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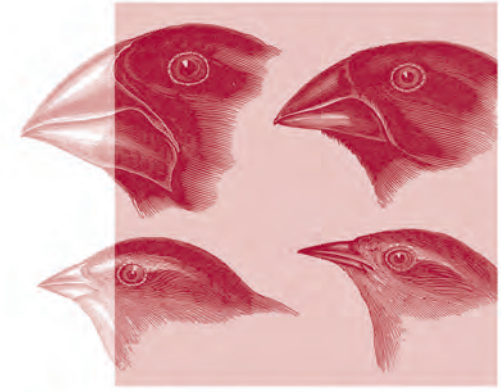
The Linnean



NEWSLETTER AND PROCEEDINGS OF THE LINNEAN SOCIETY OF LONDON

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A living forum for biology

THE LINNEAN SOCIETY OF LONDON

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

THE LINNEAN

Newsletter and Proceedings
of the Linnean Society of London

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Edited by Brian G Gardiner

Letter from the President

I would like to take this opportunity, first thing in the New Year, to thank most sincerely all those who have already so generously contributed to the Fellows Tercentenary Fund. As I write this letter in mid-December the Fund has been growing steadily over the four weeks since it was launched.

If, like me, you open and read mail, intend to take some action and then put it to one side, could I ask you to revisit the forms, please? Every little helps to strengthen the case we will be making to all the appropriate funding bodies, charities and individuals that we hope will help us reach our target. There are still major elements of the collections to be digitised and brought online, along with the development of the Society's facilities.

Besides thanking all those who have already given so generously and reminding those that have yet to do so, I want to thank all the staff, Council and Committee members who have worked so hard to ensure that the Tercentenary Year of Linnaeus' birth has been such a great success. The whole profile of the Society has grown and will help us all in the future to forward the work and understanding of Natural History in the world at large.

Lastly, along with our partners in publishing, Wiley Blackwell, we are very pleased to announce that it is now possible for all those who take their Journals electronically to access all of the Journals ever published by the Society. This covers over 40,000 pages of outstanding science that are accessible as part of your Journal subscription!

I wish you all a very good New Year.

DAVID CUTLER
President

Tercentenary Medals

On 13th December 2007 HRH The Princess Royal visited the Linnean Society rooms to present three Tercentenary Medals, one for each century since Linnaeus was born, to three of the most famous names in our science: Sir David Attenborough CBE Hon FLS, FRS, CH, Professor Steve Jones FLS and Professor E. O. Wilson FMLS. Each in their different ways has made a major contribution to the Science of Natural History and is an outstanding and effective communicator.

HRH The Princess Royal was made an Honorary Fellow of the Linnean Society at the same ceremony.

The silver medals were designed by Felicity Powell who wrote: "In making this medal I wanted to show something of the beauty and lucidity of Linnaeus' classification system and also to suggest something of his character; a portrait not just of how he looked but touching too on the way he thought and has continued to inspire."

Editorial

On 7 July 1858 papers prepared by Charles Darwin and Alfred Russel Wallace were read to a meeting of the Linnean Society in Burlington House. So 2008 is the 150th anniversary of that ground-breaking event, which is still the subject of endless discussion. To mark this anniversary we are preparing a "Special Issue" of new papers about the work of both Darwin and Wallace. The intention is to have it ready for circulation with the July issue of *The Linnean*. In the meantime, a few articles relevant to this story, from earlier issues of *The Linnean*, have been placed on the Society's website. They are –

- *The Joint Essay of Darwin and Wallace* by Brian Gardiner (vol 11-1)
- *When I was alive by Alfred Russel Wallace* by Gareth Nelson (vol 11-2)
- *"In my Day … and Today"; Darwin at Edinburgh, 1996* by Richard Milner (vol 13-2)
- *The Restoration of Wallace's Grave* by Brian Gardiner (vol 16-3)
- *Wallace and Land Nationalization* by Brian Gardiner (vol 16-4)

This year's front cover of *The Linnean* also commemorates this anniversary. The drawing of Darwin's finches, by John Gould, comes from the 2nd edition (1845) of *Journal of researches into the natural history and geology of the countries visited during the voyage of* H.M.S. Beagle *round the world, under the Command of Capt. Fitz Roy, R.N.* The wasp (*Mygnimia aviculus*) is from p.259 in Wallace's book *Darwinism* published by Macmillan & Co. in 1889.

In this issue, the article on the Marine Station at Millport dealing with the years 1897-1907 and their continuing resonance, begins with Captain Turbyne, the oyster fisherman and caretaker of *The Ark*. It continues with Turbyne's successors as caretaker, Alexander Gray, and then Richard Elmhirst who, on becoming Superintendent, witnessed the metamorphosis of the Marine Station from the early days of natural history to the modern era of Marine Science. He also brought some much-needed operational stability to the Marine Station's activities. The article then deals with the great financial stringency following the cessation of the First World War and how, even earlier, in 1910, the Station was overdrawn at the bank to the extent of 8% of its annual income. Nevertheless, by 1922 things improved with the award of a governmental Development Commission grant. The article concludes that the Millport Marine Station has not been alone in coping with hard times in recent years, pointing out the demise of the laboratory at Robin Hood's Bay in 1982 and how Newcastle University's Dove Marine Laboratory at Cullercoats recently teetered on the brink of closure, while Liverpool University's Port Erin Marine Laboratory on the Isle of Man was closed in 2006, a great loss to marine science.

The article on John Stackhouse also concerns mainly marine science but, in this instance, it deals with the study of seaweed. It describes how Stackhouse erected a house for the special purpose of studying seaweed with baths in the floor. It then concludes that the prime significance of Stackhouse's work is that it was the first to break away completely from the custom of recognising only the Linnaean genera of algae and he eventually divided the British species of the Linnaean seaweeds into six genera. Later the article describes how, in 1790, James Edward Smith commenced

writing *English Botany* which brought him into contact with the country's leading botanists, including John Stackhouse who soon became a Fellow, being elected in 1795. From then onwards Stackhouse and Smith carried on a long correspondence, until at least 1816. Ironically, Stackhouse's first paper to the Society was on the Dartford Warbler.

BRIAN GARDINER

Society News

By the time this issue of *The Linnean* is distributed the Linnaean Tercentenary year will have drawn to a close after a busy autumn culminating in the visit of HRH Princess Anne, the Princess Royal, to present the Tercentenary medals on 13th December. The details of the three medallists are given elsewhere (p.1) but the occasion also marks the Honorary Membership of the Princess, who will have signed a newly commissioned special page in the Roll and Charter. The artist has chosen to use the Umbelliferous plant *Anthriscus sylvestris* also know as "Queen Anne's Lace" as part of the decoration between the heraldic achievements which form the more conventional design.

The reports of Tercentenary meetings are dealt with elsewhere (p.4). Other events have included Open House London on 15th September when the Society received over 700 visitors. Kate Longhurst designed and printed a new Society brochure for this event and copies are still available. Linnean Society events also continued off-site, with the launch of the Linnaeus Link web catalogue in Uppsala. This gives access to good bibliographic records for all the works of Linnaeus and his 360 students and to library holdings. Tercentenary events overseas also included a very successful conference in Amsterdam organised by Professor Pieter Baas FMLS and his colleagues in the Netherlands.

The Conversazione was held in Oxford on 29th September (see p.6) and conferences over the autumn included our joint two-day meeting with the Royal Society of Tropical Medicine and Hygiene *The Natural History of Host-Parasite Interactions*, the three-day meeting on *Orchid evolutionary biology and conservation*: *from Linnaeus to the 21st century*, which also saw the launch of online access to the Linnaean herbarium, and a two-day joint meeting with the Institute of Mechanical Engineers on *Colour, design and engineering*: *colour in plants and animals as inspiration for design*. The wide-ranging papers from all of these meetings will be appearing as special publications in the near future and more details are given in the following pages.

Evening meetings have also covered a wide range of topics and disciplines, including Professor Mike Bruford talking on *Profiling endangered species, how molecular genetics can help manage our vanishing species* and Professor Brian Ford FLS on *Linnaeus's Microscopes.*

The beginning of building work in the Library Reading Room will be mentioned elsewhere but other work has begun on refurbishing the remaining Committee room downstairs to accommodate some of the fine bookshelves in need of a more suitable location. Apart from all these activities, the staff have been kept extremely busy with

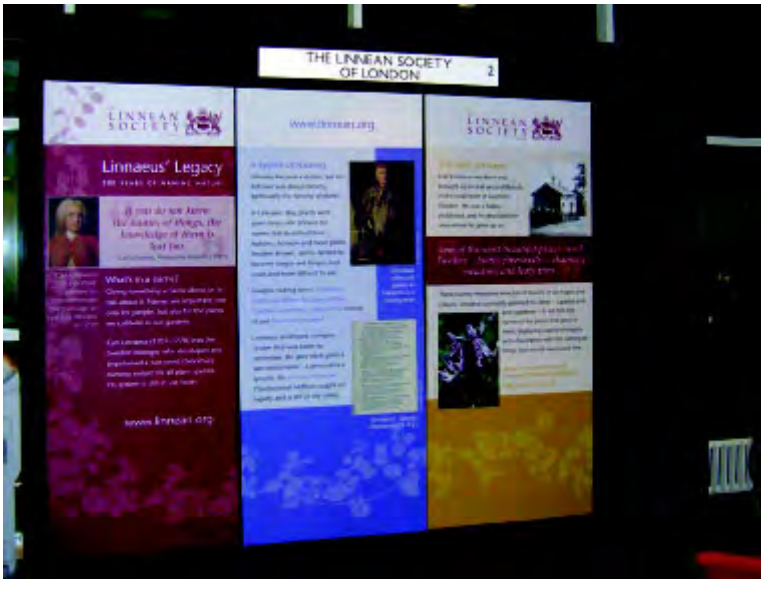
preparations for mailing out the Tercentenary Appeal to all Fellows, with everyone helping to stuff envelopes, attach pins and take the franked mail to the post office. We hope that Fellows will use the lapel pin as a way of identifying themselves, especially at meetings involving other organisations. This exercise has reminded us of just how far-flung our Fellowship is and of the wide range of institutions worldwide in which we are represented. Lastly, we hope that by the time this appears, a new Executive Secretary will have been appointed to carry forward the momentum from "Linnaean feverish activity" to "Darwinfluenza".

GINA DOUGLAS

Acting Executive Secretary

Tercentenary News

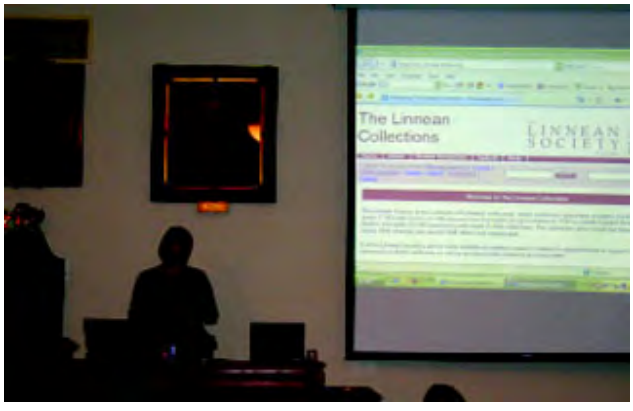
The last few months of the Tercentenary year have continued to be busy and stimulating, and have included several very successful joint meetings with other learned Societies. The first of these was with the Royal Horticultural Society on *Botanical Art in the Age of Linnaeus* (14th September) organised by Brent Elliott. This was followed by another with the Royal Society of Tropical Health and Hygiene and Imperial College on the *Natural History of Host-Parasite Interactions* (27-28th September) organised by David Rollinson and Joanne Webster and held at the Society. This attracted high profile speakers and the papers will be published in a special edition of *Advances in Parasitology*. The highly enjoyable Tercentenary Conversazione, held in Oxford quickly followed and is dealt with separately below. October saw the Society associated with the LAPADA Autumn Antiques & Fine Arts Fair in Cheltenham (11-13th October). This celebrated the Linnaean Tercentenary by theming the show *The Glory of the*



Our Chelsea boards at the entrance to the LAPADA Antiques Fair.

