for alternative evenings to those of the Linnean, with the aim of attracting members of both societies to each. Alas, however, the experiment was not a success,[20] the meetings had to revert to their previous venue in Hanover Square, and the Zoological and the Linnean thenceforward permanently turned backs on one another.

The involvement with the Entomological was more wholehearted and more enduring. In that same year, 1866, hard-pressed for accommodation, the entomologists jumped at the offer of two rooms on the Linnean's ground floor (together with the use of the main meeting-room for the reading of papers and showing of exhibits). Their library, however, necessarily had to be left behind, in rented premises in Bedford Row, and this was both a severe inconvenience



Yarrell

and a drain financially.[21] The arrangement, even so, lasted for as long as ten years; and it culminated in a request from the Entomological for some more thoroughgoing mode of affiliation. Stainton, who was the Linnean's Zoological Secretary by then, almost certainly had a major hand in this—but the suspicion is unconfirmable from at any rate the Linnean minutes. Matters were carried by

the Entomological to the point of a general referendum of its members, from which it emerged that a large majority favoured an arrangement whereby its Fellows would constitute a special new category in the Linnean, under the name of "Entomological Associates". At that point, for some reason, the negotiations foundered. The minutes of both societies are annoyingly unrevealing, but the best guess as to what went wrong is that of their respectively official histories:[22] at the last moment it turned out that the Linnean had no space for the Entomological's extensive library—and that for the entomologists was a *sine qua non*, quite conclusively. In the summer of 1875, accordingly, they found alternative refuge with the Medical Society of London, in Chandos Street; and there they were to remain for the fifty years that followed.

Fired by the example of its two elder sisters, the Microscopical, too, in turn had a mild flirtation with the Linnean. In 1867 it applied to use the Linnean rooms as well; but this time the Linnean felt obliged to demur, taking the view that any more societies on its premises would overstrain its staff resources.[23]

With just a little more vision, just a little more persistence, it is hard not to believe that, a workable federal structure for the nation's biologists might well have come out of all this. As a result, instead of the fragmentation that has continued down to the present, there might have been achieved the enviable near-unity of the geologists and the chemists. Whether this would have been beneficial to the scientific development of the subject depends on the view that one holds about the rôle of learned societies in that process. Some might maintain that the socializing currents should be allowed to swirl and coalesce where they will, that it makes little difference how the field is segmented corporately—or even how minutely. On this view, the Linnean may be forgiven its prolonged period of inertia: it is sufficient that a forum continued to exist within easy walking-distance of Pall Mall (or within a quick tube-ride of South Kensington or Kew), where useful papers were delivered and discussed and whence publications of value regularly appeared.

On the other hand, benefits must surely have flowed from, at the very least, a pooling of resources. More funds could thereby have been made available for assisting young researchers of promise; expensive library duplication could have been avoided; more cross-fertilization between the different disciplines could have been induced. A wider rôle in safeguarding the interests of the emergent profession could have saved the trouble of concocting the Biological Council many years later—just as the Institute of Biology, equally, would have been superfluous if only responsibility had been assumed for controlling the standards of entrance. An 'umbrella' serving to shield, and to co-ordinate the work of, the vast army of amateurs throughout the country could similarly have made unnecessary the sadly short-lived Council for Nature (so pale an imitation of the Council for British Archaelogy).

Although it was strictly speaking on the threshold of the period with which this paper is concerned that this abortive coming-together of the four societies took place, it scarcely needs stressing that the experience fundamentally determined the pattern of association among the biologists in the metropolis throughout the decades that followed. By the time our period begins, the 1870s,

Editor's note: The Bewick swan (*Cygnus bewickii*) on the 31p commemorative stamp issue was first described by Yarrell—the writing on the background of the stamp is his description of the larynx region.

a situation that had been briefly and encouragingly fluid had set dauntingly hard, seemingly unbreakably. The legacy handed on to the generation that came after had to be accepted, broadly speaking, as it was. There was no going back.

There was no going back for the further reason that the individual societies presently had their attention diverted—inwards, to certain new developments which were subjecting them to increasing strain.

The principal source of strain, and certainly the longest-lasting, was the often grating intrusion into these hitherto peaceful preserves of mainly leisured gentlemen-amateurs of a greater and greater number of the new class of thrusting university professionals. Natural history had been accustomed to a small sprinkling of men who earned their living from the pursuit for fifty years and more; but except in that fact, these had scarcely been any different in their interests and outlook from those otherwise placed. The professionals who now were appearing came from a faster-moving world, where they were thicker on the ground and where there was a far greater number of posts to compete for, which induced a more intense ambitiousness. Perhaps more importantly, though, their interests were sharply different. They were not merely devoted to aspects of the subject well removed from the traditional fare of systematics, and trained in specialized laboratory techniques accordingly; they were even, in some degree, positively opposed to systematics, despising it as a largely worked-out vein, a hopelessly dreary backwater. Nor was this an opinion that they liked keeping to themselves.

As one would expect, in the official histories there is scarcely a hint of the tensions that must have arisen from the colliding within the societies of these two antipathetic sub-cultures. Even had the histories been written in a more incisive mode, considerations of tact would doubtless have kept their authors from giving attention to a topic so domestically uncomfortable. For much the same reason, the published literature carries next to no references to it either. All we have to go at present is the bare, external evidence provided by the membership lists and the content of the publications—and to try to infer the degree of pain from a mere reading of the temperature charts is too indirect a way of enquiry to be reliable.

The Zoological, the only one of the four societies to operate on the relevant scale, had the added complication of an increasing number of professional biologists on its own staff. This had major consequences politically, for every extra one of these who was recruited could be expected to side automatically with the Executive Secretary in his long-running battle with the Council to devote more resources to strengthening the Society's scientific work. Those who were opposed to this policy thus had an interest in resisting the enlargement of the scientifically-qualified staff. For many years the Executive Secretary himself had been the sole full-time employee in this category. Then, in 1865, at the instance of Huxley, who was keen to see the collection put to more use for research purposes that were not merely taxonomic, a special committee was set up to oversee what happened to the corpses of the animals that died and, to further its work, a new post was created with the title of Prosector. The first holder of this was James Murie, of Central African fame, an anatomist of great proficiency even though he was to prove, both there and subsequently at the

Linnean, painfully difficult as a colleague.[24] About the same time another scientist was smuggled in, under the guise of a library clerk, in the person of R. Bowdler Sharpe, already an ornithologist of distinction.[25] (Later, after the First World War, the no less able F. Martin Duncan was to be secured by this same, unlikely route.[26]) In 1903 a third official scientific post, that of Pathologist, was added as part of the outcome of a general shake-up;[27] and after that, helped no doubt by the current of the time, there was at last a flood of further appointments, raising the total to ten by 1928.[28] But achieving these still seems to have called for a certain amount of camouflage. Julian Huxley records

R. Bowdler Sharpe

in his memoirs being approached by the then Executive Secretary, Chalmers Mitchell, in or around 1916 and asked if he would be interested in becoming the Superintendent of the Gardens—a post for which a qualified scientist was not really necessary. "As this was mainly concerned with looking after the feeding and health of the animals, and I had no experience in such matters," Huxley decided to resist the suggestion.[29]

The Zoological could afford the luxury of this expansion thanks to the fact that the number of visitors to the Zoo was soaring and the finances of the Society as a whole were benefiting correspondingly. The Entomological, too, in its own much more modest way, had entered a period of prosperity and growth, helped by the many new posts in the applied areas of its subject and the influx of extra members in consequence.[30] The Linnean, on the other hand, was much

less well placed. Other, more specialized societies were now springing up, with a greater appeal to the younger professionals with their more narrowly-focussed concerns;[31] and a generalist body, relatively expensive to belong to besides, was especially vulnerable to competition from such quarters. The best it could rise to, however, by way of defensive move was to abolish the admission fee for those under 35.

