

## Editorial

The first Linnean Newsletter was compiled in November 1973, but in 1984 Council agreed to the publication of a more elaborate Newsletter to include the Society's Proceedings previously published in the *Biological Journal*. Council also thought that *The Linnean*, as it came to be known, might also serve to publish papers of a more general or historical nature deemed inappropriate for our other Journals. Such papers have now become an integral part of *The Linnean* necessitating a change in the layout of the newsletter (see 9(1)) so that each communication has its own title page. This modification has also allowed us to supply each author with 50 free reprints. Intending authors should consult the 'Instructions' published in the back of any of our three periodicals and note that all manuscripts are subject to the normal refereeing procedure.

Contributions can be sent to B.G. Gardiner, Life Sciences, Kings College, Campden Hill Road, London W8 7AH, or to the Executive Secretary at Burlington House.

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## Society News

Members will be pleased to learn that a crater on Venus has been named after the Manton sisters, Irene and Sidnie. Earlier in the year the Society received the residue of the late Professor Irene Manton's estate, which took the sum received from this source to over £200 000. Members will find it well worthwhile casting a grateful glance at the Evening Star.

In September 1992, Professor Pichi-Sermolli FMLS celebrated his 80th Birthday in Florence, and at least two Fellows were present to hear the Society's congratulations read out to the festive throng. The Society, in noting the event, offers one of its most distinguished Foreign Members every good wish for the future.

Members who have visited the Society's rooms recently will have found themselves inconvenienced by works associated with installing fire alarm and emergency lighting systems, courtesy of Property Holdings, part of the erstwhile Property Services Agency. Whilst the Executive Secretary, and his colleagues around the Courtyard, would be pleased to know just what has happened to the old PSA, at least who to write to when things go wrong, the Society is none-the-less grateful for this demonstration of concern for the Society's wellbeing, and hope that we do rather better as a consequence than our Patron. The new system will mean that the character of our house can be maintained without recourse to fire doors and fire hydrants. Since water is a more likely hazard than fire, it will be a relief to see the fire hydrant system capped and drained to avoid potential leaks from that source.

The appeal for the Dennis Stanfield Memorial Fund to enable research to be carried out in tropical African botany has passed £6000; further donations have been received from the following, to whom the Society is deeply grateful: The British Mycological Society, B.J. Harris, D.E. Iyamabo, F.H. Jaekel, R.W.J. Keay, Sir Peter Leslie, J. Lowe, J.K. Morton, J.F. Redhead, R.C. Steele, G.W. Stout, T.W. Tinsley, T.M. Trapnell, P. Tuley and B. Verdcourt.

The Society is also grateful for a donation of £100 to its general funds from M.C. Jacoby FLS.

## Society Meetings

**Onychophora 1992**, a Symposium on the Biology of the Onychophora, was held at Beaumont Hall, University of Leicester, September 1st 4th 1992. The aim of the meeting was to bring together the small group of scientists from around the world who work on this singular group of animals so that they could get to know one another and exchange ideas. This was the first meeting to be held that was devoted to the Onychophora. The symposium was opened by John Marsden, Executive Secretary of the Linnean Society. It might be assumed by many that are not familiar with the Onychophora that most of what there is to be known about the group was discovered in the 19th century. This meeting demonstrated very clearly that this is not the case! A wide range of topics from Cambrian lobopods to homeobox genes in a Costa Rican onychophoran and the evolution of mitochondrial genome size in a Jamaican species was covered. Papers presented included a review of the phylogeny, biogeography and reproductive trends in the Onychophora, a review of the problems



Participants in Onychophora 1992: Back row, left to right:- Eduardo Lopez (Costa Rica), Xianguang Hou (Academia Sinica), Bob Mesibov (Smithton, Tasmania), Volker Storch (University of Heidelberg), Tim New (La Trobe University, Australia), John Marsden (Executive Secretary, Linnean Society of London), Jan Bergstrom (Swedish Museum of Natural History, Stockholm), David Briscoe and Noel Tait (Macquarie University, Australia). Front row, left to right:- Claudia Brockmann and Hilke Ruhberg (University of Hamburg), Virginia van der Lande (University of Nottingham), Muriel Walker (University of Leicester), Marielos Mora (University of Costa Rica), Elaine Robson (University of Reading). Other participants not in photograph:- Neil Billington (Southern Illinois University) and Jonathan Wright (McMaster University, Canada).

of onychophoran taxonomy, allozyme evidence of extensive radiations of Australian Onychophora, reports of many new species in Australia and New Zealand, a reappraisal of integumental water exchange, primitive aspects of the nervous system, sperm development, embryonic development which in one African species is totally different from that described for all other species, and aspects of conservation of the group. Informal discussions were held on taxonomy and also the establishment of a specialist group for onychophoran conservation under the umbrella of the Invertebrate Conservation Task Force of the World Conservation Union.

Good food and the pleasant atmosphere of Beaumont Hall situated in Leicester University's Botanic Gardens provided an ideal environment for a very stimulating and enjoyable meeting. The participants were all in agreement that Symposia on the Onychophora should take place on a regular basis and the next is planned for Australia in 1996.

MURIEL H. WALKER FLS  
Symposium Organiser

The report of the meeting **The Impact of Global Change on Disease** held in September 1992 is being published as one of the Symposia of the British Society of Parasitology in the next few weeks by CUP (Journals Marketing Dept. Cambridge University Press, Freepost, The Edinburgh Building, Cambridge CB2 1BR) price £12. Members need to indicate their membership of the Society.

The end of March and the beginning of April mark two meetings of the Society's Specialist Groups. On the 31st March, the Palaeobotanical Group has as its subject **Evolution and Diversification in the History of Plant Life** and on 1st April the Palynology Group is discussing **Palynology in Stratigraphic and Botanical Research**. These meetings in the Society's rooms are free to those attending. The Society is grateful to Dr. Alan Hemsley FLS and Mrs. Madeline Harley FLS, the respective organisers of the two Specialist Groups for their care and interest in coordinating those activities.

The meeting on 5th April, now retitled **Parasitic Diseases of Fish** is in Leeds and forms part of the British Society of Parasitology's Spring Meeting there. Details from Dr. Judy Smith, Dept. of Pure and Applied Biology, The University, Leeds LS2 9JT. It is followed on 13-16th April by the meeting marking the 50th Anniversary of the Field Studies Council, now the publishers of the Society's Synopses.

Members will have seen details of the meetings **Sir Joseph Banks: A Global Perspective** and the **Biodiversity and Environment Brazilian Themes for the Future**. Both these meetings have been made possible by the generosity of governments, other Societies and companies to the tune of well over £20 000. It simply means that we now need people to turn up and attend them. The final scientific meeting of the session is on **Monocotyledons** on 18-23rd June at Kew.

The Society is hoping to organise a meeting on 5/6th May 1994 entitled **Biogeography, Ecology and Prehistory of the Pitcairn Islands**. This meeting will require substantial (£10000+) sponsorship, since it involves attendance by scientists from Australasia and the USA. From the latter we have had positive statements of

intent from Professors Diamond, Kirch and Stoddart, at the University of California. Dr. Michael Brooke writes: The isolated Pitcairn islands, at the extreme south-east of the Indo-West Pacific province, consist of four islands: Pitcairn itself (a raised volcanic island with ca. 50 inhabitants), Ducie and Oeno (low coral atolls, uninhabited) and the UNESCO World Heritage Site of Henderson Island (24° 20' S 128° 20' W; uninhabited raised coral atoll with considerable faunal and floral endemism). Having reviewed the few previous scientific studies in this archipelago, the Meeting will concentrate upon the scientific findings from the first long-term, multi-disciplinary field project to all the islands, the Sir Peter Scott Commemorative Expedition to the Pitcairn Islands, January 1991 to March 1992.

The studies concentrated on Henderson Island, the world's best remaining example of an elevated coral atoll ecosystem relatively undisturbed by man. It thus provides an ecological laboratory of universal value, which the Expedition's studies aimed to utilise to the full. In particular the combination of palaeoenvironmental and archaeological studies with contemporary ecological research reveals changes in ecosystem structure over time. Any thoughts on suitable sponsors from members would be most welcome.

## **Anniversary Meeting**

**On 24th May at 4 o'clock**

### *Agenda*

1. Admission of Fellows.
2. Minutes of the business meeting held on 6th May 1993.
3. Ballot for new Members of Council and for the election of Foreign Members, Fellows and Associates. Council nominations for members of Council are detailed on the enclosed leaflet, which also includes details of other nominations received.
4. Presentation of Medals and Awards. Council has made the following awards: Linnean Medal for Botany, Dr. Barbara Pickersgill (University of Reading); Linnean Medal for Zoology, Prof. Lincoln Pierson Brower FLS (University of Florida), Jill Smythies Prize, Caroline Mary Bates; Irene Manton Prize, Dr. William Justin Goodrich (University of East Anglia); HH Bloomer Award, David C. McClintock FLS; Bicentenary Award, Dr. Andrew Benjamin Smith (NHM).
5. Treasurer's Financial Report and Accounts for 1992.
6. Executive Secretary's Report and review of the Session 1992/93.
7. Results of Ballots for New Members of Council, Foreign Members and Fellows and Associates.
8. Ballot for Officers, including President-elect.  
Nominations include Professor J.G. Hawkes (President) Professor R.W.J. Keay CBE (Treasurer), Professor J. Green (Zoological Secretary). Dr. C.J. Humphries (Botanical Secretary) and Dr. D.F. Cutler (Editorial Secretary).
9. Presidential Address.
10. Results of Ballot for Officers.

11. Appointment of Vice-Presidents for 1993/94.

**The Anniversary Meeting will be followed by a dinner in Mark Masons' Hall, 86 St James's Street, W1, which will cost £27 a head, inclusive of wines. Seats for the dinner are limited to 55, and will be allocated on a first-come-first-served basis. A booking form is enclosed.**

### **Other Meetings**

On 5-8th April 1993, the Linnean Society is supporting a Polychaete Colloquium and Workshop in Cardiff, organised by the Polychaete Society. The meeting will examine representative specimens and try new keys for species identification. Further details from Dr. Chris Mettam FLS, School of Pure and Applied Biology, University of Wales, PO Box 915, Cardiff CF1 3TL. The **4th Congress of the European Union for Coastal Conservation** is meeting in Attika, Greece from 26-30th April 1993 (EUCC, c/o World Conservation Union, IUCN, Av. du Mont Blanc, CH-1196, Gland, Switzerland), and on 17-21st May 1993, there is the **5th International Conference on the Conservation and Management of Lakes** at Stresa, Italy (ILEC, c/o World Conservation Union (IUCN), above). The Royal Society is meeting to discuss **Production and Uses of Genetically Transformed Plants** on 26/27th May 1993 and on **Generalizing Across Marine and Terrestrial Ecology** on 6/7th July 1993. (071 839 5561). The Joint Nature Conservation Committee's Malvern International Conference on 17-24th July 1993 is entitled **Geological and Landscape Conservation** at Great Malvern (MIC93, Margaret Phillips, The Company, St. John's Innovation Centre, Cambridge CB4 4WS). The **4th World Academic Conference on Human Ecology** is in Merida, Yucatan, Mexico on 22-27th July 1993 (fax 010 52 99 26 05 45). The **15th International Botanical Congress** is in Tokyo on 2nd August - 3rd September 1993 (Diftours, 20 rue des Petits Champs, 75002 Paris, France, fax 010 33 1 42 96 15 34). The AAAS meeting **Science Innovation '93: New Techniques in Biomolecular Research** is on 6-10th August 1993 (fax 0101 202 289 4021). Two meetings in 1994 are **Biodiversity and Systematics in Tropical Ecosystems** which will deal especially with tropical arthropoda. It is in Bonn on 2-8th May 1994. The Linnean Society is also supporting **Compositae: Systematics Biology Utilization** which is at Kew on 24th July - 5th August 1994 (C. Jeffrey, RBG Kew, Richmond, Kew, Surrey TW9 3AB).