Flower – floral motifs in art and antiques. The Society was highly profiled and received much press coverage; it was great to see our wonderful background boards prepared for the Chelsea Flower Show so prominently displayed and admired by such a different and appreciative audience.

Later, Lord (Robert) May gave an Evening Meeting (18th October) on *Parasites, People and Poverty*, which was extremely well attended and thought provoking. A joint meeting with the Royal Botanic Gardens, Kew followed on *Orchid evolutionary biology and conservation: From Linnaeus to the 21st Century* (31st October–2/3rd November). So great was the demand to submit papers that the meeting was increased from two to three days, with an additional guest lecture on the fourth. It was, again, an incredibly stimulating meeting, admirably organised by Mark Chase and Mike Fay, with one of the eminent authors commenting that it was the best Orchid Conference he had ever attended. The papers will all be published in *Annals of Botany*. Whilst mostly held at Kew, the second day was held in the Society's rooms and culminated in a soft launch of the digitisation of its Linnaean Herbarium specimens with a demonstration by Julia Hoare – using Orchid species as examples. This was enthusiastically received with everyone being encouraged to visit our website (www.linnean.org) and follow the link under 'Linnaean Collections Online', and send any comments and suggestions to Julia (*julia@linnean.org*).



Julia Hoare's digitisation presentation.

Next came a joint venture with the International Association of Plant Taxonomy (IAPT) on 15th November, arranged to coincide with the launch of Stephen Freer's timely translation of *Musa Cliffortiana*. The evening included an introduction on the 'IAPT and Linnaeus' by Tod Steussy, the Director General, comments on the content by Stephen Freer and, finally, a paper on the scientific importance of *Musa* entitled *Linnaeus and the Banana: Sexuality, Economy and the Natural System* by Steffan Müller-Wille. This enlightening talk not only explained Linnaeus' fascination with the banana but also revealed him as an experimental and observational scientist. The evening ended with a reception in the Library kindly sponsored by IAPT.

Tod Steussy presenting the President with a copy of *Musa Cliffortiana* on behalf of IAPT. © David Pescod

The final joint meeting of the year was held on 22nd & 23rd November with the Institution of Mechanical Engineers on *Colour Design and Engineering*. The first day, held in the Societies' Rooms, ended with a Reception and the second day was held at the Institution of Mechanical Engineers. A fascinating set of papers covering many different aspects of the topic, by authors from several different disciplines and countries, was efficiently organised by David Cutler, Michael Collins, Chris Brown and Peter Stüecke.

As we move towards the close of the year, there will be an enlarged Systematics Debate on 29th November entitled *Should the registration of new names of organisms be compulsory?* This year there will be five presentations in the afternoon representing botanical, mycological, prokaryotic, cultivated plant and zoological perspectives, before tea and the actual evening debate and vote. It promises to be a lively and controversial event ending with a reception. On 12th December we are pleased to welcome Professor E.O.Wilson who will talk on *The Great Linnean Enterprise: Then and Now*. And finally, on 13th December HRH The Princess Royal will present our three specially commissioned silver Tercentenary medals to three renowned international biologists. These latter events will be fully reported in the next issue of *The Linnean*.

As the year draws to an end I should like to again thank all those Fellows who have supported many of the events and meetings during the Tercentenary year, all the organisers of the joint scientific meetings and, of course the staff of the Society, without whose help they could not have occurred. It has been an immensely exciting year covering so many facets of biology; we hope the momentum that it has generated will continue.

The Tercentenary Conversazione in Oxford

Around 70 Fellows and guests assembled in front of the Danby Arch of the Oxford University Botanic Garden in Oxford on a sunny September afternoon for the start of the Tercentenary Conversazione. The *Horti Praefectus* Timothy Walker kindly led a tour through the Gardens after a splendid and entertaining introductory talk on its history and construction. Throughout the tour we were kept spellbound by Tim's accounts of the Gardens' development; its current utilisation by the University for teaching and research, its appeal to the general public, and its agenda for future use. Tea and biscuits in the Conservatory concluded the first half of our Conversazione.

Oxford University Botanic Garden is opposite Magdalene College.

Our group then made its way through Oxford to the University Natural History Museum, where we were met

Conversazione participants enjoying a tea break in a greenhouse at Oxford Botanic Garden.

on the lawn by the Director, Dr Jim Kennedy. After an extremely informative talk on the history of the building, its architecture and external decoration, he enlightened us on its internal construction and architecture. We were then given behind-the-scenes tours of the Museum. Jim Kennedy kindly showed us his wonderful office with its rare murals; Darren Mann led forays into the hidden entomological world of the Museum, and Serena Marner showed us her Linnaean Exhibit, especially produced for the Conversazione. After the Linnaean medal for Zoology had been presented to Professor Tom Cavalier-Smith by the President, we enjoyed a magical evening supper amongst the dinosaurs. Finally Rosemary Wise provided guests with pots containing plants of *Jovibarba globifera* L. These originated from Hammarby, Uppsala, and are all descendants of the rosettes sent to Linnaeus for his garden by Catherine the Great

Society Fellows and guests in front of the Oxford University Museum at the start of the second half of the Tercentenary Conversazione.

of Russia. Rosemary propagated these plants from an official gift of three propagules from Hammarby, where they still grow.

We should like to thank all those involved in organising this wonderful day in Oxford – a truly fine memorial to Linnaeus and his meeting with Dillenius, and such an appropriate place to hold the Tercentenary Conversazione.

JENNY EDMONDS FLS

The Linnaean Herbarium now available online

On Thursday 1st November 2007 at the joint meeting with the Royal Botanic Gardens, Kew on *Orchid evolutionary biology and conservation – from Linnaeus to the 21st Century*, the Linnean Society of London demonstrated the web-based system to view the digitised collection of Linnaean Herbarium specimens.

The Linnaean Herbarium contains some 14,300 specimens, many pre-dating Linnaeus' seminal work, *Species Plantarum* (1753). More than 4,000 of these are type specimens for Linnaean names. The creation of digital images began in January 2006 and was successfully completed in August 2007 under the guidance of Mr Steve Cafferty of London's Natural History Museum. Data to support the images is based on *A Catalogue of the Linnaean Herbarium* compiled and annotated by Spencer Savage (1945). The catalogue was transcribed into electronic format by the World Museum, Liverpool during the late 1990's in preparation for the digitisation programme.

The University of London Computer Centre (ULCC) has developed the content management system, based on e-prints software, to deliver the collection of images and data to the world. The system incorporates the use of an integrated tool, FSI (Flash-based Single Source Image) Viewer, which enables the users to zoom in to very small sections of the specimens to see close detail and allows them to measure where required. Access to the system is through the Linnean Society website and can be found at *www.linnean.org* under '*Linnaean Collections Online*' then following the link to '*The Linnaean Herbarium*' on the right-hand side of the window.

To help find your way around the system, here are a few pointers. Browse 'Herbarium' which will display a list of genera, grouped together and sorted alphabetically. For example, clicking on *Onosma* to *Ornithopus* will display a list of all genera within this group (see left).

Select *Ophrys* to show a list of all the species entries under this genus.

Select *Ophrys insectifera* by clicking on the name to display a results list (see left).

Clicking on the name of the specimen required will display the detailed record for *Ophrys insectifera* (shown below).

The heading on the detail record contains both the plant name and the Savage number. The plant names have all been formatted to display correctly. The image(s) are then shown under the heading (see below left).

The information immediately under the image has been extracted from the herbarium sheets themselves. The lower part of the screen

shows derived data, like the family names and country codes, which were added when the Linnean Society commissioned the World Museum, Liverpool to create a computer based version of the Savage catalogue.

On the image itself there is an enlargement feature when you float the mouse over the image. To open a separate window containing the image click on the Zoomable Image link. The FSI viewer tool will load the image into a new window. The tools to use the viewer are at the bottom right-hand of the image window.

Searching

In addition to the Browse facility there are a number of ways to search the data in the content management system.

Jump to Ref – For those who are familiar with the Savage numbers there is a facility called 'Jump to Reference'. For example type in *1054.9* and click on the search button (or press the Enter key). The detail record for *Orchis barbata* is displayed.

Simple Search – A simple search will search across all the fields in the database to find matches. These will be shown as a results list.

In the search box type in *1059* and click the search button. A results list will be displayed showing four records (right).

Select the specimen required by clicking on the underlined name. A detail record will open, as shown previously.

Advanced search – the advanced search screen (below) shows a number of fields that can be searched at one time**.** Type in 'India' in the Locality field and search; 200 records will be displayed. We can refine this search by doing another advanced search, this time by selecting a locality of 'India' and a general search for 'Orchis'.

A single record for *Kaempferia galangal* will be included in the results list. Opening the detail record will show that 'Orchis' is included as part of the notes field.

On the detail record screen, wherever there is a magnifying glass shown in the little red icon on the right hand side of the screen, this is a hot link and performs a search on the selected term. There are hotlinks for Genus, Species, collector, collection date, geography and locality.

Additional Features for Registered users

It is possible to register as a user and this provides access to additional features, like saved searches, bookmarked items and comments.

If you have any comments or questions please email them to me at *Julia@linnean.org*

JULIA HOARE

Development Report

I am delighted to be writing this report in December at the culmination of an exciting, rewarding and extremely successful year for the Society. The 4,000 letters in the Linnaean Correspondence and 14,300 Linnaean Herbarium specimens are now available online on the Society's website (see previous article). All the back issues of the Society's journals are also newly-available online through our publishers Wiley-Blackwell. The Linnaeus Link Project was internationally launched in Uppsala in September and new contributors are coming on-stream to join the initiative. The Linnaean Plant Name Typification Project concluded with the launch of the outstanding publication *Order out of Chaos:Linnaean Plant Names and their Types.*

The stimulating Tercentenary and Society Programmes of events have been enjoyed by all and introduced the Society to many new audiences. A highlight was the Society's silver-gilt medal at the RHS Flower Show for the exhibit 'Linnaeus' Legacy: 300 years of naming nature'. The Society's website continues to grow with new content added on a regular basis and our media coverage has been exceptional this year and greatly strengthened our external profile. A recent highlight was the global coverage for the publication of the article on the new species of duck-billed dinosaur *Gryposaurus monumentensis* published in the Society's *Zoological Journal*. It featured on over 110 news and science sites spanning 12 countries and in a number of scientific publications, including *Scientific American* and *New Scientist*.

Our Tercentenary Development Appeal was launched in December and the Treasurer Gren Lucas and I would like to thank everyone who helped in its preparation.