But if the Linnean was under pressure, this was nothing to the plight of the poor Microscopical. Contrary to what one might have supposed, the general swing in the universities and schools to work based on the laboratory had not been to its advantage. A society identified with an instrument rather than with a particular scientific discipline seemed almost an irrelevance to the new generation of professionals, and matters were made worse by the fact that by around 1880 the light microscope had arrived at its peak of resolution.[32] By 1913 membership had slumped to less than two-thirds of the mid-'Eighties level—and it was not to clamber back to that till after the Second World War.

There was another change in the composition of these societies at this period that was also a cause of a good deal of tension—or in one of them, at any rate. This was the enrolment at last of women, in not insignificant numbers. Unlike the pain that the new professionals gave rise to, the pain from this source is the one case amply documented, doubtless because it was temporary and acute instead of mild and persistent: a toothache rather than rheumatism.

Peculiarly, and most uncharacteristically, the Zoological had been prepared to admit women as Fellows (and on the same terms as men) ever since 1827, a few months after its founding. But this liberal policy does not appear to have been taken advantage of to any noticeable extent and was probably introduced merely with the privileged hours of access to the menagerie in mind. At any rate it was not until the closing years of the century that the Society's Scientific Meetings began to attract women as habitual attenders[33]—and that the rules permitted this doubtless came as quite a shock to the more benighted of the male Fellows.

With the conspicuous exception of the short-lived Botanical, which went out of its way to recruit women members and made quite a fuss of the few brave ones who responded,[9] all the other metropolitan learned societies of substance remained aloof, with varying degrees of explicitness. The ever-unpompous Entomological might well have been an exception, had there only been the women entomologists wishing to join; and certainly, when at length the first trickle of these appeared, in 1890, this society absorbed them without apparent friction—at least if the total silence on the subject of its official history is any indication.[34] The Microscopical, on the other hand, as if in keeping with the intermediate status that its rates of subscription affected to express, at first contrived to meet the problem by steering an exactly middle course. Ludicrously, from 1884 right up until 1909 (when sanity eventually won) women were allowed to be elected as Fellows and pay the necessary fees but they were not allowed any of the rights or privileges of membership.[35]

But it was left to the Linnean to set the really deplorable example in this (though, even so, it hardly behaved any worse than, say, the Royal or the Geological). Its long tradition of exclusiveness—and perhaps also its location, in the very heart of 'Clubland'—made it an obvious resister, even though its preponderant concern with botany, the one science traditionally best disposed

towards women, might have been expected to have led to a countervailing current of tolerance. In this struggle that now took place the women who made the running were indeed botanists in every case: the oppostion, one suspects, came much more strongly from the zoologists.

The first shots were fired at the end of 1886, when requests began to be received for particular women to be allowed to atend particular meetings in order to hear the reading of papers of which they were the co-authors. This was something the Council graciously felt able to permit. Fourteen years later, however, in April 1900, battle was joined in earnest when a Mrs Ogilvie Farquharson, author of a book on ferns, widow of a leading Scottish expert on

The first ladies

diatoms and by this time a committed feminist ironclad, submitted a petition arguing for the election of duly qualified women as Ordinary Fellows, with all the rights of existing members. The petitions was returned with a brutal discourtesy. When she persisted, the Council decided that it was "more than doubtful whether the Society's Charter could be held to apply to women"—and, much to their glee, they were upheld in this view by legal opinion.

Not to be put off, Mrs Ogilvie Farquharson returned to the attack. With the help of male sympathizers among the Fellows, enough signatures were secured to compel the Council to take notice; a committee was appointed, then a general referendum held and finally a Special General Meeting called to put the matter to the vote, the 'ayes' proved to outnumber the 'noes' by a completely

decisive 54 to 17; and so at last, in November 1904*, the names of sixteen women were put forward confidently for election. Only fifteen of them, however, were successful: Mrs Ogilvie Farquharson, for her pains, was humiliatingly blackballed. Though she was successful when she applied again four years later, she died, alas, before she had the opportunity to savour her triumph to the full by registering as a Fellow in person.[36]

It would be wrong, and seriously misleading, to complete this account of London's biological societies without making some mention of the other world of humbler, wholly amateur bodies which flourished outside the central area. Or rather, mainly did so: the Quekett Microscopical Club was one exception, founded in 1865 as an offshoot of another, similar body, the Society of Amateur Botanists. The latter did not last long, but the Quekett is happily still with us, continuing to cater for the beginner and to maintain the informal, unoppressive atmosphere that its founders looked for as a change from the comparative loftiness of the Microscopical.[37] Such deliberate unpretentiousness was the hallmark of all the societies in this consciously lower layer—that and low subscriptions too (typically 5/- to 7/6d), reflecting the facts that they needed only modest premises (if they needed premises at all) and that the great majority of their members were anything but affluent. Essentially they were the strongholds of the lower middle classes—the small tradesmen, the elementary schoolteachers, the skilled artisans—and they were generally recognized as such. Many of their members had a better knowledge of their subjects than many of those elected to the grander Big Four and carried out, and even published, much more and much better scientific work; but they felt more comfortable in these simpler settings, which were in any case conveniently close to their homes and jobs.

It was to the constraints of geography that most of these societies owed indeed their original existence. Until the Underground began to be electrified, from 1890, travelling any great distance across the Capital tended to be relatively very slow and there was not much temptation to forsake one's home area for the centre, especially after a hard day's work. In the early part of our period, accordingly, we find London neatly parcelled up into a whole series of societies for the different points of the compass. Amost all of these were exclusively or heavily entomological, reflecting the exceptional popularity of insects then among natural history collectors and the greater need felt in this field for a regular circle in which news could be exchanged and prize specimens exhibited. In one guise or another three of the societies, remarkably, survive today. The best-known, the South London,[38] almost petered out a few years after its founding in 1872, when a rift occurred over the vulgarizing of the Society's so-called "First Great National Entomological Exhibition", which, thanks to heavy publicity, drew the astonishing attendance of over 70 000 during the fortnight it remained open. Fortunately, the membership numbers recovered (reaching well over 200 by 1890) and on the strength of this a Journal was launched successfully. Gradually the Society's reputation spread and many non-locals began to join, eventually in such droves that it turned into a national body in all but name. A major reason for this was the large number of leading amateurs

*Editor's note: The first U.K. Parliamentary election in which women were eligible to vote was 1918—but they had to be over 21 and householders or married to householders otherwise they had to be over 30!

who found the old-established Entomological increasingly too technical as the new breed of professionals moved in, and who found the South London virtually as handy and altogether more agreeable in atmosphere. The rise and rise of the British Entomological and Natural History Society (as it has eventually come to be known, in the last few years) is indeed the principal surface sign of the tensions that accompanied the amateur/professional change-over.