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### **Models in Phylogeny Reconstruction**

The Society is the co-sponsor of this three-day meeting to be held on 2-4th August 1993 at the Natural History Museum. Further details can be obtained from David M. Williams, Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD.

Professor David Hawksworth has asked us to draw attention to the meeting on **Identification and Characterisation of Pest Organisms (ICPO)** which is the third workshop on the ecological foundations of sustainable agriculture and which will take place from 9-11th June 1993. Further details from Prof. Hawksworth at the International Mycological Institute, Bakeham Lane, Egham, Surrey TW20 9TY.

## **The Society's Grants**

### **NERC Grants 1992**

It was agreed to recommend to NERC, and agreed by NERC, that the following applications should be supported:

Dr. Mark Purnell £400 in connection with photographic plates for a publication on Conodonts of the Lower Border Group.

Dr. Margaret Steentoft £630 for the production of photographic plates in connection with a publication on terete species of *Gracilaria* and *Gracilariopsis*.

Dr. RB Angus £700 for the cost of illustrating a paper in the *Coleopterists' Bulletin*.

The total of grants supported was £2030, which included £300, which was the cost of advertising the Grants in 1990, 1991 and 1992.

It was further agreed that the NERC Grant should be re- advertised in the autumn of 1992.

### **The Bonhote Bequest**

It was decided that £500 should be made available, subject to certain conditions, to Dr. G.S. Oxford for his work on colour polymorphism in Hawaiian spiders.

### **The Omer-Cooper Bequest**

It was agreed to provide £640 to Dr. Garth Foster to attend a meeting in Bordeaux on European water beetles.

### **The Appleyard Fund**

Awards were made to Mr. Terry Langford of £900 for work on the invertebrate communities in New Forest streams and to Prof John Vaughan of £220 to visit Wageningen to study special methods of food microscopy. It was agreed to support Dr Edmonds' application for £600 for work on the monographic revision of the genus *Toona* MJ Roem. (Meliaceae), Dr. Frame's application for £650 for attendance at the 14th General Meeting of the European Grassland Society and Dr. Gibson's application for £200 for work on the distribution of the two European cirratulid species of Dodecaceriaceae in relation to salinity.

The total commitment of the Appleyard Fund in 1992 was £1450.

Details of the Irene Manton Prize, the Jill Smythies Award and the Dennis Stanfield Memorial Prizes were published in *The Linnean* for January 1993.

Members' attention is drawn to the Oleg Polunin Fund for those, collectively or individually, wishing to undertake botanical/biological fieldwork, abroad or in the UK. Sums of up to £500 are available. Application should be made to the Headmaster, Charterhouse, Godalming, Surrey GU7 2DJ.

## **Biodiversity and the Society**

*The Darwin Initiative and the Forthcoming White Paper  
from the Office of Science and Technology*

Linnean Society members may remember that I published a summary of the House of Lords Select Committee Report on Science and Technology: Systematic Biology Research in the August issue of *The Linnean* and added a letter written on 2nd July.

In this letter I mentioned that the Society had been asked to provide ideas to the Office of Science and Technology for areas of research and development in systematic biology towards which funding should be directed, and I asked you for your comments and suggestions.

Over 30 Fellows wrote to me with useful suggestions, and I also received valuable advice from Past Presidents, and from the Officers and Council, as well as from the Natural History Museum and the Royal Botanic Gardens, Kew.

A final version was sent to Professor W. D. P. Stewart FRS, Head of the Department of Science and Technology on 6th November 1992. You will see from my letter that we have also received the support of the British Ecological Society, the Institute of Biology and the Systematics Association.

Our report, together with the covering letter and reply from OST, are reproduced below. I would like to draw your attention particularly to the second paragraph of LJR Dando's letter. It seems that the Society's report will be listened to and will be seen by other appropriate Government Departments.

Meanwhile, it will be noted that the Environment Secretary, Rt. Hon. Michael Howard MP, has announced funding for the Darwin Initiative (News Release, 16.11.92) of a total of £6 million over three years (£1M in 1993/4, £2M in 1994/5 and £3M in 1995/6). Details of how this money will be disbursed are not available at the time of writing.

NERC has also announced an *Initiative in Taxonomic Research and Training* which aims to help reinvigorate taxonomic research and training in UK Higher Education Institutions (HEI's). There will be *only three* (my italics) five-year packages, providing a total of some £2.2M over the five-year period. The closing date was 1st December 1992! Comments from various colleagues have expressed pleasure at the provision of this new money but many would have liked it to be spread more thinly, rather than restricted to three fortunate HEI's. However, there is no question but that the Government has come to realise the importance of systematic biology research and teaching as well as the need to provide global help for the conservation and sustainable use of natural resources. I look forward to receiving your further comments.

JACK HAWKES  
PRESIDENT

Professor W. D. P. Stewart FRS  
Chief Scientific Adviser  
The Cabinet Office  
70 Whitehall  
London SW1A 2AS.  
6th November 1992.

Dear Professor Stewart,

*White Paper*

*Linnean Society Proposals for Training and Research in Systematic Biology and the Conservation and Sustainable Use of Natural Resources*

I enclose herewith the final version of this Society's proposals for Systematic Biology training and research, as well as those on Biodiversity Conservation. We have expanded and clarified some of the original ones which we sent to you and added a few new ideas here and there. Should you wish to discuss any of our proposals with me personally, or through your personal assistants, it goes without saying that I shall be happy to do so.

The Presidents of the Systematics Association and the British Ecological Society have stated to me that our proposals have the approval of those organisations.

The President of the Institute of Biology has given me the following statement: *The Institute of Biology supports the recognition of the importance of taxonomic collections to underpin a wide range of biological research. It is vital to sustain systematic collections of organisms, both dead and alive, and to ensure an adequate supply of the necessary systematic biologists, both in the UK and overseas.*

Coming from organisations with a deep understanding of systematic biology, these expressions of support are most welcome to the Linnean Society.

With best wishes,

Yours sincerely,

Professor Jack Hawkes  
President.

*White Paper*

**Proposals of the Linnean Society of London for Training and Research in Systematic Biology and the Conservation and Sustainable Use of Natural Resources**

The Linnean Society welcomes Government initiatives in recognising the special strength of the UK's systematic collections and expertise, and the importance of studying living species and communities in world efforts to conserve the biodiversity of this planet. The Linnean Society of London will be happy to play a part in helping



the Government to achieve these objectives, and would be willing to advise the Government where appropriate.

The Society, many of whose members are systematic biologists, would furthermore like to emphasise the role of systematic biology in providing sustainable utilisation of natural resources in the many ways which they are currently used, and in diminishing the wholesale destruction of these resources that is now in progress.

The Society would like to make the following ten suggestions:

### **1. House of Lords and NERC Reports**

Strong support be given to implement the recommendations in both the House of Lords Select Committee Report *Systematic Biology Research* and the NERC Report *The New Taxonomy*. A clear distinction should be made between the support of research in systematic biology and the conservation of biological diversity.

### **2. Training in Systematic Biology**

Strong support be given to the training of systematic biologists at undergraduate and postgraduate levels. There is a need for expansion of appropriate courses and research degrees, with a few centres of excellence to be identified and funded appropriately. We strongly support the House of Lords and NERC Reports in this respect, as well as the new NERC initiative, which is an excellent beginning.

### **3. Training of Overseas Systematic Biologists**

Priority funding from sources such as ODA, which should be strengthened and expanded, should go to support training of overseas systematic biologists from the developing world and to give better assistance to them in their own countries. Grants and facilities should be provided where necessary for them to study in the UK, in the spirit of technology transfer at its most effective level, using all the expertise, libraries, collections, educational programmes and databases available.

### **4. Career Structure of UK Systematic Biologists**

We regard the revitalisation of the career structure for systematic biologists as of very great importance. More provision should be made for developing the career structure of systematic biologists in the UK. An expansion of the career opportunities for systematic biologists in our National Museums and the Royal Botanic Gardens at Kew and Edinburgh would be an appropriate first step. It is also important to encourage universities to make permanent appointments in systematic biology.

### **5. Core Funding for Systematic Biology Research**

Following on from Point 4, more core funding is urgently needed for systematic biology research, and in particular for supporting basic taxonomy, curation of collections, inventories and databases on the world's biological organisms to be allocated to organisations such as the Royal Botanic Gardens at Kew and Edinburgh, the Natural History Museum, the other National Museums in Edinburgh, Cardiff and Belfast, certain other regional museums and institutions (JNCC, etc.), as well as selected Universities.

### **6. Studies of Complete Ecosystems**

Special funding should be provided for the study of complete ecosystems ranging from those in the UK and Europe, to tropical, and subtropical terrestrial and aquatic

systems. Particular emphasis could be placed on the study of endangered areas and species, as well as isolated island biota. This should lead to strategies for the conservation and sustainable development of the areas concerned. Support for travel, subsistence and research funding for UK and national scientists from the countries concerned would form an essential part of this objective.

### **7. Nature and Biosphere Reserves**

Funding should also be made available to the appropriate agencies and scientists, together with indigenous peoples, to establish nature or biosphere reserves, and to support and extend those already in existence. In this way species conservation would also be improved (see Rt. Hon. Chris Patten MP's NERC Annual Lecture in November 1990).

### **8. Ethnobiology and Ethnopharmacology Research**

Government support should also be given to ethnobotanical, ethnozoological and economic botanical research, particularly in developing countries, by means of teams of systematic biologists, pharmacologists and others, both to make research and development results available to the indigenous peoples, so maintaining their cultures and the environment in which they live, and to provide short cuts to novel products of pharmaceutical and other industrial value.

### **9. Research and Development in *Ex Situ* Conservation**

Equally, Government should extend its support for research and development of seed and tissue culture conservation methods, and of cryopreservation of sperm and embryos, particularly of endangered species from forests and other environments in the developing world, and also for agriculturally significant genetic resources and the wild species related to them. This might well take place by the provision of earmarked funds through ODA to national and international programmes, as suggested in the ODA Report *Biological Diversity and Developing Countries*.

### **10. A Systematic Biology Funding Agency**

In order to fund the suggested expansion of research and development in the UK, and through its agencies such as ODA, as well as its collaborative work in the European Community, it is suggested that the Government should establish an independently funded SYSTEMATIC BIOLOGY AGENCY which would be empowered to disburse funding according to bids received from appropriate individuals and institutions. This would follow the House of Lords' Report 5.54, 5.55 & 6.45, but should extend over an initial period of at least ten years, rather than five. It is particularly important, in our view, that funding should be made available through such an Agency and not through the Research Councils. Past experience, confirmed by the House of Lords Committee (9.6), has shown that peer reviews in systematic biology for research applications through the Research Councils have been very unsatisfactory, because reviewing committees were largely composed of non-systematic biologists. We therefore strongly believe that an independent Agency is needed for systematic biology research funding, where peer reviews would be undertaken by those with experience in the field. We believe that the Linnean Society of London is constitutionally fitted to provide such an Agency and we would be happy to collaborate with the Government in this respect.

## REFERENCES

*Systematic Biology Research* HL Papers 22-I & II London:HMSO 1992.

*Evolution and Biodiversity: The New Taxonomy*. NERC May 1992.

*Conserving Biological Diversity* Ann. Lecture to the NERC by Rt. Hon. Chris Patten MP.  
November 1990.

*Biological Diversity and Developing Countries* ODA June 1991.

Professor Jack Hawkes

President

The Linnean Society of London

Burlington House

Piccadilly

London W1V 0LQ.

23rd November 1992.

Dear Professor Hawkes,

Thank you for your letter of 6th November to Professor Stewart, enclosing the final version of the Linnean Society's proposals for systematic biology training and research, and for biodiversity conservation.