Left: *Gryposaurus monumentensis* © Utah Museum of Natural History. Right: This rendering of *G. monumentensis* shows its robust jaws that allowed this creature to eat just about any vegetation it stumbled across. © Artish: Larry Felder.

We will be reporting on progress in the next issue. We have initiated specific approaches to a few appropriate funding bodies and will begin widening our funding applications in January. If you have any recommendations or suggestions for us to follow through for any of our proposed projects, please let me know at *elaine@linnean.org*.

Looking forward, the Society has published its full programme of varied events and meetings, including the 150th Anniversary of the Reading of the Darwin/Wallace papers/Conversazione. We are delighted to report that the Society is also restarting its 6th Form Lecture Programme with three events this year entitled 'Explore', 'Order' and 'Inspire'. Kate Longhurst will be further developing the website so please do continue to visit it and send suggestions and material for news and content to *kate@linnean.org*. Work is continuing to create digital images of the insect collection and data is currently being collected and recorded to support the images. The first group of insects, the butterflies, is expected to be available within the Linnean On-Line Collections system early in March. The moths and further insect groups will be added as the data is collected.

Linnaean specimen Papilio ulysses L. The Linnean Society of London holds 3,200 Linnaean insect specimens. © The Linnean Society of London.

The Society has another active and exciting year ahead and I look forward to reporting on the progress of our many development initiatives. I should also like to thank everyone who has helped the Society over the past 12 months in realising so many of its projects to date and for all the help given by Fellows, colleagues and friends in support of all our varied activities.

Warmest wishes for 2008

ELAINE SHAUGHNESSY

Library

The Autumn has seen a number of major activities linked to the Library and Collections, with the launch of the **Linnaeus Link** project in Uppsala, the nomination of the Book and Paper Conservation Studio at Dundee University Library as finalists for the ICON awards for their work on conservation of the Linnaean Correspondence and the test launch of the **Linnean Society Collections Online** on 1st November. The Library also featured in a whole issue of BBC *Countryfile* on 16th September as the

venue for the judging of their photographic competition "All creatures great and small". That brought their team of John Craven, Chris Packham and Jo Brand, with their crew, into the Reading Room for a whole day, but luckily at a very quiet time.

From the beginning of May to the end of November we have been open for 151 days during which we have welcomed 459 visitors to the Library, of whom 218 were Fellows (47%), an average visitor level of three each day. Book loans for the same period total 107 and 27 visits have been for manuscript access. The Linnaean Collection Store has been visited by 319 people involved in curatorial or digitisation work and 238 other visitors, giving a total of 557 (four each day on average). The number of Swedish visitors has decreased slightly from the April peak but this excludes those attending conferences here. Pre-booked tours included a large group of Swedish and UK doctoral and post-doctoral students as well as groups from Harvard University, the Karolinska Institutet and librarians from near Linnaeus' birthplace of Råshult. The annual book sale contributed nearly £300 to the Library funds as well as useful additions to the Library. The Library has been used for displays associated with most of the major meetings this autumn, with Niki Simpson's superb digital imagery of plants linking to the meeting on *Colour, design and engineering: Colour in plants and animals – inspiration for design*.

Knowing that there might be a higher take-up than normal for the London Open House event, the Library staff updated, printed and folded the explanatory leaflets for the Library, the text of which is also available on the web. Kristine Kozicki has been steadily working through cataloguing the accumulated backlog of donations, assisted by Ben Sherwood, when he is not engaged in supplying the constant demand for images or coping with IT crises, such as the long period in September when the online Library catalogue went down due to a combination of upgrades, service work and other changes all occurring simultaneously. We hope to avoid such conflicts in any future changes! The Library staff also assisted in the "great mailout operation" for the Tercentenary Appeal, helping to ensure that all the letters to the Fellowship went out within a few days.

Lynda Brooks accompanied the Collections Secretary, Susan Gove and the Treasurer, Gren Lucas, to the Linnaeus Link Partners meeting in Uppsala at which the online catalogue was launched. New partners expressing a wish to join the project shortly are libraries in Berlin, Leiden, Madrid, and Tartu. The Linnaeus Link union catalogue will locate copies of works by Linnaeus in the Libraries of all member institutions as well as giving access to top quality bibliographic records which can be downloaded to upgrade existing catalogues or build new ones.

Meanwhile, back in London, Julia Hoare, our consultant on providing online access, worked with Ben and the members of the London University Computer Centre, to launch the test version of the **Linnean Society Collections Online.** She gave a live demonstration of its capacity to the assembled delegates at the conference on ***Orchid evolutionary biology and conservation – from Linnaeus to the 21st Century*** and since then biologists worldwide have been discovering that these hitherto hidden treasures are now freely accessible online with all kinds of "tools" to assist them in their work, providing a "virtual" binocular microscope to view specimens. More details on how to access these can be found in this issue (p.8).

The planned building work in the Reading Room has now begun in a low-key way, with new light fittings installed in additional gallery bookcases, so they can be tested during the winter months. Early February will see the beginning of more major work, to replace the post-war glass in all the roof lights and seal that and adjacent areas against the current constant ingress of dirt, with a pressurised air system to filter this out and prevent stratification, hopefully also bringing more heat back down to floor level where it is needed in winter. That should take place from an internal temporary scaffold structure beneath which the Library will continue to function. By then Lynda Brooks will have officially taken on the mantle of Librarian, a task she is in effect already doing since I have had to take on the duties of Acting Executive Secretary since the end of August. As soon as that role can be handed over, I will retire, but reappear as one of the Volunteers, documenting the archives and manuscripts which the other volunteers have been labouring to sort, order and re-box throughout recent years. The aim will be to add those to the online resources both as better catalogue records and as digitised images.

Donations of Linnaean related publications continue to flow in steadily as well as other works, as listed below. We would also like to thank the Centre for Ecology and Hydrology Dorset Station for presenting us with a portrait in oils and a photograph of Captain Cyril Diver FLS.

GINA DOUGLAS

Donations

Artis Library Amsterdam: Dekkers, Midas (and others). *Aap, vis, boek: Linnaeus in de Artis Bibliotheek*. 95 pp. Amsterdam: Universiteit van Amsterdam, 2007. ISBN 978-90-400-8434-8.

P. Borges: Borges, P. & Myles.T., *Térmitas des Açores*. 126 pp. S.Joao de Estoril: Principia, 2007. ISBN 978-972-8818-98-2.

Brooklyn Botanic Garden: Hanson, Beth, ed. *Buried treasures: tasty tubers of the world* (handbook 118) 119 pp. Brooklyn: Brooklyn Botanic Garden, 2007. ISBN 978-1-889538-34-1.

L. Brooks: Tottie, T., *Ädler och höglärde H. Archiater: om Charles de Geer och hansbrevväxling med Carl von Linné*. 42 pp. Uppsala: Leufsta Herrgard, 2007. ISBN 978-91-633-0591-7.

Dr M. Morris: Burgis, M.J. & Morris, P., *The world of lakes: lakes of the world*. 281 pp. Ambleside: Freshwater Biological Association, 2007. ISBN 978-0-9000386-76-3.

Dr Marietta Colasante: Colasante, Marietta, *Iconography of Iridaceae: presentation in Italy*. 53 col.pl. Italy: Min. dell'Ambiente, 2006.

Prof. Gordon Cook: Cook, G.C., *Tropical medicine: an illustrated history of the pioneers*. 278 pp**.** London: Academic Press**,** 2007. ISBN 978-0-12-373991-9.

Bruce Coleman: Murray, Stuart, *Birds of St. Kilda* (supplement to vol. 23, 2002, Scottish Birds) 64 pp. Musselburgh: Scottish Ornithologists' Club, 2002. ISSN 0036-9144.

Dr. P.A.K. Covey-Crump: Covey-Crump, P.A.K., *Journals of a plantation owner 1803 and 1811*. 57 pp. Privately printed, 2007.

Prof. J. Cloudsley-Thompson: Adler, Kraig, ed. *Contribution to the history of herpetology*, vol. 2. (Contributions to herpetology vol. 21), 389 pp. St Louis: Society for the Study of Amphibians and Reptiles, 2007. ISBN 978-0-916984-71-7.

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Correspondence

FROM: GEOFFREY FRYER FLS Windermere, Cumbria

A question of identity

As well as being interesting and enlightening, Michael Black's article on seeds (*Linnean* 23, No.3) poses an intriguing problem. Among the likenesses of five 17th Century naturalists who studied seeds is one said to be of Robert Hooke (1635 - 1703), who included seeds among the many subjects of his microscopical investigations reported in his *Micrographia* of 1665, and of whom it has long been supposed that no known portrait exists. Moreover, a portrait recently claimed to be of this remarkable man, is not the one reproduced in Black's paper! The lack of any likeness of Hooke has long been puzzling and has led to the fabrication of such stories as those which suggest that Isaac Newton, with whom he had many disagreements, destroyed a portrait of him, or even two, that hung at the Royal Society.

In her excellent book *The curious life of Robert Hooke*, Lisa Jardine (2003) claims that a portrait by Mary Beale in the Natural History Museum, London, inscribed as being of John Ray, is in fact of Hooke. This painting hung in the British Museum from 1788, i.e. before its natural history collections were transferred to South Kensington in 1880. Jardine says that a portrait of Hooke once hung in the Royal Society repository at Gresham College and was probably not re-hung when that body moved from there in 1711. The move actually took place in 1710. She suggests that it was appropriated by Sir Hans Sloane, who she says was president at the time of Hooke's death in 1703, and hints that he rescued it because Newton did not wish to have it displayed by the Society. She is incorrect in saying that Sloane was president of the Royal Society in 1703. He held that office from 1727 to 1741. Lord Somers was president at the time of Hooke's death on March 2nd, and was succeeded in the November of that year by Isaac Newton. Although no evidence is offered that Sloane ever had such a portrait, Jardine further suggests that he gave it to Sir William Watson, a botanist and pioneer investigator of electricity; who bequeathed it to the Museum in 1787. However, whatever its provenance, Watson did not think it was a portrait of Hooke! In his will he says that he bequeaths his "Picture of the late learned and ingenious Dr. John Ray painted by Mrs. Beale" to the Trustees of the museum, There is no doubt as to who he believed was depicted in this portrait, which indeed bears an inscription that identifies it as being of Ray. Jardine says "it may have been Watson who was responsible for the inscription". Be that as it may, whoever was responsible must have had reason to believe that the portrait was indeed of Ray, or may have known with certainty that it was. If, as Jardine says, Sloane appropriated a portrait of Hooke and gave it to Watson, he would certainly have told him who was portrayed. Why then did Watson believe that it depicted Ray? Moreover, unless technical methods enable both the portrait and the inscription to be dated, which would resolve this point, it seems more probable that the inscription was contemporaneous with the portrait than that it was added later. If so there can be no doubt as to the identity of the sitter.

Jardine claims that the portrait "is not of Ray, since many other representations of Ray survive, with which it may readily be compared". This is open to challenge.

Even in the comparison between the rather fuzzy black and white reproductions of the Beale portrait and a portrait of Ray that are printed side by side in her book, the similarity of the nose is striking. This is even more obvious if one compares the much clearer, and larger, colour photograph of the alleged portrait of Hooke, also reproduced by Jardine, and used also on the dust cover of her book, with the excellent engraving of John Ray used as the frontispiece of Raven's classic account of his life and work, published in 1942. The two representations are seen from almost exactly the same angle and the profiles of the distinctive nose are strikingly similar. That the two hair styles are completely different is simply a distraction. Ray may have adopted a different hair style after he forfeited his Fellowship at Cambridge under the Act of Uniformity, or changed it, more than once, for other reasons. That the right shoulder is shown somewhat higher than the left is unconvincing evidence of identity.