The other two survivors, the City of London and the North London, have come down to us through a merger (which took place in 1914). Their joint offspring is that present-day colossus, the London Natural History Society. The histories of these two are less colourless than usual, thanks to the splendidly unabashed way in which they chose to blend their learned activities with others of a more secular hue. These included an annual Cycle Run, held over a long weekend, and (in 1907) a subscription dance in aid of funds—which, alas, raised a mere five shillings.[39] Best of all, one gave rise to a hockey club composed exclusively of its members. The wife of one of these played in goal, "where", it is recorded, "her long skirt was very useful."[40]

And that is a salutary, closing reminder that learned societies, however humble or however lofty, are not just mechanisms for the exchange and sifting of knowledge, for the amassing and maintenance of reference collections and libraries, for the publishing of the results of research. Certainly, they have these functions—functions which on the whole they perform with quite efficiency and in the process relieve the State of a massive expenditure that it would otherwise have to incur itself. But they are also—*societies*, in the fuller meaning of the word: social entities, communities in miniature, in which friendships are cemented, animosities aroused and reputations formed. Without them, Scientific London in these years would assuredly have been a very much duller as well as a very much poorer place.

NOTES

[1]J. Reynolds Green, *A History of Botany in the United Kingom . . .*, London and Toronto, 1914, pp. 528–539.

[2]D. E. Allen, 'The lost limb: geology and natural history', in L. J. Jordanova & R. S. Porter (Eds), *Images of the Earth*, Chalfont St. Giles, 1979, pp. 200–212.

[3]The founding of the Zoological was on the independent initiative of Sir Stamford Raffles, but that section of the Linnean's members who constituted the latter's near-autonomous Zoological Club made a major contribution from the first, filling three of the most important executive posts (John Bastin, 'The first prospectus of the Zoological Society of London: new light on the Society's origins', *Journal of the Society for the Bibliography of Natural History*, 1970, *5*, 369–388).

[4]Since 1933 the Royal Entomological Society (though incorporated by Royal Charter in 1885).

[5]Since 1866 the Royal Microscopical Society.

[6]For example, the Malacological Society, founded in 1893, which had "of London" in its title and held its meetings in the Capital. However, it possessed no premises and used those of the Linnean on a fee basis.

[7]S. Zuckerman, 'The Zoological Society of London: evolution of a constitution', in Zuckerman *et al.*, *The Zoological Society of London 1826–1976 and beyond*, London, 1976, pp. 14–15. Admittedly, the raising of the subscription (to £8) was coupled with the far more contentious proposal to divide the Fellowship into scientific and non-scientific classes.

[8]William Swainson, *A Preliminary Discourse on the Study of Natural History*, London, 1834, p. 317.

[9]D. E. Allen, 'The women members of the Botanical Society of London, 1836–1856', *British Journal for the History of Science*, 1980, *13*, 240–254: *The Botanists. A History of the Botanical Society of the British Isles through 150 years*, Winchester, 1986, Ch. 2.

[10]Gertrude Foggitt, 'Annals of the B.E.C. I. The Botanical Society of London', *Botanical Society and Exchange Club of the British Isles report for 1932*, 1933, *10*, 282–288; Allen, *The Botanists*, Ch. 5.

[11]Guy Meynell, 'The Royal Botanic Society's garden, Regent's Park', *London Journal*, 1980, *6*, 135–146.

[12]H. B. Fielding to Sir William Hooker, 9 Feb. and 18 Mar. 1842; W. J. Hooker Letters, Royal Botanic Gardens, Kew.

[13]Sir Joseph Hooker, (Hooker Medal acceptance speech), *Proceedings of the Linnean Society of London*, 1898, *33* (and quoted in *Journal of Botany*, 1898, 36, 489).

[14]Forbes to H. C. Watson, 1 March (1843), C. C. Babington Correspondence, Botany School, Cambridge.
[15]Anon., *Phytologist*, 1851, *4*, 264.
[16]A. T. Gage, *A History of the Linnean Society of London*, London, 1938, pp. 48–49. Significantly, Bell had already served as President of the Microscopical, in 1844–46.
[17]ibid., p. 58.
[18]ibid., p. 50.
[19]The Microscopical, for example, had for many years met in the rooms of the Horticultural Society in Regent Street, for an annual rent of £20. In 1856 it was on the look-out for a new home, as shown by its move then to King's College (A. D. Michael, 'The history of the Royal Microscopical Society', *Journal of the Royal Microscopical Society*, 1895, Ser. 2, *15*, 1–20).
[20]H. Scherren, *The Zoological Society of London*, London, 1905, p. 144; P. Chalmers Mitchell, *Centenary history of the Zoological Society of London*, London, 1929, pp. 112–113.
[21]Gage, op. cit., p. 60; S. A. Neave & F. J. Griffin, *The history of the Entomological Society of London, 1833–1933*, London, 1933, p. 36.
[22]Gage, op. cit., p. 72; Neave & Griffin, op. cit., pp. 40–42. The Council minutes of the Linnean Society (2 April, 7 May and 3 Dec. 1874) provide no fuller details.
[23]Gage, op. cit., p. 61.
[24]Mitchell, op. cit., pp. 267–271.
[25]ibid., p. 109.
[26]ibid., p. 111.
[27]ibid., p. 277.
[28]ibid., p. 285.
[29]Julian Huxley, *Memories*, London, 1970, p. 230.
[30]Neave & Griffin, op. cit., pp. 52, 62. A graph analysis of the Entomological's membership by a statistician President, C. B. Williams, published in its *Proceedings*, Ser. C, 1947, *12*, 66–67, shows that the increase during the years 1880–1914 was a remarkably steady one.
[31]Or with interests for which the existing societies did not cater. Thus, the Malacological was founded because the shell-collectors who comprised the Conchological had little or no concern with the anatomy of the creatures within.
[32]G. L'E. Turner, *Are Scientific Societies Really Necessary?*, London, 1976, p. 4 (reprinted in Turner, *Essays on the History of the Microscope*, Oxford, 1980).
[33]Mitchell, op. cit., p. 32.
[34]On the other hand in the even more informal North London N.H.S., which was concerned with entomology almost exclusively, women members were admitted (in 1893) not without some opposition and one resignation at least (L. J. Tremayne, 'The North London Society in 1892 and onwards', *London Naturalist*, 1958, 6–8).
[35]Gage, op. cit., p. 86.
[36]ibid., pp. 87–90.
[37]J. R. Ramsbottom, 'The Society of Amateur Botanists and the Quekett Microscopical Club', *Journal of the Quekett Microscopical Club*, 1931, Ser.2, *16*, 215–230.
[38]M. J. James, *The New Aurelians: A Centenary History of the British Entomological and Natural History Society*, London, 1973. See also F. Stanley-Smith, 'The history of the "South London" Society', *Proceedings & transactions South London Entomological and Natural History Society* for 1953–54, 1955, 55–74.
[39]L. G. Payne, 'The story of our Society, part I', *London Naturalist*, 1947, 3–21.
[40]C. L. Collenette, 'The North London Society in 1907', *London Naturalist*, 1958, 8–9.