A Government response to the House of Lords Select Committee report on systematic biology research is being prepared and will take account of the Society's timely proposals.

Your paper covers a wide range of issues which fall within the responsibilities of a number of Government Departments. I am copying it accordingly to the Departments of Environment and National Heritage, the Department of Education, the Ministry of Agriculture, Fisheries and Food, the Scottish Office, the ODA and NERC.

Yours sincerely,

LJR Dando  
Cabinet Office

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As the Society's submission to the OST was being prepared, the following letter was received by the Society:

"Ecuador is probably the richest country in the world in terms of biological diversity. Occupying only 0.2% of the planet's land area, it contains 10% of all the plant species on Earth. The richest forests of all are those of the Choco Phytogeographic zone which runs on the Pacific slopes of the Andes from northern Ecuador to Southern Colombia. It is at the southern end of this region that the Los Cedros Biological Reserve is situated.

However the deforestation rate in western Ecuador is very high and only 8% of the original forest cover remains. In many areas it has been reduced to a few isolated fragments of only a few hectares in size. The Los Cedros Reserve comprises 6400 hectares of primary forest and is contiguous with the largest remaining intact forest in western Ecuador, the 100 000 hectare Cotacachi-Cayapas Ecological Reserve.

The Los Cedros Biological Reserve is one of the projects of the Centro de Investigacion de los Bosques Tropicales (CIBT), a non-profit making foundation dedicated to the preservation of the tropical forests of Ecuador.

The reserve lies at between 1200 and 2000m in altitude and includes three major river systems and three ridge systems. The topography is steep with many V shaped valleys and sharp ridges, rising to the north to the Cordillera de Toisan, an outlying ridge running from the Andes and dividing the reserve from the Cotacachi-Cayapas National Park.

The reserve is entirely clothed in primary forest except for about 100 hectares in the bottom of Los Cedros valley which was cleared for pasture by the colonists who formerly occupied the area. The emergent crowns of the Cedro (*Cedrella* sp.) are a conspicuous feature of the forest, giving the area its name.

The vegetation ranges from premontane wet tropical forest in the river valleys to cloudforest on the ridges and peaks. The climate is wet for much of the year except for a dry season between August and November. Even during the dry season, the ridge tops remain cool and wet due to the almost constant mist. Preliminary work at Los Cedros has demonstrated an especially rich epiphyte flora, Araceae and Orchidaceae being particularly abundant. The bird list is currently about 160 species, including the Andean Cock of the Rock, Golden Headed Quetzal and Rusty Faced Parrot.

Mammals seen in the reserve include jaguarundi, puma, spectacled bear, mantled howler monkeys, white throated capuchins and brown headed spider monkeys. Periodically there are reports of jaguars eating cattle in neighbouring areas.

The frog fauna is montane in character with many species of *Eleutherodactylus* and *Centrolenella*. The snake fauna is probably diverse, although only 9 species have been seen so far.

The Los Cedros Reserve offers an increasingly rare opportunity to study intact Chocoan rainforest between 1200 and 2000m. The 100 ha of clearings in the valley bottom also present an opportunity to study and experiment with techniques of forest regeneration.

Two houses provided with basic furnishings are currently available to visiting researchers. One of these has an electric generator. All of these houses are adjacent to primary forest. Some basic equipment, including small mammal traps, extendible plant pruners, tent and walkie talkies are available to visitors, but they are advised to bring their own equipment, sleeping bags and mosquito nets. Visitors are responsible for bringing and preparing their own food, but a cook can be obtained by prior arrangement.

New facilities, a series of cabins in remote areas of the forest, and extensions of the existing houses are under construction. Over the forthcoming year it is planned to construct a purpose-built laboratory and develop a Centre for Neotropical Studies.

One of the objectives of the Centre is for the transfer of knowledge and expertise to Ecuadorian personnel, so overseas researchers will be encouraged to participate in seminars and courses and to include Ecuadorian counterparts in their teams.

Visitors are charged US\$5 per person per day and are required to send a copy of their research proposal to the CIBT in advance. Lower rates are available to Ecuadorian researchers.

Los Cedros is situated some 100km south east of Esmeraldas on the south western boundary of Cotacachi-Cayapas National Park. It can be reached from Quito by a five- hour bus ride to the town of Saguangal, followed by a six-hour walk. Buses leave four times a week from the Cotacallao terminal north of the airport. Visitors with their own car (4 wheel drive preferable) can find safe parking at a hacienda where the road ends and the path begins. Horses are available to carry personnel and equipment to the Reserve but need to be booked well in advance. Visitors should first call at the CIBT headquarters at 406 Gangatena, Quito (near Plaza Artigas and Hotel Quito) for information and directions. For further information write to Dr. Morley Read, Project Coordinator, Los Cedros, Centro de Investigacion de los Bosques Tropicales, Casilla 344-A, Surcursal 3, Ulloa y Ramirez Davilos, Quito, Ecuador (Tel: 565673, Fax: 568664).

### **Courses on Systematics**

We would like to draw to your attention on Easter Vacation course on  
**Cladistics: Theory and Practice**,  
which will take place at the Natural History Museum from  
29th March – 2nd April 1993.

This course will provide an intensive and comprehensive overview of cladistics and biogeography including character conflict and resolution, coding of characters, parsimony and analysis of molecular data.

A similar course entitled  
**Systematics and Biodiversity**  
will run from 5th – 16th July at  
King's College, Kensington.

This later course is designed specifically for 2/3year undergraduates and will provide the same 'hands-on' experience provided by the Easter Vacation Course and will be taught in conjunction with the Natural History Museum.

for further details of the Cladistics course contact  
*Mr Dave Williams, Department of Botany, The Natural History Museum,  
Cromwell Road, London Sw7 5BD. Tel. 071-938-8819; Fax. 071-938-9260.*

for details of the Systematics course contact  
*Prof. Brian Gardiner, Division of Life Sciences, King's College, Campden Hill  
Road, London W8 7AH. Tel. 071-333-4310; Fax. 071-333-4500.*

## Officers, Council and Committees 1992/9

|                 |                                                                                  |
|-----------------|----------------------------------------------------------------------------------|
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| VICE-PRESIDENTS | Professor P M Jorgensen<br>Dr K A Joysey<br>Dr D R Lees<br>Professor G L I Lucas |
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| SECRETARIES     |                                                                                  |
| Botanical       | Dr C J Humphries (1990)                                                          |
| Zoological      | Professor J Green (1988)                                                         |
| Editorial       | Dr D F Cutler (1991)                                                             |
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|                 | # Dr P E Ahlberg                                                                 |
|                 | o Miss C E Appleby                                                               |
|                 | - Dr R N Bamber                                                                  |
|                 | o Professor J A Beardmore                                                        |
|                 | o Dr P E Brandham                                                                |
|                 | # Dr J Cohen                                                                     |
|                 | # Dr M E Collinson                                                               |
|                 | o Dr Y Z Erzinclioglu                                                            |
|                 | - Mr B J Ford                                                                    |
|                 | # Professor D Ingram                                                             |
|                 | - Professor P M Jorgensen                                                        |
|                 | o Dr G McG Reid                                                                  |
|                 | o Dr P R Richards                                                                |
|                 | - Dr C H Stirton                                                                 |
|                 | # Dr J P Thorpe                                                                  |
|                 | o Due to retire 24 May 93                                                        |
|                 | - Due to retire 24 May 94                                                        |
|                 | # Due to retire 24 May 95                                                        |

Dr C J Humphries is the observer of the Systematics Association; the BES observer is Dr J H Crothers (1992).

|                                |                          |
|--------------------------------|--------------------------|
| EXECUTIVE SECRETARY            | Dr J C Marsden (1989)    |
| LIBRARIAN & ARCHIVIST          | Miss G L Douglas (1983)  |
| MEMBERSHIP OFFICER             | Miss M J Polius (1989)   |
| MEETINGS OFFICER               | Miss M J Baird (1990)    |
| HOUSEKEEPER/ LIBRARY ASSISTANT | Mrs E Dimitrova (1990)   |
| FINANCE OFFICER                | Mr Y Nithianandan (1991) |

## APPOINTMENTS

### Committee Chairmen

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Collections Curatorial | Dr K A Joysey (1968)                            |
| Editorial              | The Editorial Secretary (e.o.)                  |
| Finance                | The Treasurer (e.o.)                            |
| Flora Europaea Trust   | The Botanical Secretary (e.o.)                  |
| Grants                 | The President (e.o.)                            |
| Library                | Prof G L I Lucas (1975)                         |
| Medals and Awards      | The President (e.o.)                            |
| Programmes             | The Zoological and Botanical Secretaries (e.o.) |

### Curators

|                                |                      |
|--------------------------------|----------------------|
| Fish, Shells & General Zoology | Mr A Wheeler (1973)  |
| Insects                        | Dr M G Fitton (1976) |
| Plants                         | Dr C E Jarvis (1990) |

### Editors

|                    |                          |
|--------------------|--------------------------|
| Biological Journal | Dr H R Lees (1990)       |
| Botanical Journal  | Prof D Edwards (1991)    |
| Zoological Journal | Dr D B Norman (1989)     |
| Synopses Series    | Dr J H Crothers (1991)   |
| The Linnean        | Prof B G Gardiner (1980) |
| Reviews            | Prof J G Vaughan (1990)  |

### Specialist Group Secretaries

|                         |                            |
|-------------------------|----------------------------|
| Biogeography            | Dr I B K Richardson (1983) |
| Bryology correspondence | Mr J H Field (1983)        |
| Computer Applications   | Dr F A Bisby (1984)        |
| Freshwater              | Dr K T O'Grady (1986)      |
| Meiofauna               | Dr H M Platt (1987)        |
| Palaeobotany            | Dr A R Helmsley (1991)     |
| Palynology              | Mrs MM Harley (1990)       |
| Plant Anatomy           | Dr D F Cutler (1973)       |

### +COLLECTIONS CURATORIAL

Dr K A Joysey (Chairman; 1968)  
 Dr F R Barrie (1990)  
 Mr P S Davis (1985)  
 Dr M G Fitton (1980)  
 Dr C E Jarvis (1985)  
 Mrs S Morris (1980)  
 Dr N K B Robson (1977)  
 Dr MJ Scoble (1990)  
 Mr A Wheeler (1973)  
 The Librarian (e.o.)

### +LIBRARY

Prof G L I Lucas (Chairman; 1975)  
 Mr R E R Banks (Vice Chairman; 1985)  
 \*Mr J Collins (1990)  
 Prof P M Daniel (1987)  
 \*Mr R G C Desmond (1976)  
 Miss S M D Fitzgerald (1985)  
 Mr B J Ford (1990)  
 Mrs S Gove (1984)  
 \*Miss J Sheppard (1985)  
 Prof W T Stearn (1988)  
 Mr D P Taylor-Pescod (1985)  
 Dr P F Yeo (1987)

**EDITORIAL COMMITTEE**

The Editorial Secretary (e.o.)  
 Prof B W Fox (1989)  
 Mr C M Hutt (1989)  
 Dr V R Southgate (1988)  
 The Editors (e.o.)  
 The Editor, J. Zool  
 (Dr M Edwards: e.o.)

\*Dr A Richford )by  
 \*Miss B Sharma )invitation  
 \*Dr R S K Barnes )  
 (ECSA)

**FLORA EUROPAEA TRUST**

The Botanical Secretary (e.o.)  
 Dr S L Jury (1991)  
 Dr J R Edmondson (1990)  
 Dr S M Walters (1977)  
 The President (e.o.)  
 The Treasurer (e.o.)