As Jardine notes, Hooke certainly visited Mrs Beale when he accompanied Robert Boyle to arrange for her to paint a portrait of the latter. He records that visit in his diary, and later escorted Boyle to a sitting, but makes no reference to having his own portrait painted, as he surely would had this been done, which would presumably have necessitated several visits.

To some the distinctive shape of the nose will be compelling. So too is the fact that it is a feature of a portrait whose one-time owner, much closer to the time at which the subject was painted than we are today, believed it to be a representation of Ray. That the inscription of this portrait, which identifies the subject as Ray, seems more likely to have been added at the time it was painted, rather than later, also points to it being what it says. Moreover, even if it is not Ray, there is little to suggest that it is a portrait of Hooke.

A further mystery still remains. Who is the person represented in Black's gallery of students of seeds under the name of Robert Hooke? Has he discovered a portrait of this hitherto faceless genius? Or will it prove to be a representation of some other scientific worthy whose likeness has happily been preserved for 300 years or more?

FROM: EDWARD G. VOSS FLS University of Michigan Herbarium

I have just been reading with the usual great pleasure *The Linnean* for July 2007. [I've been out of town all summer, hence this tardy response]. Let me itemize a few things hastily noted as I went from page 1 ["Tercenenary"] to the rear cover [Linnaeus misspelled twice, correctly once]. And of course there is the amusing passage on p. 12 about "green tinted skin, which disappeared in time"; it must have been a bloody mess when that skin disappeared!

My main concern is with the accompanying "Special Issue No. 7," which overall is a fascinating and important contribution. But in the Introduction (p. 3) the misspelling "Stern" is consistently used twice for our late scholarly friend, William T. Stearn. There is still trouble spelling the name of our patron saint, which appears again as "Linneaus" in the first line of the text (p. 3) and the first line of the footnote – just for starters. More important is misinformation in the final article, on Linnaeus' fishes. The sixth line declares that the 10th ed. of *Systema Naturae* (1758) is the "starting

point for contemporary biological classification." At the very least, "biological" should read "zoological" although my limited knowledge of zoology would question whether Linnaeus' actual classification has much contemporary significance. Nomenclature and classification are two different things. As a botanist, I do know that nomenclature, not classification, of plants officially starts with Linnaeus' *Species Plantarum* of 1753 – five years before zoological nomenclature.

FROM: DR JOHN MARSDEN FLS Tunbridge Wells

As is so often the case, a Fellow of the Society has been able to fill in the connection between the two Cobbolds mentioned in my article on the *Linnean Society and Parasitology in the 19th Century*. In the first place, Mrs. *I.* Cobbold, the name on the ms. in the Library, is Mrs. *J(ohn)* Cobbold, wife *en secondes noces*, of Mr. John Cobbold, brewer, whose first wife had borne him 14 children and whose second, Elizabeth, six. These included Richard Cobbold, who became a curate in the village of Wortham in Suffolk, of which he wrote *The Biography of a Victorian Village* in 1860. Just prior to his taking the cure, three sons had been born to him, one of them the Thomas Spencer Cobbold, who became such a noted parasitologist and active Fellow of the Society. Thus Mrs. Cobbold was TS Cobbold's grandmother; the source of his means is also clear.

Mrs. John Cobbold, formerly Mrs. William Clarke, née Elizabeth Knipe, was the daughter of a wealthy Liverpool merchant and is described as a writer, philanthropist and hostess. Her portrait, in the Christchurch Museum in Ipswich, shows clearly the attractive woman she was. Her first marriage, to an elderly customs official in Ipswich, William Clarke, left her widowed after only six months.

Her interests took her into the field of biology, as was explained in the article. She was also interested in conchology and Sowerby named a mollusc after her – *Nucula Cobboldiae* – "this rare and withal elegant shell". Her link with the Society is also revealed. In a memoir commemorating her death in 1824, it was noted that she was a frequent correspondent with the "learned President of the Linnaean (*sic*) Society and for his work, the *Flora Anglica*, she favored him with the habits of many plants, the natives of this county (Suffolk)". The President was, of course, Sir James Edward Smith.

I am most grateful to Dr. Virginia van der Lande FLS for all this information which she, whose maternal grandmother was a Cobbold, has provided.

The Marine Station at Millport: the "troubled years" between 1897-1907 and their continuing resonance.

P. G. MOORE, F.L.S.

University Marine Biological Station Millport, Isle of Cumbrae, Scotland KA28 0EG
(pmoore@millport.gla.ac.uk)

In a series of recent papers, the author and his collaborators have sought to throw additional light onto some of the more obscure aspects (people and personalities) of the early history of the Marine Station at Millport (Moore, 2002, 2005, 2006; Moore and Hancock, 2004; Moore and Gibson, 2007) that were left underdeveloped by Marshall (1987). This contribution is intended both to supply a linking time-line between these previous papers and to peer somewhat into the 'future', to the new order emerging after the First World War (i.e. post-dating the establishment of the Scottish Marine Biological Association (S.M.B.A.) in 1914). The period from the erection of the Marine Station building (1897) up until 1907 (and the appointment of Richard Elmhirst) has been characterised as the "troubled years" by Marshall (1987, p. 20). Things certainly did not run smoothly during the decade following the death (in 1896) of the self-taught "Cumbrae naturalist", David Robertson (1806-1896), around whom the concept of a Marine Station at Millport had jelled initially. Nor did they ameliorate much during the following decade. The phrase "too many chiefs and not enough Indians" perhaps comes to mind when the eventual top-heavy management committee structure is considered ("ruled by the multitude" as Kofoid (1910) put it). The erection of the permanent building should have represented a perfect opportunity to capitalise upon the vision and confidence of the impressive list of supporters of the Marine Station at Millport in late Victorian times (Moore and Gibson, 2007). That a sequence of (sometimes) inappropriate short-term personnel had charge of the running of the Station during the period in question, however, meant that little scope for continuity existed on the ground. An unreliable supply of wampum, however, was the continual constraining factor (as evidenced below).

The first man responsible for the day-to-day running of the Marine Station at Millport was Captain Alexander Turbyne (1857-1905): "to whose practical skill and energy much of the success of the work in this district is due" (Hoyle, 1888, p. 224). Born in Leuchars (Fife) the son of a mason, he was a master mariner (Home trade; Leith Nautical College, 1890) and not a scientist (Moore, 2002). The 1891 census records him, aged 33, living in Millport (20 George Street) with his wife (Isabella Paters *née* Young, 31; they had married in Edinburgh in 1885), son (John, 4) and daughters (Catherine, 3; Euphemia, 10 months). He recorded his occupation then as "Captain steam yacht". Clearly, his newly acquired master's ticket was being put to good use, since Alexander Turbyne had been recorded as being a "fisherman" on Sir John Murray's steam yacht *Medusa* while she was working out of the Scottish Marine Station at Granton on the East coast.[1] That East coast background presumably accounts

for why Turbyne had been referred to as "an oyster fisherman" by Sheina Marshall (1987, p. 3). Recall that the Firth of Forth had, for centuries, been Scotland's biggest oyster ground before it had become exhausted due to over-exploitation (Fulton, 1896). Marshall (p. 6) also refers to him as having been "keeper of the Granton Station". Turbyne's role as caretaker of *The Ark* (the original temporary Marine Station at Millport that had been towed there by the *Medusa*) has been examined already by Moore (2002).

After Turbyne had quit Millport for the Cape Colony (Marshall, 1987; Moore, 2002), Alexander Gray (1858?-1944) took on the role of curator at the Marine Station in March 1898.[2] Gray referred to Captain Turbyne as "my esteemed friend and predecessor" and there had been a brief opportunity at handover for Turbyne to familiarise his successor with the job, including a day showing him local dredging grounds (M.B.A.W.S., 1899, p. 10). Gray continued in that position until 1903 when, it has been stated (Marshall, 1987), he left to emigrate to New Zealand. No record of his ever having worked at the Museum in Wellington (now Te Papa, then the Colonial Museum) can be traced; nor any references to him in local archives (Jennifer Twist, pers. comm.). He is known, though, to have donated specimens of Polyzoa and Hydrozoa from Cook Strait, Wellington, New Zealand to Glasgow Museums' collections in December 1905 and again in 1907. On each of those occasions the donor is identified as "Alexander Gray, Mosesfield Museum, Springburn" (Sutcliffe, pers. comm.). It looks most likely that he went to New Zealand in late 1903/ 1904 but returned to Scotland soon thereafter (in 1904/1905), donating his specimens subsequently. The Mosesfield mansion (Fig. 1), opened by Bailie Bilsland, did not become a museum until 1905 and did not, at that stage, have much – if any – natural

Fig. 1. New Mosesfield House in the 1920s (reproduced with permission, courtesy of Glasgow Digital Library, Centre for Digital Library Research, University of Strathclyde).

history content (Corporation of Glasgow (Parks Department), c.1906; Sutcliffe, pers. comm.).[3] Gray must have retained an interest in marine biology, since he signed-up as a member of the S.M.B.A. and paid his subscription until 1926 (which was probably when he retired). Although Gray had come to Millport from Campbeltown (M.B.A.W.S., 1899, p. 7), the 1891 census reveals that he had been born in Ireland (his father had been a road labourer). He had been working as a fisherman in Campbeltown before taking up his position at Millport. His wife, Catherine (née Spalding), was from Argyll and their daughter, Alice, had been born in Campbeltown. In 1890, his address was Craigie Place, Campbeltown. In the 1901 census, the family (Alexander, 42, Catherine, 40, Alice, 16) is recorded as living in the Marine Station curator's house. He eventually retired back to Campbeltown and died there, aged 85 years. Sadly, we lack identifiable images of Gray and his successors (until we get to Elmhirst).