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This is a somewhat condensed version of a paper originally given in February 1982, in one of a series of Royal Institution historical symposia on the 'architecture' of scientific activity in the metropolis between 1870 and 1914.

Robert Brown

In the early June 1858 in a corner of Soho Square, London, an old man died in the house where he had lived and worked for nearly half a century. There

had been some doubt how much longer he could stay there, and then illness intervened. His closest friend and doctor, Francis Boott, could have prolonged his life with drugs, but he chose to do without them. With a calmness and clearmindedness which had characterized his long life, Robert Brown faced the end, sustained by visits from Dr Boott and other close friends, though the physical comforts were, as always, rather low. A week after his death, Darwin received the famous letter from Wallace on the evolution of species.

Robert Brown had always kept silent on his own religious views. This was part of his naturally reticent personality. Son of a clergyman, James Brown, in Angus, he grew up in an atmosphere of continuing religious turmoil, with memories of the "killing times" still fresh. His great great grandfather, John Brown, a farmer in Bolshan (pronounced Bo'shun and deriving from the French 'beau champs') died around 1700. Robert Brown's grandfather, also John, Elder of the Established Church, supported Charles Stewart in the Forty-five Rising, and, using Kinnell Kirkyard as a rendezvous, he recruited Jacobites, as a Captain in Lord Ogilvie's regiment. He died at Culloden and his son, James, refused allegiance to the House of Hanover. After Prince Charles death, James was the only clergyman publicly to pray for the House of Stewart—a strange position as Charles' successor, Henry Stewart, was a Cardinal. James Brown's cousin, James Brown of Cononsyth, great great great great grandfather of the writer, was a leading figure in the Scottish flax-spinning industry. This work was carried on and expanded by his four sons. The eldest, also James, became Provost of Dundee in 1844, some years after the visit of the eminent botanist. James championed liberal causes like workers' education and parliamentary reform. He visited America and one of his sons eventually settled there.

Originally destined for a medical career, Robert Brown assumed the post of Assistant Surgeon with the Fife Fencibles in 1795 and in this capacity served in Ireland. It seems to have been a not particularly onerous post, leaving him plenty of time for 'botanizing' and it soon became clear that this was his real interest. During a visit to London in 1798 he made the acquaintance of Joseph Banks and this probably altered the course of his life. He was particularly interested in Banks' herbarium and, because he had already acquired something of a reputation as a botanist, he was allowed free access. He was also nominated a member of the Linnean Society, a link maintained for the rest of his life.

He returned to Ireland the following year. At this time he kept a diary detailing his daily life, down to the amount of drink, quality and type of food—even his bedclothes! Despite a French landing in Killala, Co. Mayo, his was a relaxed and leisurely life. Like Darwin, his pupil in microscopy before setting out on *The Beagle*, Brown seems to have had intermittent, though perhaps minor, illnesses most of his life. Not that this interrupted his frequent botanizing trips during his time in Ireland.

Rivalry between the major European powers in colonizing various parts of the globe was already strong. When the news reached London that a French expedition had set off for the Pacific, the Admiralty was keen to send off a similar venture and, inevitably, Banks was involved. At the end of 1800, Brown received a letter while in Ireland from Banks asking if he would serve as naturalist on the trip to survey New Holland. Not surprisingly he accepted with alacrity. After the humdrum routine of military life, such a voyage must have seemed like the proverbial 'dream come true' to a man of 28, offering not only

adventure, but more important the opportunity to collect, observe and classify species new to the world of natural history.

The captain of the aptly named *Investigator* was Matthew Flinders, whose son was to become the egyptologist, Flinders Petrie. While awaiting the completion of all the preparations necessary for such an expedition, Brown worked at Soho Square. One wonders if he ever thought that after this monentous trip to the remotest part of the globe, much of the rest of his life would be spent in this same spot. During the delays in refitting the ship, he studied the specimens

Robert Brown

brought back by the previous expedition under Cook. In the middle of June 1801 he went down to Portsmouth and a month later, at 11 a.m. on 18 July, *The Investigator* set sail.

The routine of army life must have helped him adjust to life at sea, though there were of course fewer opportunities for escaping on botanizing trips. There was ample time, on the other hand, for preparation and detailed diary entries. They called in at Madeira and he began his collecting, many specimens of which would be reproduced by Bauer. They went on to the Cape, where he botanized on Table Mountain. In early December they sighted the coast of New Holland.

In the course of many trips on land as they passed along the southern coast of

Australia, Brown made an enormous collection of both plant and animal species. He and his companions met parties of aborigines and these encounters were for the most part peaceful though there was some violence.

This must have been a very strenuous time, physically, both the sea voyage itself and the trips inland, not to speak of the risks involved in exploring land about which little or nothing was known. The mental stimulus and challenge of all the wealth of new material would have left little time for apprehension, and one assumes explorers generally feel that they are superior culturally and technologically to any humans they are likely to meet. A risk of a different kind was posed by the presence of a French vessel, which Flinders boarded with Brown acting as interpreter, despite the fact that England and France were at war. He (Brown) was scathing about their botanical collections, but one imagines that natural history was perhaps lower down in the French list of priorities. They were, however, busy naming geographical features after various Gallic luminaries.

As the voyage continued, there was much illness on board and some deaths occurred, but Brown, despite his apparent infirmities, must have been constitutionally strong. While Flinders was detained by the French on Mauritius, *The Investigator*, with Brown on board, under the new captain, William Kent, made its way home, via Cape Horn. There was much for Brown to do, observing, classifying, preserving, but even so, some specimens were damaged, mainly by damp, to add to the losses sustained when the *Porpoise* was wrecked. The material which was finally unpacked must have been, however, a real triumph for him personally, and greatly pleased Banks and all associated with the endeavour.

The rest of his life was passed in studying all the items, drawing conclusions and generally enlarging the boundaries of botanical knowledge. Although he travelled frequently to the continent until he was in his seventies, in between these forays his life must have been one of concentration, routine and painstaking application, punctuated by the various controversies which characterize human affairs even in academic circles—perhaps one should say especially in academic circles?