**+GRANTS**

The President (e.o.)  
 The Vice Presidents (e.o.)  
 Dr S A Churchfield (1986)

**Informal Panels****JILL SMYTHIES AWARD**

The Botanical Secretary (e.o.)  
 Mr F H Brightman (1989)  
 Prof B W Fox (1989)

**EXPEDITIONS**

Dr L M Cook (1990)  
 Dr D J Galloway (1990)  
 Dr R W J Keay (1990)  
 Mr M J S Sands (1990)

**+PROGRAMMES COMMITTEE**

The Zoological Secretary (e.o.)  
 The Botanical Secretary (e.o.)  
 Dr J H Crothers (1984)  
 Dr M A Edwards (1991)  
 Mrs P D Fry (1991)  
 Dr JJD Greenwood (1990)  
 Mrs V M Purchon (1986)  
 Dr D Rollinson (1988)  
 Dr S M Tilling (1988)  
 Dr M W Trett (1991)  
 The Specialist Group Organisers  
 by invitation  
 Dr S Blackmore (Syst. Assoc.)

**+FINANCE**

The Treasurer (e.o.)  
 Mr F R Goodenough (1975)  
 Dr C B Goodhart (1975)  
 Mr B H Harley (1990)  
 The Chairman of the  
 Library Committee (e.o.)

**+MEDALS AND AWARDS**

The President (e.o.)  
 The Vice Presidents (e.o.)  
 Botanical ) Members of Council  
 Zoological) present at the January  
 Council Meeting

**DENNIS STANFIELD AWARD**

Dr P Denny (1989)  
 Dr R W J Keay (1972)  
 Dr R M Polhill (1985)

**IRENE MANTON PRIZE**

Botanical Secretary (e.o.)  
 Dr D F Cutler (1990)  
 Prof D Edwards (1990)  
 Prof M R D Seaward (1990)

+ The Officers are ex officio (e.o.) members.

\* Not Members of the Society



## Correspondence

National Museum of Natural History  
Washington DC

25.11.92

Dear Brian,

Sorry to have been so long in responding to your request for information on the lepidopterist Andre Avinoff.

Avinoff (or Avinov) was Director of the Carnegie Museum in Pittsburgh from about 1925 to 1949. Andre and his sister, both accomplished artists, came to the United States sometime around 1925 to 1930. Despite their knowledge and training, they had to work initially on a dairy farm. Andre published many papers, the most well-known of which is a revisionary treatment of the butterflies of Afghanistan published with Walter Swayder in 1950. He also collaborated with the botanist Otto Jennings. Andre "never married", but his sister did and became Mrs. Shoumatoff. She is best known as a portrait artist who painted industrialists and Presidents, including FDR.

Mrs. Shoumatoff had a son Nicholas, now about 80 years old, trained as an engineer but later becoming a writer for travel magazines and spending time in the Hindu Kush in the Caucasus. In the late 1930's, he and Uncle Andre travelled to Jamaica to make a butterfly collection. Nicholas had two sons, Nick and Alex. The younger Nick went "back to nature" and was adopted into an Iroquois nation tribe, but 3 to 4 years ago he went to the southern hills of Poland, married into a rural family and is a farmer. Alex, a writer, now in his 40s, wrote a three-part piece for the *New Yorker* in 1982, called "Of Russian Blood", telling the story of his family. I have not read the story, but Rawlins\* cautions that it is not entirely accurate, being a bit romanticized. Mrs. Shoumatoff's son Nick has an unpublished manuscript which he believes tells more accurately the family story.

Avinoff's papers and personal effects are at the Carnegie Museum and others are still with the elder Nicholas. Rawlins thought that a CV may be included, but he could not put his hands on it immediately. He was quite willing for me to send you his address and phone number and indicated he would be happy to provide further information. Avinoff would be a fascinating subject for a story in *The Linnean*. I hope you pursue it.

Best wishes,

Yours sincerely,

Lynne R. Parenti, Associate Curator

\* Dr. John Rawlins (who kindly supplied most of the information in this letter), Section of Invertebrate Zoology, Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, Pennsylvania 15213

EARTHWATCH EUROPE  
Call for research proposals

Last year, I started work as a volunteer in the EARTHWATCH office in Oxford and one of my first 'jobs' was to place requests for research proposals in various journals and newsletters. We had a number of enquiries but it became obvious that we had raised some false expectations by not explaining clearly how the system works. Earthwatch is an international charitable organisation which was founded in Boston, USA, in 1971 and its aim is to support field research anywhere in the world by providing volunteers who carry out fieldwork enthusiastically; they also contribute to the costs of the field programmes. There are nearly 100 000 members, mainly in USA but the European membership is increasing since the Earthwatch Europe office opened in Oxford in January 1990.

To obtain Earthwatch support, the proposed fieldwork must be labour-intensive and able to make good use of non-specialist field assistants, the Earthwatch volunteers. Each makes a financial contribution and the total collected from the teams of volunteers is the basis for the grant which Earthwatch pays to the Project investigators. Out of this grant, the investigators must pay the cost of accommodation, food and transport for the volunteers during field activities; volunteers pay for their own travel to and from the site. The Earthwatch grant also covers travel to and within the study site by the Project leaders. Any sum remaining after all these costs have been met is available to support the research. The typical per capita contribution of a volunteer is between £450 and £500; total grants made to Project investigators range from about £5,000 to £50,000, depending on how many volunteers are needed for their Project.

Field research located in or near an attractive place, with objectives that interest the general public and using many field assistants is most likely to gain a high grant. However, Earthwatch takes into account the scientific strength of each proposal and is able sometimes to increase grants. Sadly, some excellent proposals are rejected because the marketing experts consider that it would not be possible to attract a sufficient number of volunteers to carry out the Projects usually because of an 'unsympathetic' topic or geographical location.

Earthwatch supports basic and applied research at post-doctoral level and encourages interdisciplinary proposals. Research concerned with processes which shape the environment at the local, regional and global level and with biodiversity and how this is affected by human activities are especially welcome. All proposals are subjected to rigorous peer review. Proposals for fieldwork in spring and summer of 1994 should reach the office before 14 March 1993. Please write for further details to: The Science Programme Director, Earthwatch Europe, Belsyre Court, 57 Woodstock Road, Oxford OX2 6HU.

PEGGY VARLEY  
28 October 1992

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## From the Archives

Mousieur Daniel Destraz

pour remétre "Sille Luiplen" a Mademoiselle Catherine Destraz

chez Mousieur Coq Maitre Ebeniste au Degroz Du Marthe

Lausane.

April 14th 1792

Dear Uncle,

We are very much troubled and concerned at not hearing from you haveing sent three letters and had no answer, we know not what to think, sometimes we think you have not received them and at other times we think you have lost the regard you ought to have to us and do not care wether you hear from us or know as it is very extronary if you have not received one out of the three but it must be so for I cannot think you have forgot us quite but Dear Uncle remember we are but four left out of a numerous family and ought to cherish one another. It makes my Aunts very unhappy when they think they have but one brother left and he should slate them so therefore for Godsake whrite and let us all be happy in one another pray let us know how you are in health and how you get your liveing. You informed us your last you was learning the Printing Business wether you follow it still and get plenty of money and wether you are still with your Aunt and what you Father does if he has succeded in what he was a trying for pray make my respects to him.

Tell me if Business is pretty brisk at your part of the world for I assure you it is ve dull here at present this general war stoping the courant entirely but hope with the blessing of God it will soon flourish again.

My Aunts desires there kind love to you they still live at Kentish Town and are at present in very good health but not without troubles which we must all expect in this world.

I believe you know I am apprentice to a watch Maker and have served four years of my Time and hope with the blessing of God to be able to get my living decently.

Have got a very good Master and live in a very pleasant part of the Town near Soho Square.

I think of making a tour through the Uropean Kingdoms when I have served my time out and if you do not come to England before then which will be three or four years hence I will come and spend a little Time with you and we will take some pleasure together but we must not think of that the time being at to great a distance of and a great many things may happen between this and then.

Adeau mon chare Oncle je nae plus rien a vous dire a present qua cous voiter la santes de que j'atons avec impatience pourvotre reponse.

Your Efectionate Nephew

Lewis Rosey

P.S. Please to direct as before to Rosey at Mrs. Boyer little Compton Street Soho.

*Note Found among the archives of the Linnean Society. Can anyone shed any light on Lewis Rosey or his Uncle?*

## Picture Quiz



"The greatest have not disdained to labour honestly and usefully for a living"

The January Quiz (9 (1):11) figured Charles Doolittle Walcott (1850-1927) on the occasion of his visit to Burlington House to receive the Bigsby Medal of the Geological Society.

Charles Walcott was born at New York Mills, Oneida County, New York and educated in the local public schools. At 17 he commenced work as a clerk in a hardware store then at 21 changed career completely when he entered into an agreement with an enlightened local farmer at Trenton Falls, who gave him board and lodgings with time off for study, in return for casual labour and help with his accounts. Over the next five years Walcott not only assiduously studied geology but also built up an impressive collection of Trenton fossils. His collection was such that it even attracted

the attention of Louis Agassiz. In 1876 Walcott was given the opportunity he had been waiting for when James Hall the New York state geologist made him his assistant. Then two years later he was appointed field assistant with the newly organized United States Geological Survey. He remained with the Survey for the next 28 years, eventually becoming Director on the retirement of Powell in 1894. He was a brilliant administrator and at the time of his resignation in 1907 the annual appropriations for the support of the Survey had more than tripled. He also convinced Congress that the Survey should be studying national forests and was responsible for seeing through the establishment of both the Forest Service and the Bureau of Mines.

Despite the demands made upon him, and his ever increasing administration load, he still found time to return season after season to the Canadian Rockies. It was there that he made the most striking of his field discoveries – the Middle Cambrian Burgess shale of British Columbia – with its undreamed-of wealth of invertebrate remains still retaining recognisable impressions of their softer parts. From these beds alone he described over seventy genera and a hundred and thirty species.

In January 1897 he was appointed Acting Assistant Secretary in charge of the United States National Museum while continuing to head the Survey. His close contact with Congress was soon to benefit the National Museum – for in August 1898 he was warned by The Speaker of the House (Joe Cannon), whom he frequently escorted along Pennsylvania Avenue – “Walcott, you may have a building for the Survey or one for the National Museum, but you can’t have both”. Walcott took the Museum.

In January 1907 Walcott was appointed Secretary of the Smithsonian Institution and so became involved not only in the growing activities of the National Museum and Zoological Park but also in the many other governmental bureaus administered by the Institution. He was also active in the founding and organization of the Carnegie Institution in Washington (see *Linnean* 9 (1):10) becoming successively Secretary and Chairman of the executive committee of the board of trustees.

After World War 1 he took an active part in inaugurating the air-mail service and in organizing work in surveying and mapping by aerial photography.

In the early 1920’s when anti-evolution laws were being passed by many States, Walcott fought surreptitiously against them and while the exhibits of that period in the National Museum did not actually use the word evolution, they were designed so as to convey the ideas of both variation and change. Surprisingly it took more than half a century from the time of Walcott’s death (1927) before the word EVOLUTION was used in a Museum display (1979). And then the Smithsonian Institution had writs taken out against it and was openly sued. However, the United States District Court ruled that the exhibit came under the “increase and diffuse” mandate of the Institution as laid down in the original will of James Smithson. So ironically the will of the bastard son of the Duke of Northumberland, who never set foot in the U.S.A. overcame the petty prejudices of the deep South when the *Dynamics of Evolution Hall* was declared “not a religious display” by the Appeal Judge Justice Oberdorfer. Walcott would have been pleased with the outcome since he was a great admirer of Smithson (and Carnegie) and very proud of his English forebears (being a descendant of William Walcott who emigrated to Salem in 1637).