In spite of not having come from an academic background, Gray did leave a small scientific legacy of minor publications behind him. Those notes and notices ranged over a wide spectrum of taxa from ornithology and seals to bryozoans and molluscs (Gray, 1890, 1900, 1901, 1903, 1904). His already published interest in the natural world (Gray, 1890, 1894) prior to his coming to Millport presumably helped him substantiate his credentials for the post of curator. Gray's 1894 paper on Bronze Age flint-workings in Campbeltown had revealed the tooth of a grey seal (*Halichoerus grypus*); a species that, he remarked, "is now extinct in this locality" having "disappeared thirty years ago" (due to the activity of "sportsmen of kind"; Gray, 1900). He is recorded commenting on local grey seal occurrences also in Paterson (1901). Gray's were, indeed, the only two published records of grey seals in the Clyde Sea area at the turn of the twentieth century (Gibson, 1976). A significant correspondence between Gray and Edward Thomas Browne (1866-1937), a patron of the Marine Biological Association at Plymouth (12 letters, mainly relating to medusae, written over the period 1901-1903), exists in the archives of the National Marine Biological Library at Plymouth, so he seems to have adapted to his new situation with alacrity. Four of those letters shed light on the prevailing perceptions at grass roots-level at Millport.[4]

Regarding politics vis-à-vis the Scottish Fishery Board (reconstituted 1882; see Adams, 2002), in his letter to Browne dated 2 January 1902 Gray pragmatically recognised: "we require their consent to work the "Mermaid" in the protected waters, and must keep on the right side of them". He continued full of optimism though –

> "our Chairman, and Treasurer, called on Mr Coats recently and submitted to him plans of the proposed extension of Station. One plan, the smaller one, was within the £3,500 mark, while the large ideal plan was to cost £6,000. This latter sum was immediately granted, so matters look bright. Obtaining ground to build on will now be the only difficulty, owing to the fact that the young heir does not reach his majority – till June next. At any rate we are now right for cash, and the rest will follow".[5] (Fig. 2)

The year 1902 was marked by international expansionism in northern European marine biological circles. The International Council for the Exploration of the Sea (ICES), the world's oldest international marine scientific organization, was established that year in Denmark (Rozwadowski, 2002). The Millport laboratory was becoming

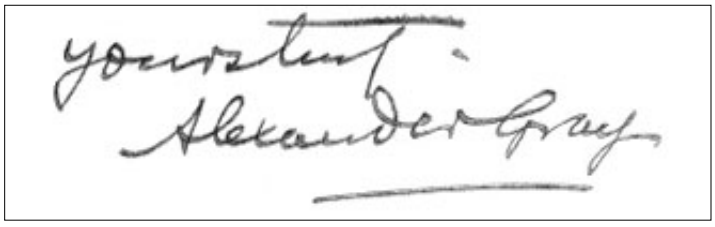


Fig. 2. Alexander Gray's signature on his letter to E. T. Browne dated 2 January 1902.

popular both with researchers (including international workers) and educationalists; so much so, indeed, that competition for (and prioritisation of) space was becoming an issue. In his letter dated 4 June 1902 Gray warned Browne that "our arrangement in the laboratory this year are different from what they were last, because of the four practical courses for School Teachers, each lasting a fortnight, from the beginning of July, to the end of August. … I am sorry that you can not now have as quiet a time as last year". Gray could not resist passing comment on a scientist of mutual acquaintance's practical abilities either (a tradition among technical staff that is still strongly upheld). Thus, in his letter dated 16 July 1902, we read "Dr Hartlaub, no doubt knew the Medusa[e] very well when he saw them, but he did not know how to townet. He had a big two-hooped townet, very clumsy by which he swore, but it caught nothing. All he did get was in our townet, worked by our method, and he felt sore [maybe 'some'?] about this". Prof. Clemens Hartlaub (1858-1927), curator of the Heligoland Biological Station (Biologische Anstalt Helgoland), was a visiting planktologist, hydrozoan expert and another correspondent of E. T. Browne's. He had visited Millport the month before (in June 1902) to study Hydromedusae (M.B.A.W.S., 1903, p. 22) so his tow-netting prowess – or otherwise – would have been quite fresh in Gray's mind. By 17 November 1902, Gray was relaying to Browne that "there is little further to report about our extension but we have been trying to affect an exchange of part of our present ground, for an equivalent amount on the other side of our east wall, and I think the lawyers will manage to get it settled that way".

Gray had come to Millport bearing fulsome testimonials from prominent persons. Dr J. A. Gibson (Scottish Natural History Library, Kilbarchan) had been given a (unique?) copy of these closely printed documents by the distiller and antiquarian Mr Duncan Colville, one-time Provost of Campbeltown but has mislaid them temporarily (Gibson, pers. comm.). Gray apparently lived up to all expectations; the Committee consistently sang his praises (M.B.A.W.S., 1899, p. 7; 1900, p. 8; 1901, p.9). Gibson (1976) described him as "a highly competent observer". Evidence for that can be adduced from his recording of the minute and rare calcareous sponge, *Leucosolenia lacunosa,* that he found attached to the test of a tunicate, *Ascidia mentula* (see Gray, 1904). He was clearly an accommodating host to visitors at Millport. Alexander Patience, in his paper on the Decapoda of the Largs Channel (Patience, 1900) reported that he wished to "express my thanks to Mr Gray, curator of the Station, who, on every occasion, most generously gave me his assistance by placing all the necessary appliances of the Station at my disposal". He acted as one of the guides during the visit to the Marine Station of the excursion from the 1901 Glasgow meeting of the

British Association for the Advancement of Science (M.B.A.W.S., 1902, p. 35). He is recorded in the *Transactions of the Natural History Society of Glasgow* as conducting the Society's annual trip round the Marine Station in 1903 (on 15 August) (Anonymous, 1903). He certainly comes across in his correspondence with Browne as confident and competent. With the benefit of hindsight, many might soon have wished he had not seen fit to move on (none of his letters gives any intimation of his reason(s) for so doing). Even the Millport-critical E. T. Browne had said of him "I have personally no grounds for complaining, as I was well treated on my visits [in 1901 and 1902]. When Mr Gray saw that I really meant business and was in earnest, he did everything to help me." (E.T.B. letter to J. Graham Kerr, dated 14 February 1905; N.M.B.L., Plymouth).

Having "received applications from several graduates of science, and men with scientific experience in similar institutions elsewhere" (M.B.A.W.S., 1904, p.12), Gray's place as curator at Millport was filled (in 1903) – fleetingly - by Mr W. T. Gibson, ARCS; an arrangement that lasted for less than a year. An Associate of the Royal College of Science in London, Gibson had also received some scientific training at Edinburgh University. He had also worked at the Gatty Marine Laboratory (St Andrews) and the laboratory of the Northumberland Sea Fisheries Committee at Cullercoats (North Shields; since 1908 the Dove Marine Laboratory) (Marshall, 1987, p. 18). In spite of his apparently more scientific education (than either of his predecessors), I can discover no record of Gibson having left any published marine biology behind him. Dr Judy Foster-Smith (pers. comm.) has kindly checked the Northumberland Sea Fisheries Reports 1897-1903 for me and could find no mention of any W. T. Gibson. Additionally, she checked the University of Newcastle and Dove Marine Laboratory library catalogues and found nothing listed under that name. Gibson was clearly not a prolific writer of science. What he was, however, according to Marshall (loc. cit.), was a "hot-tempered" man who constantly wrote letters of complaint about his lot to Professor John Graham Kerr at Glasgow (and even to E. T. Browne after resigning; a letter that Browne had forwarded to Kerr in confidence. Browne though stated of Gibson "he is quite a stranger to me"). Such griping by Gibson might have been unfortunate, in helping reinforce in Kerr's mind the feeling that Millport's Marine Station was a source of irritation (note also Moore, 2006). In view of the increasing workload of the (by then) extended Station, it had been decided to make Gray's replacement a double appointment, so Mr John Mackenzie (previously Laboratory Assistant in zoology and geology at Marischal College, Aberdeen, and before that a joiner to trade) was hired to supplement the expertise of Gibson in the role of Assistant Curator. Gibson was paid £120 (without a house) and McKenzie £80 (with the curator's house), with the possibility offered of Gibson boarding with him. Whether this ever actually happened in unknown (Marshall, 1987). But their partnership did not last long: "owing to the strained relations which had arisen between the new members of staff – Mr Gibson and Mr McKenzie – it became apparently impossible for matters to go on as they were, and after careful consideration they resolved that the best course was to accept the resignations of both" (M.B.A.W.S., 1905, p.15).

One bright spot (Thursday 21 July 1904) in the Marine Station's firmament during that period, however, would have been the return to Scotland (to a heroes' welcome and reception after the expedition's landfall at Keppel Pier) of William Speirs Bruce's

Fig. 3. The festive return of the Scottish National Antarctic Expedition to the Firth of Clyde; Bruce's S. Y. *Scotia* (left) being met (between Arran and Ailsa Craig; Anonymous, 1904) and escorted by the Marine Station's S. Y. *Mermaid* (third from right; which fired a salute) and expedition sponsor James Coats, Jr's S. Y. *Triton* (extreme left, passing behind *Scotia*) and three-masted schooner *Gleniffer* (centre), all dressed overall. Small boats on far right unidentified (reproduced with permission, courtesy of the Royal Scottish Geographical Society).

(1867-1921) Scottish National Antarctic Expedition (1902-1904) aboard the S. Y. *Scotia*, when Bruce was presented with the gold medal of the Royal Scottish Geographical Society by Sir John Murray, KCB (1841-1914) at the Marine Station before 400 guests sat down to a marquee luncheon (Speak, 2003, p. 95) (Fig. 3).[6] The centenary of this special occasion was celebrated recently, in conjunction with the Royal Scottish Geographical Society, with a range of scientific and popular events put on locally in July 2004.

It was the following year that the Millport vacancy was filled (1 July 1905), so disastrously, by Stephan Ion Pace (1872-1941) (Moore, 2006). Pace was almost equally briefly and, sadly for all concerned, ingloriously Director at Millport between 1905-1907. Despite Graham Kerr's support (he described Pace in a letter to E. T. Browne, dated 2 January 1906, as "a quite competent person"), Pace it was who had catalysed a schism in the membership of the Marine Biological Association of the West of Scotland (M.B.A.W.S.) between the amateurs (following the traditions of David Robertson) and the professionals (represented by university types like Graham Kerr, with strong support from E. T. Browne). The circumstances that resulted in the breakdown of communication between these warring factions, and Pace's eventual

expulsion from his position as Director, have been examined in detail by Moore (2006) and will not be repeated here.

Appointed in 1906, first as Naturalist and Assistant to the then Director (Pace), Richard Elmhirst (1884-1948) became (initially Interim) Superintendent in 1907 (taking over from Pace after the latter's unseemly departure; see Moore, 2006). It was he who, probably more than anyone else, witnessed the metamorphosis of the Marine Station from the early days of natural history to the modern era of marine science (the very transition so ineptly proselytised by Pace). Indeed, Elmhirst's sequential positions in the organisation reflected that transformation. It is noteworthy, though, that he did not immediately even have the title of Superintendent conferred upon him; let alone Director. Perhaps the committee was being ultra-cautious, having had its fingers burned in quick succession by Gibson, McKenzie and Pace. I am preparing a detailed appreciation of Elmhirst for publication elsewhere, so shall not dwell further on him here. Suffice to say that the arrival of this genial Yorkshireman brought some much-needed operational stability to the Marine Station's activities. But he still had to wait until 1933 before he was allowed to assume the title of Director. However, we are running ahead of ourselves; much choppy water had to flow under the bridge before that day dawned.

The Report of the M.B.A.W.S. for 1906, furnished by the Honorary Treasurer, James H. Parker CA, made uncomfortable reading (M.B.A.W.S., 1907, p.16).

> "A glance … will show that the expenditure has considerably exceeded the receipts, and as a main factor in this (apart from the increase in salaries due to our having a larger permanent staff), I would remind you of the extensive repairs to the Station building, which were, unfortunately, found necessary. These repairs not only involved a large direct expenditure, but caused most serious dislocation of the general work of the Station during the busiest part of the season.
>
> The income side of the Account reaches a figure very similar to what it was in the previous year, that is, leaving out of account the annual allowance of £220 for the upkeep of the "Mermaid", of which, until this year, we have had the benefit.
>
> The net result is, I am sorry to say, that not only have we swept away the whole reserve of £200 which in previous years we had been able to accumulate, but we close the year with a deficit of £24 15s 10d."