Many friendships with fellow naturalists, both in Britian and abroad were formed and maintained over the years, among the most interesting of which was that with the Scottish family, MacLeay. They were a large family group, associated also with the Linnean Society, and with Australia—in fact, finally settling there. As a bachelor, Brown may well have found with them the family warmth and liveliness which was lacking in his own life. One member, who died young a few years after she arrived in Australia, a talented artist and linguist, seems to have engaged his particular affection. There was an age gap of over 20 years between them, otherwise something more than friendship might have developed. His natural reticience might have made him reluctant to express his feelings. Most important, he was all his life financially insecure, managing with difficulty to support his widowed mother in Scotland. It is difficult to imagine his feelings on receiving a letter from the father of Fanny MacLeay, a few years after her death, recommending the bearer of the letter to Brown. He was no other than Fanny's widower. One can only assume that neither the writter of the letter nor the bearer knew of Brown's attachment, though Fanny's mother seems to have.

Brown's regard for the MacLeays and loyalty to them over the years is shown by his part in arranging a tribute to William MacLeay, first speaker of the Australian Parliament, in the form of a silver candelabrum. The tribute followed his death some 20 years after the family had left for Australia, but there had of course been regular correspondence in the intervening years.

There are few other hints of a sentimental link, apart from references to '*L*', probably his housekeeper, for whom he made provision in his will. Perhaps, as he could not support a wife, he saw no point in pursuing any possible relationships.

His friendships, on the other hand, were warm and despite his reserve, he seems to have been held not only in high esteem but also in genuine affection by a wide range of people. One of the most enthusiastic was Martius, whose correspondence is positively lyrical in parts. It is interesting to speculate on what a phlegmatic Scot made of such extravagant language as the following description of a planned expedition in the Alps when Brown was about to visit Switzerland (the more so since the envelope was addressed to "Monsieur Robert Brown anglais"): "we will make our way through the Alps in high spirits and with coelestial happiness because you will find the scenery very beautiful and Endlicher and I will enjoy of your conversation like the Arabs in the Desert are enjoying the dew of heaven". This letter sent from Munich reached Brown in eight days.

The career of Robert Brown demonstrates several features which are fairly typical. Like many Scots, or people from any provincial centre for that matter, London proved to be the gateway to advancement. He did visit his homeland and was interested in trying to trace his family roots, deep in the religious and political conflicts of 17th and 18th century Scotland. But by far the largest part of his 85 years was spent in London, and he did not accept invitations to occupy two academic posts in Edinburgh and Glasgow. In coming to London he had not only moved into a freer, more liberal, environment, but also met Sir Joseph Banks, and without this connection his life might have taken an altogether different course. Personal recommendation was even more important in those days of less formal methods of promotion. His career came at an important stage in the development of science, when it was becoming more professional and less the past-time of dilettantes, however, enthusiastic and knowledgeable. Scientific method, in particular, was advancing, as equipment such as microscopes improved. However, the financial arrangements seem to have been rather basic, and as Brown had no private means, his way of life was always modest.

Unassuming, shunning the limelight and preferring the company of people he knew well, he would have been easy to underestimate. His tendency to delay must have been exasperating to colleagues, but he showed himself helpful to younger men, in the way that Banks and others had been helpful to him. The photograph taken within a year of his death shows a kindly expression, and his closest friend, Francis Boott particularly emphasized this aspect of his personality. One imagines that he was not at all demonstrative, so this would probably have been expressed in oblique ways.

As a young man in Ireland, he chided himself in his diary for being indolent, yet his unremitting devotion to botany, his powers of observation and deduction—surely the fruit of intense and prolonged concentration—made an enormous contribution to the development of natural history. In this work he

tended to hoard and amass, particularly specimens but also information—one writer describes him as being like a spider at the centre of a gigantic web. If so, he had none of its malevolence, but was rather a kindly, gentle spider, going at his own pace, listening to a different 'drummer'. The same writer assets that nearly every group of flowering plants today bears the mark of his genius, and that Brown's most important discoveries "were almost nonchalantly announced—in parenthesis as it were—" such as the existence of the cell nucleus and the movement, which bears his name, of small particles suspended in liquid.

Jung has said that nature is not so liberal with her gifts as to endow in any one individual both head *and* heart, but in a few instances, such as Darwin, both qualities do come together. Perhaps, also in Robert Brown. Those who gathered in Soho Square on 15th June 1858 to accompany hin on his last journey to Kensal Green cemetery would, I think, have agreed.

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N. I. Vavilov—The Centenary of his Birth

On 26th November 1887 the world-famous Russian geneticist, plant breeder and phytogeographer was born. An informal meeting to mark the centenary of his birth was held on 26th November 1987 at University College London, jointly sponsored by the Institute of Archaeology (which is now part of UCL) and the Linnean Society of London*. Similar conferences took place in Moscow and Leningrad as well as at Gatersleben in the German Democratic Republic.

Vavilov's work was synthetic and multidisciplinary. He was equally competent as a cereal breeder, a specialist in crop plant immunity to diseases, a practical geneticist, experimental taxonomist and agro-ecologist, and his studies had a profound effect on archaeologists investigating the origins of agricuture. Perhaps Vavilov's most important practical contribution in crop plant breeding was to point out the need for (in our terms) a broad genetic base in the search for resistance to pests and diseases, and for a wider range of adaptation to extreme environments. He demonstrated the wealth of genetic diversity to be found in the regions where crops had originated and were still evolving. This led him to propose eight major centres of crop plant diversity and origin, located in ancient centres of civilization, mainly in tropical and subtropical mountainous areas and surrounding lowlands in both the Old and the New World. His innovative hypothesis that the origin of a crop plant should be sought in that area where its diversity is greatest has not stood the test of time completely, but it has certainly acted as a stimulus to further research. Synthetic studies of the experimental taxonomy of crops and their wild relatives, started by Vavilov and his colleagues, are still continuing and are providing a clearer understanding of the genetic relationships of these plants, which is obviously of great importance to breeders.

*The Symposium was attended by about 100 participants and was followed by a reception kindly offered by University College. It is intended to publish the papers in the *Botanical Journal*.

Vavilov and his colleagues explored and collected the genetic diversity of crop plants on some 70 expeditions to Europe, Asia, North and South America, North Africa and Ethiopia. He had less than twenty years in which to do this and to build up a network of some 400 research stations under his control from the famous All Union Institute of Plant Industry in Leningrad. He is quoted by S. C. Harland as saying that his object was "to collect every variety of economic plant that might be of use to the U.S.S.R., and to study the diversity of varieties of cultivated plants by employing the methods of the taxonomist, the cytologist, and the biochemist. In understanding this work (he continued) we have been prompted by the actual needs of plant breeding which involves some of the most

N. I. Vavilov

pressing practical problems in our large scale agriculture". To accomplish this task he assembled some 250 000 collections at Leningrad and the sub-stations of the Institute, and was thus in possession of an extremely important range of genetic diversity of crop plants and their wild relatives. Unfortunately, much of his material was lost during the Second World War in Leningrad. However, in the post-Vavilov era, after his death in 1943 and "rehabilitation" in the early 1950s many new collections have been assembled at his Institute.