James Smithson, M.A., F.R.S. (1765-1829) otherwise known as James Lewis or Louis Macie was born in France his mother having been sent there to avoid the disgrace of his illegitimacy. His father, Hugh Smithson (who afterwards assumed the name of Percy and the first Duke of Northumberland of the third creation) eventually brought them both back and arranged for James to be naturalised. James Macie Smithson as he was now known was sent to Pembroke College, Oxford where he studied chemistry and mineralogy. His early entry into the Royal Society was effected by his mentor – Henry Cavendish (discoverer of hydrogen) the nephew of the Duke of Devonshire.

A man of ample fortune, Smithson passed most of his life on the continent – Berlin, Paris, Rome, Florence and Geneva where he associated with men of similar taste and corresponded with such luminaries as Joseph Banks. When he died in 1829 he left his estate in trust to his nephew Henry James Hungerford with the bequest that on his nephew's demise (providing he left no issue) the whole of his (Smithson's), property (including library, mineral cabinet and herbarium) should go "to the United States of America, to found in Washington . . . an Establishment for the increase and diffusion of knowledge among men\*". In the preamble to the Will (dated 1826) Smithson maintained that he was a descendant in blood from the Hugh Smithson who had been granted a barony in 1660 by Charles II. He also explained that his father had married Lady Elizabeth Seymour who was descended through the female line from the ancient Percys and that his brother (and successor to the title) – Lord Percy had been present (as a British Officer) at both the first battle of the War of Independence and at Bunker's Hill.

On the 17th of December, 1835, Andrew Jackson, President of the United States, passed to both Houses of Congress, the following message:

I transmit to Congress, a report from the Secretary of State, accompanying copies of certain papers relating to a bequest to the United States, by Mr. James Smithson of London, for the purpose of founding at Washington, an establishment under the name of the 'Smithsonian Institution for the increase and diffusion of knowledge among men'.

This message, with its enclosed papers was then referred to a select Committee (in each House), who reported in favour of the acceptance of the bequest and of the trust. The Committee, however, found that it was not very clearly defined to whom on behalf of the United States, the property should be paid or transferred. So they drafted a bill (passed 1st July 1836) enabling the Executive (viz Attorney General) to prosecute without delay the claim of the United States to the Smithson legacy. Then on the last day of that Session of Congress (7th July) they managed to get through a further act allowing the Secretary of the Treasury to invest all the monies from the Smithson bequest in Stocks of States.

\* As John Quincy Adams (U.S. President 1825-29) wrote in his diary for Jan. 10, 1836 "how he come to have a nephew named Hungerford, son of a brother named Dickinson, and why he made this contingent bequest to the United States of America no one can tell."

On the 1st September 1838 the sum of one hundred and four thousand nine hundred and sixty pounds, eight shillings and sixpence Sterling, all except the change, in gold was deposited at the Mint of the United States at Philadelphia.

There then followed considerable argument as to how this money should be used – with most members of the Government favouring the establishment of an Institute of Education (college, school, ecclesiastical seminary etc.) with the expenditure of the Capital fund. But fortunately the Select Committee of the House of Representatives (9 members chaired by John Quincy Adams) decided that the capital should remain inviolate. Furthermore they maintained that “It was not then the intention of Mr. Smithson to commit a trust of more than half a million of Dollars, for the increase and diffusion of knowledge among men to the United States of America, because they wanted learning. The object the requisition of which it was his purpose to promote was not learning but knowledge. The persons for whose ultimate benefit he bequeathed his whole Estate were not the children of the American people, but the whole race of mankind”.

The Smithsonian Institute began to take shape in the Spring of 1846 when a bill to establish the Smithsonian was taken up. It was finally passed by the Senate on August 10, 1846 after some 10 years of argument, log-rolling, and debate 26 to 13. On Saturday, May 1, 1847, the cornerstone of the Smithsonian Institution building was laid. John Quincy Adams witnessed the event with the knowledge that “one of the noblest benefactions ever made to the race of man” had finally been directed into the channels its donor intended.

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## **“Stiffen the Sinews, Summon up the Blood!”**

*William Shakespeare: Henry V: III, 1.*

Brian Gardiner’s fascinating paper on “Lignum Vitae: the Tree of Life”<sup>1</sup> made me realise, as never before, what an “Admirable Crichton” this plant is in its multivarious uses. My Grandfather used it in winning the Springfield Cup for bowls, in 1904, and my Father, a sculptor, used mallets faced with the wood. It occurred to me that there are even more ways in which this tree has been – and is – important, in the fields of Forensic Science and Chemical Pathology: the recognition of blood-stains and the presence (or absence) of blood in the body fluids and faeces – still referred to somewhat dramatically as “occult blood”.

Planche (1810, 1823)<sup>2</sup> showed that extracts of various plant roots contained oxidising enzymes, as they gave a blue colour with “tincture of guaiacum” (an alcoholic extract of gum guaiacum from species of *Guaiacum* trees, and which contains guaiaconic acid). This is perhaps the earliest recorded isolation of an enzyme. Later, in 1863, Schönbein<sup>3</sup> used tincture of guaiacum to demonstrate the presence of blood on stained clothing and on various weapons. No other coloured substance gives this reaction – a fine blue colour – and which is very sensitive. The test has been variously known as van Deen’s test, or as Day’s test (Dr John Day of Geelong) but there is

little doubt that Schönbein has priority.

The test was – and is – applied by scraping off some of the stain into distilled water (or soaking the fabric), adding a few drops of freshly prepared tincture of gum guaiacum followed by some “ozonised ether” or turpentine (or 3% hydrogen peroxide), when a blue colour develops in the presence of blood. Sensitivity about 1:100,000. [It should be explained that “ozonised ether” was ether shaken with 20 vol hydrogen peroxide and “ozonised turpentine” was turpentine which had been exposed to the air for some time!]

Glaister (1921)<sup>4</sup> warned that the guaiac test – as it became known – is a valuable *negative test* only, since milk, sweat, semen and bile also give the test, and it might therefore be challenged in a Court of Law. However these fluids are not red, and an astute counsel could surely object – especially if spectroscopic and other evidence were offered.

The guaiac test can be refined by using guaiacol (the monomethyl ether of catechol) or guaiaconic acid, both of which are contained in the gum and incidentally in the crude creosote of beech-tar.

The blue colour given by the positive guaiac test is probably due to the formation of a quinone-imine dye, and is dependent upon the chelation of iron within the porphyrin ring – the test is not given by free porphyrins or bile *pigments*.

In modern times the guaiac test is still used by many chemical pathologists, especially since the alternatives – benzidine and o-tolidine – are now shown to be carcinogens. In some texts the test is described as: “A solution of the powdered gum – a pocket knifepointful in alcohol (*sic*) with hydrogen peroxide in ether is used to detect occult blood in urine, stools and gastric fluid.”. The instructions are still unfortunately redolent of the kitchen: “The stools are mixed with water to the consistency of thin porridge” or “a lentil-sized piece of stool is smeared (!) as fine as possible in a small evaporating dish” etc. Though somewhat hardened by age I have always found such instructions distasteful!

On a brighter note I will quote a passage from one of the great stories by Dr Richard Austin Freeman, who died in 1943 at the age of 81. I had the great pleasure to know Freeman whose books, featuring the unique Dr John Thorndyke, are models of fine detective writing. There is none of “The room was cluttered with retorts and test-tubes” – but detailed descriptions of methods. I remember learning “The Life-history of the Liver-fluke” in one of the books, described with such sparing clarity that I have often referred students to it<sup>5</sup>. Dr Freeman told me that he had never sought wide popularity, but wrote for the entertainment of “people like yourself in the scientific and medical professions.”

In the novel “The Shadow of the Wolf”<sup>6</sup> (1923), a yachtsman, Varney, and his blackmailing partner are sailing near the Wolf Lighthouse, when, taunted beyond endurance, Varney shoots him and pushes him overboard, but not before a large blood-stain had formed on the duck sail – including a bloody imprint of Varney’s hand. He tries to scrub the stain away with marine soap and water until the marks are very faint. Some time later, Thorndyke examines the sail in the boat-house.

“Thorndyke brought forth two bottles, one labelled ‘Tinct. Guaiaci Dil’ and the



other 'Aether Ozon'. Philip remarked: "I shoudn't have thought that the guaiacum test would be of any use after all these months, especially since the sail seems to have been scrubbed".

"It will act, I think, if the pigment or its derivatives is there", said Thorndyke, and as he spoke he poured a quantity of the tincture on the middle of the stained area. The pool of liquid rapidly spread considerably beyond the limits of the stain, growing paler as it extended. Then Thorndyke cautiously dropped small quantities of the ozonic ether at various points around the stained area, and watched closely as the two liquids mingled in the fabric of the sail. Gradually the ether spread towards the stain, and, first at one point and then at another, approached and finally crossed the wavy grey line; and at each point the same change occurred: first the faint grey line turned into a strong blue line, and then the colour extended to the enclosed space until the whole area of the stain stood out a conspicuous blue patch. Philip and Thorndyke looked at one another significantly and the latter said: "you understand the meaning of this reaction, Rodney; this is a bloodstain, and very carefully washed bloodstain".

"So I supposed", Rodney replied; and for a while no one spoke.

There was something very dramatic and solemn, they all felt, in the sudden appearance of this staring blue patch on the sail with the sinister message that it brought. But what followed was more dramatic still. As they stood silently regarding the blue stain, the mingled liquids continued to spread; and suddenly, at the extreme edge of the wet area, they became aware of a new spot of blue. At first a mere speck, it grew slowly, as the liquid spread over the canvas into a small oval, and then a second spot appeared by its side. At this point Thorndyke poured out a fresh charge of the tincture, and when it had soaked into the cloth cautiously applied a sprinkling of ether. Instantly the blue spots began to elongate; fresh spots and patches appeared and as they ran together there sprang out of the blank surface the clear impression of a hand—a left hand, complete in all its details excepting the third finger, which was represented by a round spot at some two thirds of its length.

The dreadful significance of this apparition and the uncanny and mysterious manner of its emergence from the white surface produced a most profound impression on all the observers. . . . "It is Varney's hand!" cried Philip . . . "Yes I agree with you" (said Thorndyke) . . . "that this is undoubtedly the print of Varney's hand". "Then", said Rodney, "the case is complete".

#### REFERENCES

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1823. *Jahrbuch d. Chem. u. Physik* (Schweiggers) 9: 444.
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G.Y. KENNEDY

## Sir J.D. Hooker's Mantuan Medal

During an attendance of the Council meeting some years ago, I was surprised and pleased to see that the "Mantuan Medal" awarded to Sir J.D. Hooker was being preserved by the Linnean Society in its archives. The origin of this medal is probably less well known to Fellows than others in the archives. During my research into the origins of certain Victorian collections of plants and geological specimens, I chanced to come across the details of the somewhat unusual history of this particular award.

A characteristic feature of natural history collectors of the Victorian era was the urge to collect and possess a large private "museum" of natural history objects. The



motives for such acquisitiveness was either to compile a comprehensive descriptive listing of the subject under study for genuine scientific enquiry or to acquire something rare or unique to impress or baffle influential friends. It is not clear which of these two motives fired the activities of Mr Charles Ottley Groom, born in Merchiston, Tobago on the 14th May 1839, eight and a half months after the premature death at twenty five years of age, of his father, Charles Edward Groom, a planter. Charles Ottley appears to have lived his whole life with his mother, who succeeded him and who never remarried.

From around 1860, he begun to assume a series of increasingly grandiose titles. In succession he became Mr C.O., Groom-Napier,\* Duke of Mantua and Montferrat, Prince of Mantua, Montferrat and Ferrara, Nevers, Rethel and Alencion, His most Serene Highness etc., etc. His mother also assumed (or was given by her son) the title

\* see letter from Owen; *Linnean* 7(2):19

of Duchess of Mantua and Montferrat. Their leather bound pedigrees detailing their evolution from Adam are recorded and can still be seen in the British Library, and it is not surprising that many illustrious Greek Gods are included.