Mention is made in Campbell's book *Millport and the Cumbraes* (1975) that, in October 1907, "the S. Y. "Mermaid" was to be hauled up by the Marine Station across the highway". Doubtless, this would have been to facilitate her overhaul, she having been in "an unsatisfactory state last year" (M.B.A.W.S., 1908, p. 16). The following year, a new Treasurer (George Middleton, MA, LLB), expressed the hope that

> "the ordinary expenditure of the year 1908 may be sufficiently met by the ordinary revenue. It is not anticipated that any extraordinary expenditure will be necessary. The expenditure of last year, although it exhausted the year's income, and proved a heavy drain on the funds in reserve, was all found to be absolutely necessary. It is clear that the various agencies of the Association cannot be properly and advantageously maintained in operation, nor the full aims and objects of the association successfully accomplished, without a greater measure of public support and a correspondingly larger annual income" (M.B.A.W.S., 1908, p. 30).

A year later again, Middleton was reporting "the present income of the Association is quite inadequate to maintain the Station and the "Mermaid" in full working order". He continued

> "The Association in the past has been fortunate in enlisting the sympathy of private donors who have contributed most substantial sums for capital and revenue purposes. Unless some such help is forthcoming in the present year, it will not be possible to continue on the work of the Association on its present scale" (M.B.A.W.S., 1909, p.27).

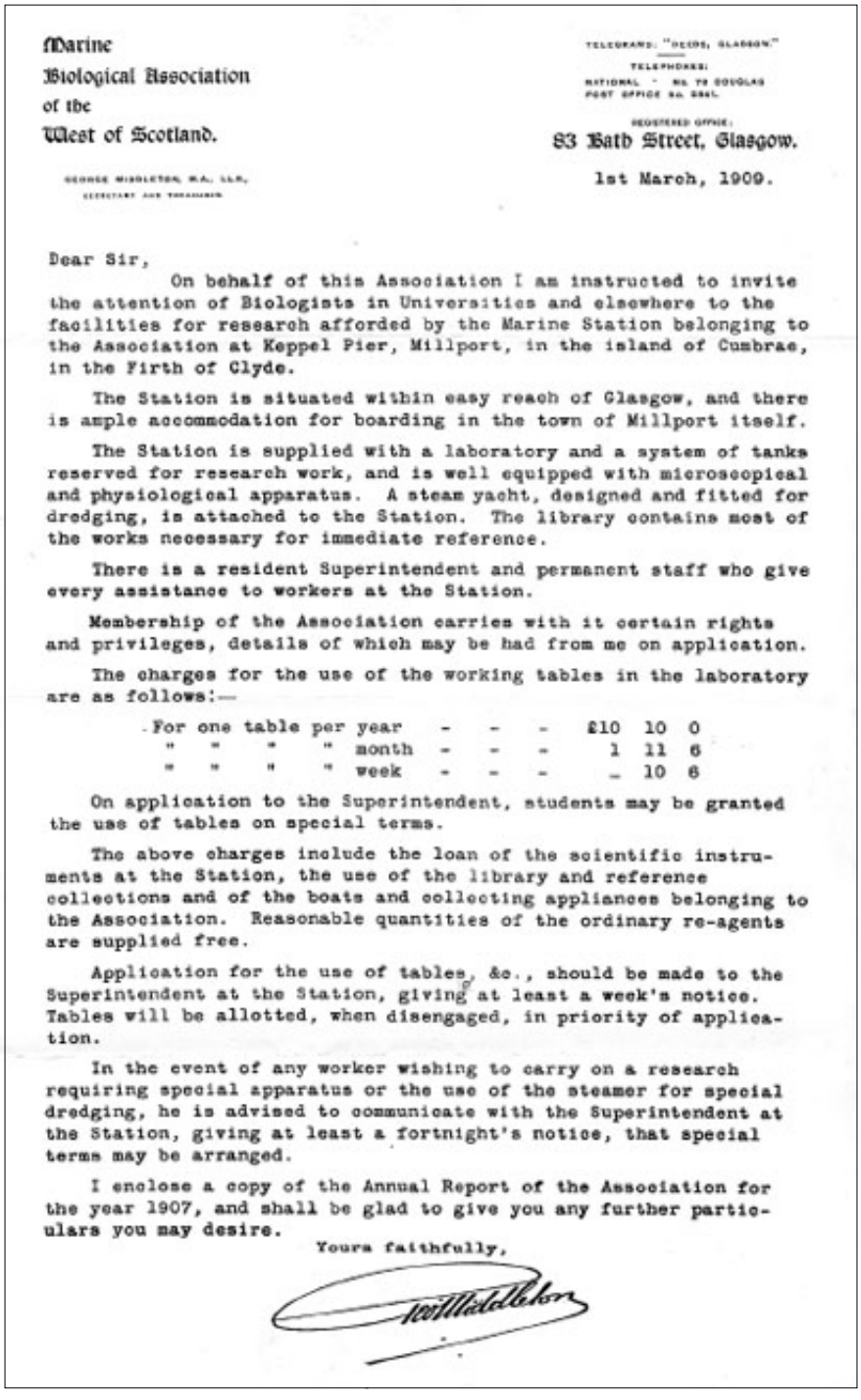
The private donor who, in the past, had supported the Station's activities so valiantly had been the publicity-shy businessman James Coats, Jr of Paisley (of the wealthy Paisley Baptist thread-manufacturing dynasty based at Ferguslie Mills). However, on this occasion it was the President of the Association (1907-1911), Henry Barr, BL, who saved the day. He donated £100, helping thereby to substitute for the shortfall of that amount caused by the phased withdrawal of the City of Glasgow's £200 (hitherto annual) donation.

The Treasurer's report for 1909 (M.B.A.W.S., 1910, p. 24) revealed "it is again to be noted that the upkeep of the S. Y. "Mermaid" is a serious item, even in a year like 1909, when the vessel was not put into commission". He highlighted the cost of insurance premiums and concluded "it is clear that a special effort must be made to increase the ordinary Revenue of the Association, as it is not practicable to reduce further the ordinary Expenditure without impairing the usefulness of the Station at Millport".

Prompted by the urgent need to drum-up support, Middleton (under instruction) then canvassed widely for business. A copy of that letter, dated 1 March 1909, has survived and recently came to light (kindly saved from oblivion and donated to Millport by Ian Wallace of Liverpool Museum). It reveals a marketing drive aimed at "biologists in Universities and elsewhere", bringing to their attention the facilities on offer at the Millport Marine Station (Fig. 4). It is noteworthy, however, that Middleton had accompanied this letter with a copy of the Annual Report of the Association for 1907. The precarious financial situation of the Station would thus not have been quite so obvious to casual readers, a wily stratagem indeed by the Association's Secretary and Treasurer anxious not to appear to be proselytising a forlorn hope. The party visiting in August 1909, immortalised in Figure 5, could easily have been one result of this initiative.

The Station was still overdrawn at the bank in 1910 to the extent of *ca* 8% of its annual income. A general appeal was put out by Henry Barr and George Middleton in the Annual Report of 1911 "to all those interested in the development of marine biology, to strengthen the hands of the Marine Biological Association of the West of Scotland by their support" (M.B.A.W.S., 1912, p. 21). The Endowment Fund had been set up some years previously (in 1903) under the then President and dedicated Millport supporter, James Fairlie Gemmill (1867-1926). Its terms had stressed (inter alia) that "The Millport Station has the almost unique distinction of being a scientific institution founded and maintained entirely by private effort" (M.B.A.W.S., 1903, p. 11) and, to that end, a form for contributing to the endowment fund had been appended to Annual Reports from 1904 onwards in addition to a membership application form. As the *Handbook for the Marine Station* (M.B.A.W.S., 1901) put it so succinctly (p. 43), the desirability of a

healthy endowment fund was obvious: “that such an institution should be dependent upon so precarious a means of livelihood is highly unsatisfactory, and may lead to great



Marine
Biological Association
of the
West of Scotland.

GEORGE MIDDLETON, M.A., LL.B.,
SECRETARY AND TREASURER.

TELEGRAMS: "OCEOS, GLASGOW."
TELEPHONES:
NATIONAL - NO. 70 DOUGLAS
POST OFFICE NO. 6841.

REGISTERED OFFICE:
83 Bath Street, Glasgow.

1st March, 1909.

Dear Sir,

On behalf of this Association I am instructed to invite the attention of Biologists in Universities and elsewhere to the facilities for research afforded by the Marine Station belonging to the Association at Keppel Pier, Millport, in the island of Cumbrae, in the Firth of Clyde.

The Station is situated within easy reach of Glasgow, and there is ample accommodation for boarding in the town of Millport itself.

The Station is supplied with a laboratory and a system of tanks reserved for research work, and is well equipped with microscopical and physiological apparatus. A steam yacht, designed and fitted for dredging, is attached to the Station. The library contains most of the works necessary for immediate reference.

There is a resident Superintendent and permanent staff who give every assistance to workers at the Station.

Membership of the Association carries with it certain rights and privileges, details of which may be had from me on application.

The charges for the use of the working tables in the laboratory are as follows:—

For one table per year	- - -	£10	10 0
" " " " month	- - -	1	11 6
" " " " week	- - -	-	10 6

On application to the Superintendent, students may be granted the use of tables on special terms.

The above charges include the loan of the scientific instruments at the Station, the use of the library and reference collections and of the boats and collecting appliances belonging to the Association. Reasonable quantities of the ordinary re-agents are supplied free.

Application for the use of tables, &c., should be made to the Superintendent at the Station, giving at least a week's notice. Tables will be allotted, when disengaged, in priority of application.

In the event of any worker wishing to carry on a research requiring special apparatus or the use of the steamer for special dredging, he is advised to communicate with the Superintendent at the Station, giving at least a fortnight's notice, that special terms may be arranged.

I enclose a copy of the Annual Report of the Association for the year 1907, and shall be glad to give you any further particulars you may desire.

Yours faithfully,

Geo. Middleton

Fig. 4. The letter from George Middleton canvassing for financial contributions to support the Marine Station.

inconvenience at any time". By vigorously addressing the annually recurrent financial malaise, matters improved temporarily, for the Committee began the year 1912 clear of debt "owing to the receipt of special donations" given in response to the 1911 appeal. However, it was pointed out that "the Committee cannot count on special donations every year and there remains the necessity of either substantially reducing the annual expenditure or of finding new sources of regular income. The Association for its efficient working on its present basis requires at least a clear income of £550 per annum. The income last year was only £359 13s 2d" (M.B.A.W.S., 1913, p. 10).

Having phased-out their support for the Marine Station in 1909,[7] the Corporation of Glasgow acceded to a special appeal for funds in 1913 "with the gratifying result that a grant of £100 from the Common Good Fund" was forthcoming. Other donations increased so that "the committee are hopeful that during the year 1914 they will be successful in raising additional revenue, and a special effort will be made not only to meet all the current year's expenses, but to wipe off the bank overdraft" (then standing at *ca* 35% of income) (M.B.A.W.S., 1914, p. 39). The first year of the Great War revealed the new President and local man of influence (Sir Archibald McInnes Shaw, LLD; Provost of Glasgow, 1908-1911) and Secretary (George Middleton) of the nascent Scottish Marine Biological Association once again appealing urgently for support funds in those nationally traumatic times (S.M.B.A., 1915).