The example that Vavilov set is very relevant to the world today. New standard high-yielding varieties have been substituted for the older diversity of

land races and primitive forms described and collected by Vavilov. This has caused "genetic erosion" or loss of crop plant diversity, making it of the utmost importance that what remains should be collected and conserved, using many modern techniques unknown in Vavilov's day.

Following on from Vavilov, several important lines of research and development have been taking place, based on three concepts.

The first is Vavilov's, in providing for the breeder as wide a range as possible from which he can select genes which confer valuable properties of disease resistance and adaptation and thus create better crop varieties.

The second is to preserve the world's crop plant diversity in gene banks the world over, for present and future use—a task that is urgent because of the virtual disappearance of this ancient diversity from vast areas where it was once common. Under this concept the conservation takes place because it is believed that important genetic characters may be needed both now and in the future.

The third concept, which was Vavilov's also, is to assemble crops and crop relatives in order to study the evolutionary processes by which crop plants were domsesticated from their original wild ancestors. This leads us to study their taxonomic and cytogenetical relationships and also to evaluate the archaeological evidence for the beginnings of agriculture on a world scale. This is especially relevant in such 'Vavilovian' centres as Southwest Asia (the near East), China, Mexico, and the South American Andes—where agriculture appear to have arisen essentially independently between 10 000 and 7 000 years ago.

We still approach these problems from a multidisciplinary point of view, as the Symposium on 26th November 1987 showed, ranging over present thinking and research stemming from many of Vavilov's ideas and pointing towards new developments in many of the fields to which he made such notable contributions.

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The visit of Pasteur to London

It is not generally realized that Louis Pasteur once visited London in order to study brewing methods. This was soon after the defeat of France by the Prussians in 1871. Pasteur, an authority on wine fermentation and a patriotic

Frenchman, was now determined to raise the poor quality of French beer and so oust the esteemed imported German variety. In order to study large-scale brewing he needed to come to London and so a visit was arranged by his French speaking friends, Alexander Williamson, Professor of Chemistry at University College London, Warren de la Rue, President of the Chemical Society, John Tyndall, the physicist with an interest in biology who was Professor at the Royal Institution, and a Frenchman who was a personal friend then living in London. Pasteur was 48, but far from well after a stroke four years earlier, when he arrived with his 20-year-old son at Victoria Station on 4th September 1871. There he was greeted by his friends who took them to the nearby Grosvenor Hotel.

The highlights of his stay were visits to the huge Whitbread's Brewery at Chiswell Street, in the City of London. Previously, important visitors had been content with a guided tour, when they would be shown the enormous Porter Tun Room constructed in 1782, with its magnificient King-post roof having an unsupported span of 20 metres. Here, porter, which was akin to stout and adored by Victorians, was fermented in large slate tuns or brewing vats. Later they would marvel at the huge Boulton and Watt steam engine used to grind the malt and pump the liquor, which had been installed by the great engineer John Rennie, F.L.S. in 1785; King George and Queen Charlotte had come especially to see the engine in 1787. But all this French professor wanted to do was to examine under his microscope a sample of barm from a cask of porter he had noticed. To the consternation of Samuel Charles Whitbread and his brewer and staff, after a brief examination Pasteur announced, "This porter must leave much to be desired", and to thrust in the point he added that surely customers had complained of the bad taste. Slowly it was admitted that problems had arisen in the brewing. Pasteur drew the offending microbes he had observed which were spoiling the beer. He instructed the brewer to look out for them so that he would then know when something was starting to go wrong: if this lesson were taken to heart, both the quality and production would be increased. Soon samples of barm were brought to him from all over the brewery, so that it resembled a police enquiry. A week later Whitbread's had purchased a binocular microscope recommended by Pasteur, which they still preserve, and had replaced their yeast. Later Pasteur commented "The English are a very practical nation, and their wounded feelings were soon assuaged by the benefit they derived from my criticisms." All he learned in London was included in his book *Études sur la Bière*, published in 1876. As a result of Pasteur's visit, Whitbread's were to establish one of the first control and research laboratories in a brewery.

Pasteur understood very little English, although he was an Anglophile, and so it was only during this visit that he learned from Tyndall of how Joseph Lister, then in Edinburgh, had based his work on antiseptic surgery (which was by then widely practised) on Pasteur's own findings on the microbial causes of fermentation and decomposition. Excitedly he wrote home to a colleague to procure the papers describing this work by a celebrated English surgeon. Probably Lister had sent him off-prints on publication, but because Pasteur did not read English or may have been ill he had not realized their significance at the time. Later Lister was to write to Pasteur and to congratulate him in person in Paris. In turn, Pasteur's interest and later major research on infectious

diseases stemmed from Lister's work on infection which he learned of by chance in London. Afterwards he came into close contact with medical colleagues in France.

Beer was brewed for the last time in 1976 at the Georgian Chiswell Street Brewery—when expansion and new technology were needed for lager production. It is now an historic listed building, and is used as a conference and banqueting centre. However, the building where Pasteur used his microscope and carried out experiments on fermentation, using special flasks provided by Whitbread's in a hastily set up laboratory, has long since been destroyed.

Acknowledgement

I am indebted to N. B. Redman, Archivist of Whitbread & Co. PLC for information on Pasteur's visit to London. The standard biography, by his son-in-law, is: Valley-Radot, R. (1920), *The Life of Pasteur*, Constable; London: translated from the French; see pp.210 and 237–240.

R. I. C. SPEARMAN

LIBRARY

The bicentenary programme of full day meetings will be continuing in the coming session and Fellows planning a full day in the Library are reminded to check their programme or telephone beforehand to ensure we have space and time to accommodate your needs. We can often save you time by getting older journals up from basement stacks beforehand so they are waiting for you. A telephone call the day before can also help in ensuring manuscripts are accessible.

It has been suggested to the Library Committee that Fellows may wish to contribute to the Library either by 'sponsoring' a book and contributing towards its cost, with first rights to borrow it and with a label recording the contribution, or by helping towards rebinding costs of older works. Both suggestions have been tried elsewhere with success and all comments would be welcome.