Many collections of fossils, plant and geological materials exist in UK museums, of undoubted quality, with the familiar oval 'His Most Serene Highness' stamp or M. & M. or HMSH labels.

The medal was commissioned by the "Mantua and Montferrat University and Medal Fund" which held one of its annual meetings in Exeter Hall on Friday, 15th June 1883 at 3.0pm. As often the case, the "Prince" was indisposed for the meeting, and a Mr



A.M. Mocatta, M.A. chaired the meeting and he called on his Secretary, Baron F. von Muller to read the report to the Council. The history of the medal was described. It was said to have been first issued by Louis Gonzaga, Capt of Mantua in the fourteenth century, to recognise merit in the arts, letters and science amongst eminent men and had been continued by the 'Marquises and Dukes of Mantua'. The Baron then submitted a roll of parchment which recorded the names of previous recipients of the medals during four centuries. These included Raphael, Michelangelo, Mantegna, Racine, Moliere, Cervantes, Camoeus, Erasmus, Camden, Rubens, Francis Bacon, Lope de Vega, Napier (the inventor of logarithms), Edmund Spencer, etc. A Professor Crum then testified to the immense value of the Fund.

The report then announced that twenty medals had been granted by the Prince, all recipients having replied and sent him photographs of themselves as he had requested, for his album. These included Professor Richard Owen (whose medal is included in his collection now at the British Museum), Professor Ruskin, Prof H. Milne-Edwards and A. Milne-Edwards, Mr W. Spottiswoode, Prof A. Agassiz, Earl of Inniskillin,

Prof John Tyndall, Dr W.B. Carpenter, C.B., Sir Joseph D. Hooker, Sir Frederick Leighton, Mr J.E. Millais R.A., Mr Holman Hunt, Mr Alfred Tennyson, Mr H.W. Longfellow, Prince Lucien Bonaparte, Mr J.A. Froude, His Eminence Cardinal Manning, His Grace the Duke of Argyll and the Earl of Shaftesbury. All the replies were received by the Prince in 1882 and 1883.

Sir Joseph D. Hooker was awarded the medal for “geographical botany” and his reply to the ‘Prince’ was sent from Kew on the 4th Oct 1882. Regrettably a copy of this letter cannot be traced in the otherwise carefully maintained correspondence file of Hooker, but he is said to have received the medal with “guarded courtesy”.

The medal was cast by Baddeley Bros in London, around 1881 and is made of copper gilt (sp.gr 8.9). The obverse has the head of the “Prince” facing left, a bearded balding man, with the inscription HMSH the Prince of Mantua and Montferrat surrounding it. The reverse lists some of the most famous persons that have alleged to have received the medal in the past.

The purpose of the Trust was clearly to expand Groom’s own collection, as this was clearly stated in a memorandum printed for private circulation in 1883. It declared “The Prince of Mantua and Montferrat and Council of the Mantua and Montferrat Fund, with a view of promoting research in the eight branches of study named above (list of broad natural history subjects), have decided to confer eight medals on the eight persons who shall most help them in procuring specimens and information necessary for the works (above named) but the granting of such medals must be entirely within their power”. I cannot confirm if these medals were additional to the twenty already distributed and if so, to whom they were eventually awarded. There were several very pointed articles written at the time in the Press regarding the distribution of some of these medals, directed towards the giver rather than the recipient.

There is much more however to the eccentric life of this man. A humorous but not entirely accurate account of his notorious life was written by C.C. Osborne in the *Cornhill Magazine*, 1912. In that article, Mr John Storrie was described as being employed by Groom for a few weeks and described his stay as “having to incorporate a lot of second hand rubbish, picked up at auction rooms, into a decent looking collection” at apparently little or no pay! This does not seem to accord with many of the fine examples of plant and geological material stamped with his name in several collections throughout British museums.

It was perhaps inevitable to read in the *Standard* in 1890 the announcement of his bankruptcy. He died four years later and his large collection was sold in several lots by his mother over the following couple of years. By then he had become Charles de Bourbon d’Este Paleologus Gonzaga!

BRIAN W. FOX

### *Postscript*

I am compiling a biography of C.O. Groom and any information on his collections and writings and especially any correspondence relating to him would be very much appreciated and duly acknowledged.

## **‘Doing his botany in the intervals of fiddling’**

F.O. Bower’s distinguished contributions to botanical morphology require little emendation. In a research career extending over some 57 years his published works run to some 100 pages and 12 books. His books include *Origin of a Land Flora* (1908), regarded as the most important book on botanical morphology of the time. Notably, even A.H. Church, who in 1919 produced an opposing theory on the same subject in his *Thassiphyta and Subaerial Transmigration*, informed Bower in the same year that *Origin of a Land Flora* was ‘...the only work of English Botany that has any constructive brains in it’<sup>1</sup>. The book remained a source of pride to Bower, along with his 3 volumes on the Ferns (1923, 1926, 1928) and *Primitive Land Plants* (1935). As W.H. Lang commented in his Bower obituary,<sup>2</sup> ‘...his scientific work was pursued not as a duty but as the greatest and most continuous pleasure of his life’. Lang also noted, however, that ‘Music was always a great interest and pleasure’. Hence the comment which forms the title of this article, an aside from another source which was treasured by Bower<sup>3</sup>.

These musical interests were of long standing. The family home in which Bower enjoyed a secure and wholesome childhood was a spacious house called Elmcrofts, part of a small estate on the outskirts of Ripon. After the sale of the estate the original house was enlarged as the Spa Hydro Hotel, and this in turn was further enlarged as the present Ripon Spa Hotel. Frederick Orpen Bower was the youngest of five children of Abraham and Cornelia Bower. There were three sisters, Sophia, Caroline and Henrietta, and a brother one year and nine months the elder, Herbert Morris. Music was an integral part of life at Elmcrofts. Herbert was taught the violin and F.O. Bower the ‘cello, and they benefited from some concerted playing at home with instruction from the then organist at Ripon Minster, a Mr. Bates. These musical interests were to be further encouraged with the two boys at their public school, Repton, between 1868 – 73 by the Headmaster, Dr. Steuart Pears. With another boy violinist named Chamier they performed string trios by Corelli at school concerts. The full flowering of their musical endeavours came with entry to Trinity College, Cambridge. Herbert Bower took up residence in October 1873 to read Moral Sciences, and was followed by Frederick Orpen one year later to read for the Natural Sciences Tripos. He had resolved to become a botanist in his last term at Repton whilst sitting on a pile of stones at a roadside.

The two brothers met Charles Villiers Stanford at Cambridge during the 1874-75 academic session. Stanford was then 23 years of age and organist at Trinity College, and newly returned from a period of study in Germany. In 1875 the two brothers were joined by two keen violinists, C.F. Abdy-Williams and W.H. Blakesley; Herbert Bower meantime had taken up the viola, whilst Frederick Orpen kept to the ‘cello. This quartet had their practice sessions in a room in the Great Court tower of the College, with some coaching by Stanford. These sessions were of sufficient note to be remembered by Stanford in his *Pages from an Unwritten Diary* (1914)<sup>4</sup>:

‘...This devoted four (an undergraduate string quartet) used to practise assiduously into the small hours of the morning, in rooms in the Great Court Tower of Trinity facing the Chapel. They played steadily

through all the quartets of Hadyn and many of those of the other great masters. I well recollect hearing about midnight a blood-curdling sound issuing from the upper windows, which resolved itself into the 'Terremoto' from Hadyn's 'Seven Last Words'...'.

Whilst practice may not have made entirely perfect, the four instrumentalists were sufficiently confident to give weekly concerts to select audiences on Wednesday



The 'Cambridge quartet' at rehearsal in the garden of Elmcrofts, Ripon, said to be about 1880. The significance of the silver cup is unknown.

From left to right: H.M. Bower (viola), W.H. Blakesley (violin), F.O. Bower ('cello), C.F. Abdy-Williams (violin).

evenings in a room in the Cambridge Guildhall, events which were to become known as the 'Wednesday Pops'<sup>5</sup>. These concerts were distinct from those of the University Musical Society, and were supported financially by Trinity College. These Wednesday concerts, organised from Herbert Bower's room, were the beginnings of the Cambridge Musical Club. On occasions other members of the University joined the four as pianists when quintets were performed, including Stanford, G.M. Garrett, organist at St. John's College, and G.F. Cobb, a Fellow of Trinity College. C.V. Stanford was to become Professor of Composition and Orchestral Playing at the Royal College of Music (1883

– 1924), and to include Ralph Vaughan-Williams, John Ireland and Arthur Bliss amongst his many pupils. He also became Professor of Music at Cambridge (1887 – 1924) and was knighted in 1902. Two of the undergraduate pianists associated with the ‘Wednesday Pops’ went on to distinguished careers in music. J.A. Fuller-Maitland of Trinity was later to become music critic to *The Times* and other newspapers, and to be the Editor of the 1904 Edition of Grove’s Dictionary of Music and Musicians; he also pioneered the collection and publication of English folk music. W.B.Squire of Pembroke College became Assistant Keeper in the Department of Printed Books of the British Museum with charge of printed music; he also collaborated with Fuller-Maitland in the collection of English folk music. One member only of the quartet became a professional musician. G.F. Abdy-Williams in due course became organist and music master first at Dover College then at Bradfield. His fields of study were ancient Greek music and plainsong, on which two subjects he published articles and books. Some 48 years after the formation of the quartet he still addressed Bower as ‘Dear ‘Cello’ in their correspondence. Vocal contributions to the ‘Wednesday Pops’ were provided by F.G. Penrose, a Trinity man and contemporary of Bower’s at Repton, and S.H. Vines of Christ’s College, newly appointed Lecturer in Botany. Vines was to be remembered as the one who in 1877 brought the ‘New Botany’ to the then moribund Cambridge Botany Department – the laboratory approach emanating from the courses for teachers organised by T.H. Huxley in the new buildings of the Royal School of Mines at South Kensington. This ‘botanical renaissance’ had been master-minded by W.T. Thiselton-Dyer under Huxley. The South Kensington institute was to become the Normal School of Science and Royal School of Mines in 1881, and Bower was to be appointed its Lecturer in Botany in 1882.

Bower was to well remember a musical event at Cambridge in March 1877. The distinguished violinist Joseph Joachim was invited to receive the honorary degree of Doctor of Music at the Senate House at 2pm on Thursday 8 March. On the previous evening in hall the Bower brothers had seen the great man dining with Stanford and the Fellows at the High Table. The brothers then left for that evening’s ‘Wednesday Pops’. This duly ended with a piano quintet by Raff, of which they reputedly gave an indifferent rendition. On leaving the stage they were taken aback to find Joachim sitting by the stage door with Stanford standing behind the chair. Dublin-born Stanford laughingly pointed out ‘I had to bring him to hear how me bhoys could play’. Joachim remarked ‘You keep very good time’, stressing a fundamental musical attribute and generously overlooking any lapses in presentation. The next evening Joachim played the Beethoven Violin Concerto at an orchestral concert in Cambridge, an event of lasting memory to F.O. Bower. As he noted in his autobiographical sketch ‘I never hear it now without recalling the glowing spirit, and even many details of his masterly rendering of that greatest of all compositions for the violin’.

Joachim’s artistic skills were of world-wide recognition, as seen in a somewhat fulsome ode by Robert Bridges:

‘...The interpreter who left us nought to seek  
Making Beethoven’s inmost passion speak  
Bringing the soul of great Sebastian near...’

Joachim made a profound impression on a young Scot, Dr. Donald Macalister, of St. John's College, who heard him perform on a Saturday afternoon in the Royal Albert Hall:

'..The best fiddler in the world. I have never heard the fiddle *played* before: it seems to wail and cry like a human...'

Later as Sir Donald Macalister, he was to be Principal of Glasgow University (1907-1929) when F.O. Bower was a senior professor. Bower would have agreed with this appreciation of the master, though not perhaps the means of expression.