Financial stringency, disappointment and economic wheeling-and-dealing behind closed doors remained characteristic of the Millport Marine Station after the cessation of global hostilities; as the following extracts taken from archived letters of 1916 sent by John Stanley Gardiner, FRS (1872-1946) on behalf of the Royal Society to Frederick Orpen Bower, FRS (1855-1948) in Glasgow University reveal.[8]

> "We have had referred to us an application for a grant from the Millport Biological Station. It is an application for a grant from our own funds but we could switch it over to the Government Grant Committee. Before doing anything, the Council decided to refer it to the Zoology Committee to examine and report. They can only recommend a grant provided that in general the Millport Station is of very real value to the objects for which the Society exists. Could you assist us by giving your opinion which it is needless to say will be regarded as confidential." (Glasgow University archives, ref. DC2/13/ 92)

Unfortunately we lack Bower's reply but a snippet in a later communication from Gardiner to Bower reveals that his verdict must not only have been unfavourable but also that it was considered so confidential that it warranted the elimination of all evidence. Thus Gardiner's second letter (Glasgow University archives, ref. DC2/13/ 93)[8] includes the following section: "Re Millport – I think I wrote to you to thank you for your letter re above. The Council refused the Grant and also the alternative viz to send it to the Gov. Grant Committee. I was asked again to thank you. The correspondence has been destroyed."

Some circumstances did begin to improve locally around then; at least septic tanks began to be installed (February 1915) in the town to remove pollution from the beach (completed 1926; Campbell, 1975, pp. 43 & 80). The Marine Station's financial problems, by contrast, kept on bubbling to the surface. Further financial depression hit the laboratory in 1921 and things only began to improve in 1922 with the eventual

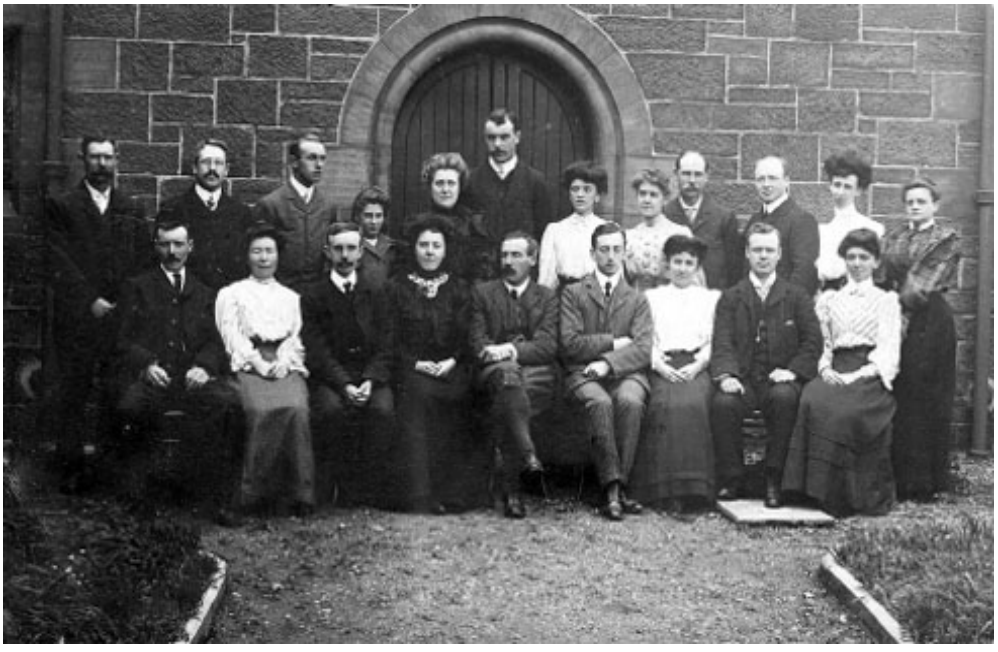


Fig. 5. A post-card photograph taken outside the (then) new wing of the Marine Station (see Moore, 2006 fig.1), its postage stamp franked August 18 1909 (?), is thought to be of a class from the Provincial Training College (with Dr Gemmill, Prof. King and John Connell; see M.B.A.W.S., 1910, p. 19). The identities of most persons shown are presently unknown but the following are identified on the reverse: left to right (back row); no. 10, Richard Elmhirst; left to right (front row); no. 5, J. F. Gemmill; no. 6, Prof. L. A. L. King; no. 8, John G. Connell. John Connell, FRMS, was also the representative of the Andersonian Naturalists' Society on the General Committee of the Marine Biological Association of the West of Scotland. The high proportion of ladies is strongly suggestive of a teacher-training group though. This interpretation seems most likely since Prof. L. A.L. King and Mr J. G. Connell were described as "Lecturers in zoology at the Glasgow Training Centre" [= Glasgow Provincial Training College (subsequently Jordanhill College, now the Faculty of Education, Strathclyde University)] (M.B.A.W.S., 1914, p.10). We know too that James Gemmill also taught zoology to teachers at the College (Gemmill, 1928). The walrus-moustached person first left (back row; the only one not wearing a tie) is John Peden, Laboratory Attendant and Elmhirst's assistant. Conceivably, the photograph could have pre-dated the franked date. Is there a story behind the apparent coolness of the body language of Gemmill and King?

award to the Scottish Marine Biological Association (as the M.B.A.W.S. had become in 1914) of a governmental Development Commission grant enabling an expansion of the scientific staff (Elmhirst, 1937; Marshall, 1987, p. 32; Moore, 2006; cf. Hawkins *et al*., 2000).

This now century-old catalogue of scrimping and saving, and general making-do generates an eerie feeling of *déjà vu* to those of us who have lived through the financial exigencies of the past 36 years at Millport under its consistently University under-funded management post-1970. Only the private benefactors are missing these days to make good shortfalls in running costs.[9] Tertiary education in Britain is supposed, now, to be delivered at full economic cost but the system has never found the resources

to match the politically driven expansion in student throughput experienced, particularly over the past decade and especially in scientific disciplines. Pathetically, the declining resource base per capita has coincided with an obsession about "proving" the delivery of increased educational quality (or at least the generation of immaculate paper trails masquerading as the same thing). In a requirement familiar to our armed forces, only the altruism of staff stretches elastically to bridge the constantly expanding chasm labelled 'more for less'. Equally, the Research Councils base their research-funding decisions on the precept of a 'well-found laboratory' but will not contribute to the constantly necessary upgrading of basic infrastructure. *Plus ça change, plus c'est la même chose*.

The Millport Marine Station has not been alone in having been required to cope with hard times in recent years. Others have suffered terminally. That two British university marine laboratories have been allowed to fall by the wayside is something about which we should be concerned. First we witnessed the demise of Leeds University's Wellcome Marine Laboratory at Robin Hood's Bay in 1982/3. Liverpool University's Port Erin Marine Laboratory on the Isle of Man was closed in September 2006 and Newcastle University's Dove Marine Laboratory at Cullercoats has teetered on the brink recently.[10] No private philanthropists step forwards to fill the funding gaps in marine laboratories' recurrent budgets in Britain these days. Certainly, the State governed with a lighter touch in Victorian and Edwardian times, allowing a greater proportion of the nation's wealth to remain in private hands.[11] Surely though, even in our taxing times, whole-organism marine biology in Britain (a nation whose wealth was founded on seafaring and defended by blue jackets, and whose navigators and explorers laid the very foundations of the science) deserves better.[12] But then, you only have to look at the current state of our navy to judge the priorities of the centre: as a different "former naval person" – one possessing only partial sight but impeccable foresight – once said (off Copenhagen, as he clapped his glass to his sightless eye); "I see no ships, only hardships".

ACKNOWLEDGEMENTS

Dr I. Wallace (Curator of molluscs and aquatic invertebrates, Liverpool Museum) is thanked for rescuing the Middleton letter from being jettisoned during a clear out. I am grateful to Ms Linda Noble and Ms Emma Woodason (National Marine Biological Library, Plymouth) for supplying copies from the Browne / Gray and Browne / Kerr correspondence held therein. Dr J. A. Gibson (Scottish Natural History Library, Kilbarchan) is thanked for his continued assistance in pursuing old references for me and for supplying insightful personal reminiscences. I am most grateful to Mr R. Sutcliffe (Glasgow Museums Resource Service) for his illuminating comments on Alexander Gray's post-Millport history. Ms Jennifer Twist (Archivist at Te Papa, Wellington, New Zealand) is thanked for searching local archives for antipodean references about Gray. Professor T. A. Norton (Port Erin) is thanked for sending me the 1909 postcard featured here as Figure 5, which came as a well-timed surprise, quite out-of-the-blue, recently. Mr Steve Parker provided essential technical support for electronic manipulation of the illustrations.

NOTES

[1] Records of the Scottish Marine Station for Scientific Research, Granton, Edinburgh (1883-1901) held at Edinburgh University Library, Special Collections Division [GB0237 Gen.33; Gen.81D-92D; Gen.93D-96D]. URL (accessed 28 April 2006): http//www.archiveshub.ac.uk/news/0504smssr.html.

[2] Mrs Turbyne is listed in 1915 as among those landladies offering accommodation (then at 33 Glasgow Street; 25s per room per week, no board) to visitors to the Marine Station (S.M.B.A., 1915, p. 78). Had she returned from South Africa after her husband's tragic death in 1905 (Moore, 2002) or had she never left Millport? Interestingly, Miss Euphemia Turbyne was recorded as Museum Attendant in 1909 (M.B.A.W.S., 1910, p. 9).

[3] Hugh Reid of Belmont House (d. 1935), son of Sir James Reid of Auchterarder (1823-1894) the Glasgow railway mogul and founder of the Hyde Park Locomotive Works at Springburn, gifted Mosesfield House to the Corporation of Glasgow in 1904. The lower part of the house served as a museum thereafter until September 1952, subsequent to which it was converted into an old men's club (Mitchell, 2005). Reid's original stipulation had been that the facility should be used for rest and recreation (Corporation of Glasgow (Parks Department), 1905). According to Dr J. A. Gibson (pers. comm.) the natural history exhibits there had not amounted to much, in the 1940s and 50s, anyway. Note also footnote 7.

[4] E. T. Browne, MA, of University College London, it may be recalled, was a man of independent means whose greatest love was for the coelenterates but he was one of those people who "would fain allow publication to wait for perfection, and yet realise even better than others that perfection never arrives" (Southward & Roberts, 1984). It was Browne's generosity (together with that of G. P. Bidder III) that had been instrumental in saving the Plymouth Marine Laboratory from economic nemesis at about the same period (Southward & Roberts, 1984; Moore, 2006). Browne, indeed, had been urged by Glasgow University's Professor John Graham Kerr to apply for the directorship vacancy at Millport that was eventually filled by Stephan Pace (Moore, 2006) but had replied "I have no intention of standing for the vacant post at Millport as I prefer to devote my whole time to research" .. "It is clear to me that it is of little use appointing a director, who would run the station on scientific lines, like Plymouth or any foreign station, without a change of the executive committee" .. "The only chance of saving Millport – I consider the Station a disgrace to science – is for yourself to be on the executive committee and make your authority felt" (letter from E.T.B. to J.G.K, 14 February 1905; National Marine Biological Library, Plymouth). The four letters from the Gray / Browne correspondence referred to herein (dated 2 January, 4 June, 16 July and 17 November 1902) are all written on official notepaper headed "Marine Biological Association of the West of Scotland, Marine Station, Keppel Pier, Millport, N.B." addressed to "Dear Mr Browne" (archived in National Marine Biological Library, Plymouth).