Donations

A large number of books relating to the life of Linnaeus have been received from the estate of the late Wilfrid Blunt, F.L.S. Many of these are annotated copies used in writing *The Compleat Naturalist; a life of Linneaus*. Some duplicate items are already held but these new ones are especially useful in that we can now use them as loan copies if required. Our thanks go as usual to all who pass

on back issues of journals, older books and reprints. Other specific donations include:

The author	Berry, R. J. *God and Evolution*, 189 pp. London: Hodder & Stoughton, 1988.
H. M. Burdet	*Complements de Prodrome de la Flore Corse; Plantaginaceae*. Geneva, 1988.
M. J. Burgis	Burgis, M. J. and Simoens, J. J. *African Wetlands and Water Bodies; Directory*, 650 pp. Paris: ORSTOM, 1987.
J. H. Crothers	Field Studies Council. *A Key to the Major Groups of British Terrestrial Invertebrates*, by S. M. Tilling, Taunton, 1987.
Mevr Gerth van Heukelom	Rich, P. V. & van Tets, G. F. *Kadimakara; Extinct Vertebrates of Australia*, 284 pp. Lilydale: Pioneer, 1985.
The author	Greig Smith, P. *Quantitative Plant Ecology* 3rd ed. 359 pp. Berkeley: University of California Press, 1983.
A. E. Gunther	Albert C. L. G. Günther. *Biologia Centrali-Americana: Reptilia & Batrachia;* reprinted commemorative edition, 326 pp. Ithaca: Society for the study of Amphibia & Reptilia, 1987.
The author	Hale, M. *Ecology and Environmental Education Initiatives in Britain*. London: PNL Press, 1987.
The author	Halstead, L. B. *Kinji Imanishi; the View from the Mountain Top*, 282 pp. Tokyo: Tsukiji Shokan, 1988.
G. Hardy	*Marine Flora of the Cullercoats area*, No. 22; flora, seaweed (Supplement).
Hunt Institute	*Catalogue of Portraits* . . . part 2A–D, compiled by Michael T. Stieber (and others), 387 pp. Pittsburgh, 1988.
P. B. Johnson	*Journal of Wood Science*, Vols 3–11, 1959–1987. *Journal, Institute of Wood Science*, Vols 3–11, 1959–1987.
The author	Lever, C. *Naturalized Birds of the World*, 615 pp. Harlow: Longmans, 1987.
The author	Matthew, K. M. *A Handbook to the Anglade Institute of Natural History, Shembaganur*, 82 pp. Tiruchirapally, 1987.
J. K. Morton	Morton, J. K. & Venn, J. M. *The Flora of the Tobermory Islands*, University of Waterloo Biology Series no. 31, 1987.
The author	Pilleri, G. *The Sirenia of the Swiss Molasse*, 114 pp. Ostermundingen, 1987.
G. Pilleri	*Investigations on Cetacea*, Vol. 20, 1987.
Review Copy	Plant, C. *The Butterflies of the London Area*, 199 pp. London, Natural History Society, 1987.

M. R. D. Seaward	*The Naturalist,* Nos 952–958, 960–976, 1980–1986. *Ornithological Reports, Yorkshire Naturalists Union,* 1981 & 1984. Seaward, M. R. D. *Census Catalogue of Irish lichens* (from *Glasra,* Vol. 8, 1984) 32 pp. Dublin, 1984.
The author	Schultes, R. E. *Where the Gods Reign; Plants and Peoples of the Colombian Amazon,* 307 pp. Oracle: Synergetic Press, 1988.
Singapore Int. Chamber of Commerce	Coates, A. *The Commerce in Rubber, the First 250 Years,* 380 pp. Singapore: Oxford University Press, 1987.
P. Tuley	Terry, P. J. *Some Common Crop Weeds of W. Africa and their Control,* 132 pp. Melbourne: Inkata Press, 1983.

Accessions

Other accessions include:

Adams, B. *The Flowering of the Pacific*, 194 pp. Collins/BM(NH), London, 1986.
Albertus Magnus, *Man and the Beasts, de Animalibus books 22–26*, translated by James J. Scanlan, 516 pp. New York State University, Binghamton, 1987.
Ali, Salim, *The Fall of a Sparrow*, 264 pp. Oxford University Press, Delhi, 1985.
Burgis, M. J. & Morris, P. *The Natural History of Lakes*, 218 pp. University Press, Cambridge, 1987.
Bown, D. *Aroids, Plants of the Arum Family*, 256 pp. Century, London, 1988.
Clutton-Brock, T. H. & Ball, M. E. *Rhum, the Natural History of an Island*, 159 pp. University Press, Edinburgh, 1987.
Cutler, D. F. & others. *Root Identification Manual of Trees and Shrubs*, 245 pp. Chapman & Hall, London, 1987.
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Eldredge, N. *Life Pulse, Episodes from the Story of the Fossil Record*, 246 pp. Facts on File, New York, 1987.
Fernando, C. H. (Ed.) *Ecology and Biogeography in Sri Lanka* (Monographiae Biologicae 57), 505 pp. Junk, The Hague, 1984.
Frost, C. *A History of British Taxidermy*, 157 pp. Lavenham (privately), 1987.
Metcalfe, C. R. & others. *Anatomy of the Dicotyledones*, 2nd edn, Vol. 3, 224 pp. Clarendon, Oxford, 1987.
Mozingo, H. *Shrubs of the Great Basin, a Natural History*, 342 pp. University of Nevada Press, Reno, 1987.
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Royal Dublin Society. *Nostra plena laboris, an author index to the R.S.D. scientific journals 1800–1985*, by Charles Mollan, 120 pp. Royal Dublin Society, Dublin, 1987.

Smith, K. G. V. & Smith, V. *A Bibliography of the Entomology of the Smaller British Offshore Islands*, 115 pp. Classey, Faringdon, 1983.

Thomas, B. A. & Spicer, R. A. *The Evolution and Paleobiology of land plants*, 309 pp. Croom Helm, London, 1987.

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Valdes, B. and others. *Flora Vascular de Andalucía Occidental*, 3 vols. Ketres, Barcelona, 1987.

Whitmore, T. C. & Prance, G. T. (Eds). *Biogeography and Quaternary History in Tropical America*, 214 pp. Clarendon Press, Oxford, 1987.

Book Reviews

N. BONDE, J. HOFFMEYER and H. STANGERUP (Eds), *Naturens Historie Fortaellere* ("The Storytellers of Natural History"). Two volumes: Vol. 1, 1985, *From Plato to Darwin*, 382 pp.; Vol. 2, 1987, *From Darwin's Synthesis to the Current Crisis*, 554 pp. [In Danish]. Gad: Copenhagen.

It is almost worth learning Danish just to read this book. It is by a team of authors (including philosophers, historians, biologists, palaeontologists, sociologists) under the direction of two scientists (Bonde, Hoffmeyer) and a professional writer (Stangerup). The result is superb and unique, and one must admire the publisher who agreed to produce this book for so limited a potential readership (there are hardly more than three million Danish-speakers in the world!). The general aim of the book is to depict the ways philosophers, scientists and the public have looked at Nature during the documented history of mankind. Thus the book is philosophical in a broad sense, but easily accessible to anybody. To sum up the spirit of the book, it will instruct the reader not in the evidence for evolution (for instance), but in how philosophers, scientists and the clergy have viewed that evidence, and in the use they have made of theories of evolution.