Just when the disbanding of the Cambridge quartet took place is uncertain. The accompanying photograph shows them at rehearsal in the garden at Elmcrofts, and is said to be dated 'about 1880'.<sup>6</sup> There is a prize cup shown, but nothing is known of its significance. Bower had graduated B.A. with first class honours in 1877, and he remained in Cambridge with some part-time teaching outside of the University until 1879. The break-up of the quartet was probably in the 1879-90 period, but this is uncertain. Other sources of great pleasure to Bower at Cambridge were the recitals of the several chapel choirs, especially that of King's College.

We know little of Bower's musical activities during the early 1880s, although with his South Kensington appointment and residence now in London he made full use of the many performances available in the city. His sudden and unexpected removal to be Regius Chair at Glasgow in the spring of 1885<sup>7</sup> would have given little opportunity for any serious pursuits of his musical interests. Having to suddenly cope with a summer session of lectures and practical classes for some 200 medical students within a few days of his arrival severely taxed both his enthusiasm and strength although some recovery took place with the return to Ripon and Elmcrofts during the summer vacation. Finding to his surprise that this summer session was all the teaching required of him during the academic year, he spent the late autumn and winter botanising in Ceylon. He had to leave his 'cello back at Ripon, but was able to indulge another absorbing hobby, that of photography. Returning 'much refreshed' in the spring of 1886 and ready to face his next summer session with the medical students, he commenced the settling in process in Glasgow. He was not too happy in those early years and made one or two tentative essays to leave, but was told firmly by Thiselton-Dyer to stick it out. By the late 1880s life became somewhat more enjoyable, not least botanically by the appointment of Isaac Bayley Balfour to the Chair of Botany and Keepership of the Royal Botanic Garden in Edinburgh. Within the University life gradually became more amenable both academically and socially. Other members of the Glasgow staff shared his musical interests, notably John Ferguson, Professor of Chemistry and a talented pianist (although Bower did not share the latter's enthusiasm for dancing!). In 1887 a choral and orchestral concert was held in the Bute Hall of the University, with Bower and his 'cello one of the orchestra. It was perhaps no coincidence that Joseph Joachim was awarded an honorary LL.D. by the University in December 1889.

With life in Glasgow becoming more amenable from about 1890 (although the struggle was only then beginning to obtain proper accommodation and facilities for his Department – another taxing process not resolved until 1901), so Bower's



involvement in musical affairs in the University grew apace. It might well be that his musical talent helped considerably in the settling in process from a social point of view. The students were quick to note this dimension in the life of their young Professor of Botany, as seen in their publication, the *Glasgow University Magazine*, of 5 March 1890:

There was a professor of flowers  
The 'cello he'd torture for hours.  
When the strings gave a yowl  
The cats gave a howl –  
And eclipsed all his musical powers.

The issue of 19 March 1890 noted that Bower had succeeded in amalgamating the University Orchestral Society with that of Queen Margaret College, the women's college of the University, 'The Professor has the good of his Society at heart'. In December 1890 the magazine announced that Bower was now President of the United Musical Society, and had also assisted in resuscitating the University Choral Society. The first recital of the latter planned for March 1891 had to be postponed, however – not enough of the students had attended rehearsals, and Bower regarded the choir as being too 'ill-balanced'. The annual dinners of the Glasgow medical students were lively affairs, with programmes of music and song. The First Year medicals dinner on 25 February 1891 was chaired by Bower, and described in the magazine as '...an unqualified success ... the best conducted dinner under student auspices known .... Dr. Bower did full justice to his duties as Chairman – toasts, songs etc. followed in rapid succession. The Chairman had brought along his beloved 'cello, and his two solos were enthusiastically encored'. The magazine's report on the Third Year medicals dinner of 1 March 1893 stated that '... Professor Bower's 'cello solo was loudly encored, and was, perhaps, the best item of a first class programme'. On 15 February 1905 Bower again chaired the First Year medicals dinner, and '... most ably filled the Chair and scintillated with mirth and wit, contributing two 'cello solos with each bringing thunderous applause'. Medical students at Glasgow had a history of lively behaviour in lectures. Bower in later years described these lectures as 'sporting events'. It is evident, however, that despite his rapid transition from a more placid academic existence at the South Kensington Normal School, he adapted rapidly to the new student environment, especially regarding class control and lecture presentation. The student magazine gave a eulogistic report on Bower's lectures in the copy for 25 March 1891 which included '... Everyone attends Dr. Bower's lectures because he can't help attending – would it were so in every class! The subject is throughout presented in such clearness and minuteness and imbued with such unfailing interest that the lectures in Botany are universally esteemed the best of all courses'. According to W.H. Lang<sup>2</sup> the Botany lectures were invariably preceded with community singing by the assembled students. He described Bower '.... Entering on the stroke of the hour, but wisely at the end of the verse of a song...'. One such welcoming refrain has come down to us, sung to the tune of 'Cock Robin':

'All the dicotyledonous plants refused to flower  
When they heard of the death of Freddie Bower...'

This evident rapport with his students would have been reinforced by the more formal social events described above, and Bower made good use of his musical talents in the process. Over the years Bower played a significant role in many musical events within the University, sometimes as 'cellist, and often in an organisational position. At garden parties and conversaciones where orchestras and military bands were employed he was invariably consulted on the proposed programmes. When the position of University organist became vacant in the summer of 1906, Bower was one of a committee of six who, with the distinguished organist Sir Walter Parratt as Convener, sat in the Bute Hall on 9 October 1906 and listened to the test recitals by the five candidates on the shortlist. When a Miss Cramb left money in 1911 to found a Lectureship in Music in the University, Bower was immediately included in the Board of Trustees. The first appointment to the Cramb Lectureship was not made until 1923.

In late June and early July 1914 those scientists in Britain who had been invited, or could afford to go, were boarding passenger ships en route for Australia and the first meeting to be held 'down under' of the British Association for the Advancement of Science. The meeting was to be divided between the four major cities of Sydney, Melbourne, Perth and Brisbane. Bower went as President of Section K (Botany). Isaac Bayley Balfour from Edinburgh had been the first choice but had declined. For Bower the added attraction of the meeting was the later excursion to New Zealand, and the opportunity to see the fern flora there. Bower kept a diary of the Australian BAAS meeting<sup>8</sup>. He joined a number of the participants and their families on the s.s. 'Orvieto', which left Tilbury on 3 July 1914. As with the nation as a whole, those on board had no inkling of events to come in Central Europe, which would find Britain at war before they arrived at Fremantle. On the first day out Bower found himself voted a member of the Concert Committee '....which is a bore but we must all play up for the common good. There is a professional 'cellist on board with a decent instrument, I daresay I can borrow from him for a consideration'. The 'Orvieto' put into Naples on 11 July, and there was time for a visit to Pompeii, of which the diary contains the interesting comment '...a city of pleasure rather than business'. On 17 July Bower was made Chairman of an Entertainments Committee, with four subcommittees, of which he was convener of the one for concerts. He took part in a concert on 31 July, giving in his opinion a 'somewhat poor rendition' of a Romance by Davidoff, his technique being impaired by a blistered little finger on his left hand. The performance, however, met with 'general approval'. On 27 July Bower had contributed to the lecture programme on board by giving what he later called 'A very very bad lecturette' on the subject of 'Ideas suggested by a water melon'. According to his own later account this was the first minor essay into size and form in plants, a topic to which he was to return in some force. On the previous day at 11 a.m. in Sarajevo a 19 year old student, Gavrilo Princip, had fired two shots into a car bearing the Archduke Franz Ferdinand, heir to the Austrian throne, and his wife, killing the Archduke outright and mortally wounding his wife. This incident set off the chain of events which culminated in Britain declaring war on Germany on 4 August. News reached the travellers of this momentous event on their arrival at Fremantle, together with a crop of rumours of what was supposed to be happening in Europe. The BAAS meeting went on as planned, including the post-meeting excursion to New Zealand, but from this Bower decided

to withdraw and joined others on 7 September for the return journey on the s.s. 'Morea', a smaller and less comfortable ship than the 'Orvieto'. The return voyage was not without incident. The 'Morea' entered the Bay of Bengal at about the same time as the German light-cruiser 'Emden', captained by the resourceful Muller, was in the area, and it was said to have contacted the 'Morea' by radio. The 'Morea' eventually entered Plymouth Sound unharmed on 16 October. There were no concerts or lectures on the return journey. Due to the shortage of crew members the distinguished passengers had to help run the ship, including being told-off into deck cleaning parties.

Throughout the war years Bower had to cope with extra teaching due to staff members being away on national service. He also served in an official capacity checking the identities of travellers booking into local hotels – a job which left ample time for proof reading. He attained the rank of Corporal in the uniformed Defence Reserve of the time, spending nights guarding the docks. He also arranged numerous concerts on behalf of the Red Cross, and held in the Bute Hall of the University. His own active playing days ended at some time in 1916. Shrinkage of a tendon in the index finger of his left hand caused a slight deformation with the result that his manipulation of the strings of the instrument was no longer reliable.

There were occasions when Bower's musical interests were more closely linked with Botany. In his book *Plants and Man* (1925) he discussed the properties of wood in relation to violin construction.<sup>9</sup> The top plate or belly on the instrument was of straight grained Pine wood with narrow annual rings. Its function was to take up the vibration of the strings via the bridge of the instrument. The light and elastic Pine wood was especially suitable for this function. The back plate of the instrument was of harder wood, usually of Plane but could also be of Pear or Beech wood. The role of varnishing to enhance the grain patterns of the wood was also described. The 'awakening' process of a stringed instrument was described – how the tone becomes more 'smooth and free' after an hours playing, with the wood fibres taking up the vibrations of the strings more readily than at the start. The increased resonance obtained was not of a permanent nature – with rest the wood fibres would regain their resistance. The voice of experience came to the fore with the statement that if such a change back did not take place with rest, then old instruments would have become so free and resonant with use that the slightest touch with the bow would bring the tune 'rushing' out in full volume: it would then be very difficult to produce a pure pianissimo.

Bower had been disappointed with the reception of his book *Size and Form in Plants* (1930). In June 1933 he wrote to C.W. Wardlaw, who had been an Assistant Lecturer in the Glasgow Botany Department at the time of Bower's retiral. In the letter he described progress on his next book, *Primitive Land Plants* (1935):<sup>10</sup>

'..I am jogging along with the book.. it is in essence an advanced text book... The size factor will not be ridden to death, but gently woven into the texture almost unconsciously to affect the pattern, or, to use another simile, it will be like the proper playing of a drum in an orchestra, not to drown the rest but to fill the interstices like a grouting, or like water in a sponge. After all, it is the one constant

and inescapable factor influencing growth, apart from the inner impulses themselves, and none of us knows how far it is included amongst these. It is, however, pretty clear that nobody likes to talk or write about it, in fact, it is treated like a family lapse of morals or of mentality. Funny! isn't it?

In later years Wardlaw was to recall Bower's last day in the Glasgow Botany Department in the summer of 1925. As he stated in a letter to W.H. Lang at some time in 1948:

'I had thought that leaving the Glasgow Department after 40 years would be a very big wrench to him and it was with some trepidation that I attended him on his last day in the Department. I helped him with odds and ends in the forenoon, then we had lunch together at his house and returned in the afternoon to the Department. I do not now recall what we did but I remember how sometime in the afternoon we left the Department: and I, his youngest Assistant, locked the door behind him. He was in a musing but I would not say sad or exceptionally pensive frame of mind. He had the whole thing arranged and levelled out in his mind: for he said to me something to the effect that the following day he would take the train down to Ripon, and should be just in time to hear a fugue played in the Minster...'

#### ACKNOWLEDGEMENT.

The photograph of the 'Cambridge quartet' was given to me by the late Lieut. General Sir Roger Bower, KCB, KBE.