The first volume (from ancient Greece to Darwin) is particularly interesting because it deals with the early concepts on pattern in Nature and its genesis held by Greek and Roman philosophers (C. G. Tortzen and B. Westergaard), mediaeval philosophers (D. Gress), Arab philosophers (J. Moskvitin), and the pre-scientists of the Renaissance (J. Moskvitin). In most texts on evolution this topic hardly gets five pages; here it gets over eighty! This part is followed by C. H. Koch's most original chapter on the evolution of the concept of Nature.

The chapter on natural history from the Renaissance to the French Revolution (A. F. Maule and P. Wagner) seems more familiar, but that on the romantics, from Goethe to Owen (S. L. Tuxen), covers ground rarely trodden

in texts. J. Hoffmeyer gives a masterly review of Lamarckism from Lamarck to Lysenko, pointing out how the theory of the inheritance of acquired characters (which is by no means Lamarck's key theory) has lost its innocence with the passage of time! N. Bonde provides a very clear overview of the rôle of anatomists and palaeontologists in the rise of evolutionary ideas during the early nineteenth century.

"Darwin, the picture of the world is changing" is the title of B. Christiansen's chapter on Darwin's role in the development of Lamarck's theory of the reality of evolution. It is followed by an excellent chapter on species and their evolution from the philosopher's perspective by J. Ringaard. Biogeography is the subject of two chapters, one on general trends in historical phytogeography (O. Seberg) and one on the "geography of evolution" based on animal distribution (F. W. Braestrup). S. Løvtrup's chapter on ontogeny and phylogeny is short but gives a very clear account of the general question. Natural order, i.e. classification as imposed by Nature, is treated by N. Bonde and F. Rasmussen. This first volume ends with a unique chapter on how Darwinism has fared in Scandinavian countries—obviously a subject untouched by existing textbooks.

The second volume, from Darwin to the current crisis, is thicker and has more philosophical and sociological content, which makes it more controversial on many points. It begins with Mendel and mutations (B. Christiansen), neo-Darwinism and the modern synthesis (B. Christiansen), the genetic evidence of natural variation (S. Nørby), and ontogeny and epigenetics (S. Løvtrup). These chapters are clear and comprehensive, but yield no real surprises. The succeeding series of chapters under the collective heading "criticisms of neo-Darwinism" are to some extent a review of new ideas from the past decade which have altered, sometimes profoundly, the synthetic view: the modern concept of species (J. Ringaard), modern systematics (N. Bonde), punctuated equilibrium theory (N. Bonde and C. Heinberg), criticisms of the neo-Darwinian approach to speciation (C. Heinberg), vicariance biogeography (N. M. Andersen and B. Muus), thermodynamics and evolution (T. S. Sørensen), and finally, "the four theories of evolution", a pet subject of S. Løvtrup who explains very clearly why epigenetic events and isolation are more important form-makers than is natural selection.

Next comes a series of three chapters on facts in the evolutionary history of life. But rather than describing the palaeontological evidence for evolution, these cover key problems in the history of life or in new fields of palaeontology: the origin of life (B. Jørgensen), the structure and evolution of ecosystems or how to find an evolutionary pattern in them (C. Heinberg), and a remarkable chapter on the evolution of fact and ideas on the origin of mankind (B. Westergaard and N. Bonde).

The following set of chapters covering the goal of life is more philosophically orientated. First is a chapter on vitalism (J. Moskvitin), and second one on teleological explanations and finalism (S. Christensen). It ends with an excellent review of Karl Popper's views on evolutionary theory (F. S. Nielsen). The last and longest series of chapters, titled "Evolution and the human viewpoint", is certainly the most controversial but also the most humanist section of the two volumes. It includes topics such as behaviour and evolution (F. W. Braestrup), biological determinism and sociology (E. Schroll-Fleischer), faults and virtues of sociobiology (E. Gress), eugenics (E. Schroll-Fleischer), and human-oriented

evolution (J. Hoffmeyer). There is also a very interesting but alarming chapter on religion, evolution and the "monkey-trials" (J. L. Nielsen), and a charming one on how evolution and inheritance are perceived by children. Some of these contributions are pretty radical, particularly Gress's attack on sociobiology and social Darwinism. I particularly liked this piece because it ravages the fundamentals behind these 'philosophies' with their poisonous effect in western societies and their goal of justifying the formation and persistence of dominant castes and old-boy networks. I think no writing could be too radical to combat these ill-conceived and flawed ideologies.

In summary, these volumes are unique in offering a comprehensive review of all the questions that study and contemplation of Nature have raised in the human mind. It is therefore a monument to human knowledge and thought which should be read not only by the dominant caste of sociobiologists, but also by the man-in-the-street who will discover many ideas previously hidden by hermetic language. It is urgent and important for mankind that the book be translated into a more accessible language than Danish!

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JOHN FELTWELL, *The Naturalist's Garden.* London: Ebury Press. £12.95

This beautiful illustrated book contains colour photographs, prints and original watercolours by Valerie Baines, and is lavishly produced. One must admit, however, that it seems to be aimed at the general reader, rather than the specialist. Furthermore, the title is misleading, since the naturalist's garden in the sense we use it today is dealt with only in the last two chapters. The main part (Chapters 1 to 6) covers the history of gardens and gardening from ancient times to the present, the great plant collectors, the dates at which plants were introduced into England and the great gardeners of the late 19th and early 20th centuries.

Although the wealth of colour illustrations is breathtaking, the book suffers somewhat in being 'over-designed'. Particularly irritating are the various 'boxes' occurring on two-page spreads that break up the natural flow of the narrative. These 'boxes' could mostly have been incorporated into the general text without much difficulty, and where they could not, it would have been better to leave them out.

There are a number of factual errors or misprints, of which one or two may be cited. On page 36, for instance, 350 000 litres of olive oil do *not* equate with 77 gallons but 77 000 gallons! On page 38 *Buxus sempervirens* literally means that the plant is evergreen, not that it lives for a long time. On page 56 the birds assumed to be garden birds include such species as the red kite, the great crested grebe and the chough—surely never or only very rarely to be found in gardens. This looks as though the designer had included an attractive plate without

consulting the writer. There is an historical error about the Linnean Society on page 86. Again, there is an error on page 141 concerning the cuckoo pint (*Arum maculatum*) and the cuckoo-flower (*Cardamine pratensis*), on the latter of which the orange tip butterfly lays its eggs, not the former, we suspect. However, apart from these errors the book reads well and provides a wealth of interesting material for the general reader.

The second half of this book contains most helpful ideas for the naturalist gardener—for example, on the establishment of micro-environments for certain species and the need to retain the debris of the passing seasons. There is information on how to obtain seeds of wild plants, on where to propagate them and on good habitats in the garden for wild life, both fauna and flora. Again, the illustrations in this section are excellent. Above all, the love by the author for wild things transmits itself to the reader, who will be heartened by the knowledge that in our gardens by our own efforts we can help to save at least some of our threatened species of plants, birds, insects and mammals.

J. G. and E. B. HAWKES

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Compiled by John Selick

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