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10. Letter from F.O. Bower to C.W. Wardlaw, 18 June 1933. (A letter in my possession by courtesy of Professor A.C. Wardlaw).
11. Typed draft of a letter from C.W. Wardlaw to W.H. Lang, written at some time in 1948. Containing data for Lang's Bower obituary (see 2). (A Document in my possession by courtesy of Professor A.C. Wardlaw).

A.D. BONEY

## Library

As this is being written, the last of the Dutch journals are being cleaned and reshelfed, leaving the German journals still to be rearranged. New cupboards in temporary locations in the hall downstairs will, at least, keep the dirt off any volumes that have already been cleaned. Finding the German journals may, however, take some time as they are now in new locations, sometimes split between different shelves, so please give advance warning of any more obscure German journals you may need to consult. The installation of a smoke detector system throughout the building has now been completed so one of the additional tasks will be to get rid of dirt and grit resulting from those drilling operations. The backlog of cataloguing has now almost been completed and much work has also been done on cataloguing many of the rather ephemeral publications relating to Natural History and other societies and institutions.

### Donations

We have just finished cataloguing many of the additions made at the time of the last Library Booksale in 1992. Of these, 44 books presented by D.T.Pescod are not listed separately here, for reasons of space. We are also grateful to R.Fitter for presenting us with a long run of the United States Dept. of the Interior publication *Wildlife Review* as well as for various conservation and wildlife publications. Dr Pontecorvo continues to pass on various journals and many Fellows have remembered that we welcome reprints of their papers, especially if they are in journals we do not take. Other donations include:

- |                            |                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prof. P.R. Bell            | Bell, Peter R. <i>Green plants, their origin and diversity</i> . 315 pp. illustr., Cambridge, CUP, 1992.<br>Capon, Brian, <i>Botany for gardeners, an introduction and guide</i> . 220 pp. col. illustr., Portland, Timber Press, 1990.                                                                                                                                                 |
| Dr. A. Bordini             | Bordini, Attila, <i>Phytogeography and vegetation ecology of Cuba</i> . 858 pp., illustr., some col., maps, Budapest, Akademiai Kiado, 1991.                                                                                                                                                                                                                                            |
| Dr. G. Broberg             | Jonsell, B and others, <i>Bergianska botanister</i> . 141 pp. illustr. some col., Stockholm, Atlantis, 1991.                                                                                                                                                                                                                                                                            |
| Dr. H-M. Burdet            | Lebrun, JP, & Stork, Adelaide L. <i>Enumeration des plantes a fleurs d'Afrique tropicale 2: Chrysobalanaceae – Apiaceae</i> . 257 pp. 2 illustr., Geneva, Conservatoire & Jardin Botanique, 1992.<br>Spichinger, R. & Ramella, L. <i>Flora del Paraguay, 17 Apocyanaceae</i> by C. Ezcurra, M.E. Endress and A.J.M. Leewenberg. 121 pp. illustr., maps, Geneva, Jardin Botanique, 1992. |
| Cambridge University Press | Jones, Stephen, Martin, Robert & Pilbeam, David, eds., <i>The Cambridge encyclopedia of human evolution</i> . 506 pp., illustr., Cambridge, CUP, 1992.                                                                                                                                                                                                                                  |
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## Book Reviews

Morris, C. (ed) 1992 *Dictionary of Science and Technology*, Academic Press, London and New York, n.p.

The very idea of this great project must have attracted the attention of readers from every branch of science and natural history. It sets out its grand ambition on the fly-leaf – a comprehensive book with 2342 pages covering 124,000 separate entries from every area of science. Prominent Fellows of the Linnean are among those who have contributed short, individual essays: Stephen Jay Gould has written on “evolution” (p785), and Peter Andrews offers a piece on “paleontology” (p1559). But would they have been so keen to become part of this product had they known what the end result would be like? There is little complaint about the text of the definitions, for they are largely as good as one would expect. But the style of the illustrations is often poor.

There are many inconsistencies between British and American usage of scientific English. You will betray an American origin if you say lab’rotry rather than labor’atory, or if you spell that light elemental metal aluminum rather than aluminium. These distinctions lie ready to trap the unwary editor of a transatlantic title like this. In this muddled book there is no editorial consistency over such matters. You will find an entry for the British *Amoeba*, with a simplified line drawing; yet there is a second, separate entry for the American spelling *Ameba*, this time illustrated with a photomicrograph. Note, though, that the current conventions still have the (American) *Ameba* as a member of the (British) Amoebida. The plant pigment leghaemoglobin has an entry of its own, with the US spelling –hem– as a footnote. But, although there are sixteen words starting with “haem–” in the book, haemoglobin is nowhere mentioned. There is a separate entry under the (American) hemoglobin, but the British

Too many of the line and stipple drawings that decorate the text are vague and amateurish. Whoever drew these would more likely win a prize for speed than accuracy. In many cases an individual organism is captioned as though it were an entire family: why, you might as well publish a sketch of a guitar and label it “music”. Thus a nondescript twig is captioned “Commelinaceae”, a free-living nauplius larva is labelled “Rhizocephala”, and a micrograph of a spiny pollen grain defines “ragweed”. Look up bird of paradise and you will find an unexplained drawing of an inflorescence of *Strelizia reginae*; of the avian species there is no mention.

The notion that a modern book must be more accurate and up-to-date than its older counterpart is clearly disproved by this new *Dictionary*. Look up “louse” in Robert Hooke’s great work *Micrographia* of 1665, and you will be faced with a wonderfully vivid engraving that shows the human head louse in three-dimensional realism. Turn to the entry for “louse” in this modern dictionary, and the choice of illustration shows a dipteran fly! It is sub-titled “book louse”, but it takes no obsessive sense of pedantry to object to that.

Many of the photomicrographs have captions that are incomplete or misleading. The entry for protozoa is erroneously illustrated with a few filaments of filamentous algae, and the photograph under the entry *Zygnema* shows zygospore formation, so that the typical appearance of the genus is obscured. The micrograph of starch shows potato starch imaged under polarised light, but these important facts are not mentioned and without them the picture becomes meaningless. You will find a neuron, too, with cross-references including “neurocyte” ... but no mention of a neurone, whilst mutation is exemplified by a tri-partite nucleus. There is a lengthy definition of acyclic (no mention of the term being an adjective) decorated with a sketch of leaves, an agave that looks more like a moss, and a transmission electronmicrograph of an unidentified chlorelloid cell labelled, boldly, algae. The rotifer illustration surely shows one of those wonderful glass models, and not the real thing at all. Look under refraction you’ll find a flat plate of glass labelled a “lens”. Even the moon is lying sideways!

American text-books are notoriously liable to copy information from each other, so errors become dignified by the repetition in print. Leeuwenhoek is here known, incorrectly, as “Anton”, and Gregor Mendel, Moravian born and bred, is “Austrian” in this book. The standard encyclopedias of the modern age, hastily compiled with an eye on the clock and a firm hand on the budget, repeat errors until they acquire their own acceptability.

The subject of personalities, the great names of science, leaves many questions in the mind. Since we find here Mr Lei (Japanese designer of the pyramid at the Louvre), and Mr McCormick, (inventor of a reaping machine), it does not take a purist to regret that Linneaus – misleadingly dismissed as the progenitor of binomial nomenclature – warrants no illustration at all.

BRIAN J FORD

E.J.H. Corner. *Botanical monkeys*. The Pentland Press Ltd. Edinburgh. Cambridge. Durham. 55pp. £12.50. ISBN 1 872795 72 2

The title refers to the coconut or pig-tailed monkeys (*Macaca nemestrina*), trained by Professor Corner to the heights of plant collecting – the removal of twigs, flowers and fruits from the tops of forest trees of Malaya. The book, a collection of articles prepared from talks to a variety of audiences, is illustrated by black and white photographs somewhat typical of a family album in their quality. Professor Corner first went to Singapore in 1929 as a mycologist but in the low season for fungal fructifications turned to the local higher plants. He soon discovered that the published floras were inadequate for the taller trees where description was hampered by logistic problems of collecting flowers, fruits and leaves. Felling produced the kind of information needed but was also clearly eradicating rarities even before they were described. And so E.J.H. Corner, the conservationist, was born and there began the accumulation of a remarkable database that has produced a wide range of publications on e.g. the wayside trees of Malaya, dicot seeds and palms. His agents in conservation were the monkeys, arguably the “only apes ever in government service”, which he trained in the Singapore Botanical Gardens on a number of different kinds of trees. After six weeks, the most intelligent was able to recognise about twenty-four commands in Malay, including ‘Pull that off’ and ‘Set free the leaves’ (when entangled) and ‘That’s right, get more’. *Horsfeldia*, the wild nutmeg, was used to instruct in the art of collecting cauliflorous flowers and fruit, and the monkeys could also pick off epiphytes. Such were their skills that he planned to use a school of monkeys in a systematic ecological survey of a piece of forest, a project frustrated by the war. Each of the monkeys had a very distinctive character and idiosyncrasies, and they varied in collecting ability. One female, named Che Minah, was particularly good on fungal forays, even providing a very reliable guide to edibility. The book is full of such anecdotes. I particularly enjoyed it, because the narrative brought back memories of Corner’s first year course on plant diversity in Cambridge, when factual detail became almost unimportant as a unique botanist presented his view of the life of plants. I recommend it to botanists, animal behaviourists and to anyone interest in natural history as a thoroughly good read. It is a pity it is so short, and page for page, rather expensive.

— and for the first time, our departmental secretary asked to borrow a book that I have reviewed and she typed!

ANON

*The Burren* by E. Charles Nelson, illustrated by Wendy Walsh. Boethius Press and the Conservancy of the Burren. 343 pages. 1991.

Hardback ISBN 086314 213 3 £29. Sewn paperback ISBN 086314 214 1 £19.

This admirable book is subtitled "*A Companion to the Wildflowers* (regrettably spelt thus, as one word) *of an Irish Limestone Wilderness*" and a very agreeable and informative companion it is. The text is accompanied by delightful sketches, mostly half-coloured (and none the worse for that), by Mrs Walsh. These cover nearly all the plants mentioned, a goodly array.

Of course the astonishing landscape of the Burren in central western Ireland needs to be visited fully to savour and enjoy its contradictory vegetation, archaeological remains and much else. But this book gives a very good taste and is an attractive lure to see the area first hand. It would greatly enhance the understanding of anyone going there, preferably not briefly, and not necessarily at the peak time for its gentians, orchids and the like.

Here is set out in flowing prose the history of its rocks, its potholes and its spelaeodendrons (*Salix aurita* for the benefit of those to whom this appellation is new). There is good stuff on the men (women hardly come into it) who have written about it or lived in it, notably the opprobriated P.B. O'Kelly, to whose defence Dr Nelson rallies. The bulk of the book is taken up with accounts of groups of its plants, even calcifuge heathers. It ends with copious notes and comments, a nine-page bibliography, and a list showing where and when the painted flowers come from, a too rare bonus. It could not document this richness better, and all in readable fashion.

It had generous assistance from the Electricity Supply Board (who hold Mrs Walsh's drawings). All the profits and royalties will be devoted to the work of the Burren Conservancy, founded in 1990 to watch over this unique and fascinating place.

DAVID MCCLINTOCK

## **The Percy Sladen Memorial Fund**

c/o The Linnean Society, Burlington House, Piccadilly, London W1V 0LQ

### **The PERCY SLADEN MEMORIAL FUND**

gives grants for FIELD work abroad in the earth and life sciences.

Sums allocated do not generally exceed £500.

NO funding is given for further education, for visits to conferences or to work in institutions, nor for postgraduate thesis fieldwork. Undergraduate expeditions are NOT supported.

Application forms and Guidelines are available from the above address. Closing dates are 30th January and 30th September annually and applications will NOT be considered outside these dates.