[5] The "young heir" referred to by Gray would have been The Most Honourable John Crichton-Stuart, 4th Marquess of Bute (20 June 1881-16 May 1947). The Lords Bute used to be hereditary feudal landlords of the bulk of the Island of Great Cumbrae until 1999 when the island was sold-off to its tenant farmers.

[6] The reception committee for the *Scotia* included "Sir John Murray, KCB, President of the Royal Scottish Geographical Society; Lieutenant Shackleton, RN, of the Discovery; Dr Sommerville;

Mr David Robertson, ARSA, President of the Scottish Art Club; Mr J. G. Bartholomew, map engraver, Edinburgh; Mr Henry Coates, Perth; Mrs W. S. Bruce; Mrs Robertson, wife of the Scotia's captain; Dr Bruce Young; Dr Walker Downie; Dr Davies; Dr W. L. Reid; Dr Workman; Colonel Menzies; Dr Rottenburg; Dr Gemmell [sic], President of the Marine Biological Station, Millport; Mr J. A.Todd, secretary, and others" (Anonymous, 1904).

[7] In spite of Sir William Bilsland, LLD, the then Honorary President of the M.B.A.W.S., also being Lord Provost of the City of Glasgow at the time.

[8] Two letters from John Stanley Gardiner, FRS to Frederick Orpen Bower, FRS [Glasgow University Archives: refs DC2/13/92 (dated 27/1/16) and DC2/13/93 (dated 16/3/16)]. Bower was Regius Professor of Botany at Glasgow University. Gardiner was a zoologist and oceanographer at Cambridge University and was, in this exchange, representing the Royal Society.

[9] Although the capital of the Marine Station at Millport has benefited, in more recent years, from the legacy of the late Sheina Marshall who left her house to serve as the Director's house and a substantial bequest of books to embellish our library (Moore and Gibson, 2007).

[10] Perhaps surprisingly, in the light of French national pride in all things marine, the situation in France is not much better. The Marine Station at islet de Bailleron (Golfe du Morbihan) that opened in 1959 is now almost closed. Seventy-five percent of the famous century-old Station marine d'Endoume (near Marseille) is, apparently, up for sale. The French marine science community is trying to make the government change its mind but whether they will be successful remains to be seen (Dr J. Grall, pers. comm.).

[11] Income tax (at 10%) in Britain had been introduced in 1799 to pay for the Napoleonic Wars (repealed 1816). It still, to this day, remains a temporary tax re-applied for by the government to parliament annually.

[12] Harris (2000) recently summed up the historical perception of the British State as one whose interests "most people defined in terms of an 'empire of the seas'".

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John Stackhouse (1742-1819) and the Linnean Society

IAN CALDWELL FLS

I have recently become a fellow of the Linnean Society – and it was all due to John Stackhouse, an 18th century Cornish botanist. This is how it happened.

In October 2005 I went with my wife, Gillian, to Greenwich to celebrate the 200th anniversary of the battle of Trafalgar. We arrived a little early at the same time as another man, who parked his car near us and we started talking and had a drink in the bar with him. After a little while his two friends, Guy and Katarina Morris turned up and joined us and in the course of conversation Katarina mentioned the Linnean Society and I said, "One of my ancestors became a member of that society in 1795. He wrote a book on seaweed but I have never seen it".

Katarina said, "You should come along to the Society library, they have probably got a copy there". I was intrigued and said I would love to come. Soon I had an email from Katarina, who said she had asked the librarian, Gina Douglas, about my ancestor and not only did they have his book on seaweed, but they also had some of his botanical notebooks and a collection of letters he had written to James Smith, the first President of the Society.

Katarina invited me to a meeting of the society so I went along and met some members and attended a lecture. I liked the people I met and found the lecture interesting. I was pleased to be back in the scientific community that I had left in 1972. Since that first meeting of the Society I have been able to visit the library and have seen the book on seaweed, the notebooks and the letters and have been piecing together and exploring the life and work of John Stackhouse. So who was he?

He was born in 1742, during the reign of George II, at the family estate of Trehane, near Truro, Cornwall, and was the second son of a clergyman, the Rev. William Stackhouse D.D., rector of St. Erme, Cornwall and his wife, Catherine, so it would be his older brother, William, who would inherit the estate when his father died.

John, went to to Exeter College, Oxford where he matriculated in 1758 at the age of 16 and read Classical languages. He became a fellow of his college in 1761, but it is not known whether he studied Botany at this time, though we do know that he would have had access to the Botanical Gardens at Oxford, which were the oldest scientific gardens in Britain. They were founded in 1621, firstly as a physic garden growing plants for medicinal research. The walled garden was completed in 1633. The very first glasshouse in the country was built there in 1672, of stone with a slate roof and small windows – 17th century gardeners had not appreciated that plants needed ample light as well as warmth. By John Stackhouse's day the gardens contained plants collected from round the world by William Sherard who had died in 1728, leaving money to endow a professorial chair in Botany, with a grant of £150 a year towards the running of the garden.

Stackhouse developed a consuming interest and love of natural history and Botany in particular and later was to write:

> "In fact the growth of plants is a silent, but stupendous operation of nature: when we reflect on the size of the Oak, which over the lapse of ages, attains its Gigantic Bulk, without drawing from its parent Earth a single particle whose size would hinder its passing through the minutest capillary tube."

While still at Oxford he had a stroke of good fortune which was to make him financially independent and able to pursue his interest in natural history. His second cousin, Grace Percival, died childless in 1763 and left the Pendarves estate in Cornwall to him. Her brother, Sir William Pendarves MP, had also died childless in 1726, so now the Pendarves line had died out. The estate was large and included farms and copper and tin mines, the villages of Troon and Beacon and part of the smaller villages of Penponds and Barripper.

He was now a man of means, so resigned his Fellowship in 1764 and went on the Grand Tour, travelling abroad for two or three years but, apart from seeing the sights, he also followed his passion for natural history and studied plant and animal life around the Mediterranean. His particular interest was to become the study of seaweed, which he saw as a beautiful but neglected class of plants.

Pendarves in the 19th century

Returning home to the Pendarves estates he was appointed Sheriff in 1767. It was shortly before Christmas in 1772 that he met and fell in love with Susanna Acton, the only daughter of Edward Acton of Acton Scott near Church Stretton in Shropshire. I don't know how he, a Cornishman, came to meet Susanna, a Shropshire lass, but I have an idea it may have been through his botanical interests, or it could have been at the new Assembly Rooms in Bath.

Susanna's father, Edward Acton, had also matriculated from Oxford, from Balliol College, and had a keen practical interest in arboriculture, especially apple trees. Between 1755, when he began grafting experiments, and his death in 1775, hundreds of apple and some pear trees, were grafted, many by Edward himself, and planted in closes, hedgerows and cottage gardens. He gave dozens of others to relations, friends and tenants. He also planted fir, larch, Spanish chestnut, elm, beech, walnut and lime around the manor and established a plantation of Scots fir on Oakwood Common in 1771. He raised large numbers of ash, poplar and willow trees from sets.

In 1751 Linnaeus expressed the view that "all our fruit trees are the result of man's interference and therefore unworthy of the attention of even the lowliest botanist," a sentiment, one presumes, that was not shared by Edward Acton.

It seems likely that John and Susanna may have met in Bath. The Bath Assembly Rooms first opened their doors to polite society in 1771 and within weeks they became the place to see and be seen, with grand twice-weekly balls attracting up to 1,200 guests at a time. Susanna's father, with his interest in arboriculture and grafting

experiments would have probably enjoyed botanical discussions with John Stackhouse. Bath was a city that became a second home to John and Susanna and was the place where John died in 1819.

They married on 21st April 1773 at the parish church of St. John the Evangelist at Treslothan, where the Pendarves family had their mausoleum. John's second cousin, Sir William Pendarves, MP for St. Ives, is said to have entertained his friends by mixing punch in a coffin made of copper. At the time of their wedding John Stackhouse was 31 and Susanna was 19. At first the newly married couple lived at their large Georgian mansion, where John looked after the estate and pursued his interest in Botany.

It was not long after they were married, perhaps on their honeymoon, that they took a boat out to St.Michael's Mount and while they were there they both admired the view and liked that part of the Cornish coast. They decided to build a house on the coast between Perranuthnoe and Cuddon Point, partly for the view and partly so that John could have a home by the sea where he could pursue his study of seaweed. He was later to write to Dawson Turner that here "the rocks at low water have many curious Fuci..." and in the preface to his book on seaweed remarked that:

> "no country in the world more abounds with them than the shores of the Island we inhabit: the more beautiful kinds display themselves in pictures as we walk on the sands, while the larger ones are frequently detached from the entangled mass, when the weather is moderate, and seem to solicit a place in the Herbarium of the Naturalist".

He bought a lease on the land above what is now known as Stackhouse Cove for £46 from the Trevelyan family of Nettlecombe in Somerset and erected a substantial castellated house at Perranuthnoe with that view that had so appealed to both of them. While in Bath he had been greatly attracted to the new buildings there. The principal architect in Bath at that time was John Wood the Younger, whose father, John Wood, had been responsible for many of the fine buildings in Bath. So John Stackhouse asked Wood to be the architect of his new house. When the house at Perranuthnoe was completed they named it "Acton Castle" as a tribute to Susanna's father who had died in 1775. His widow died in February 1780 and as Susanna was their only child she inherited the Acton Scott estate in Shropshire.

In order to study seaweed in as natural a state as possible, John Stackhouse had special baths let into the floor of one of the large rooms, in which he could keep his specimens as he drew and studied them. He was particularly interested to find out how seaweed reproduced, as this was still a bit of a mystery to botanists in the 18th century. This is believed to be the only house in the world erected for the special purpose of studying seaweed.

Acton Castle

Stackhouse felt that "the families of Fucus, Alga and Conserva, or "Sea Weeds" as they are indiscriminately called, form a very beautiful as well as neglected part of this interesting class" of plants with inconspicuous flowers.

Soon after their marriage the children started to arrive. They had three sons and two daughters, though the eldest son died aged only eight. In 1789 the family acquired more land when Susanna's uncle, William Cope Gregory died childless and left her his large estates of How Caple, Fownhope, and Sollershope in Herefordshire and a part of the manor of Icomb in Gloucestershire, so now the family were rich in lands and with it the responsibilities that ensued from running all these far flung estates.

The first meeting of the Linnean Society had been held on 8th April 1788 with James Edward Smith appointed as President. In 1790 Smith started his first major work, English Botany, which brought him into contact with leading botanists, including John Stackhouse, who soon became a fellow of the Linnean Society, being elected in 1795. Amongst the papers in the Linnean Society Library are a number of letters written by John Stackhouse to James Smith, together with some of the Papers he read to the Society. The first paper he read concerned a small bird he had seen living in the Cornish furze bushes: The Dartford Warbler – read March 6. 1795.

Stackhouse's first letter to James Smith, written from Alfred Street, Bath on 17th April 1795, records his having submitted his Fasciculus of Marine Plants to Thomas Jenkinson Woodward and his fellow Linnean associate the Rev. Dr.Samuel Goodenough for their approbation, and he writes of dividing the numerous tribes of Fuci into more genera. Thomas Jenkinson Woodward FLS (1745–1820), was later described by James Smith as "one of the best English botanists, whose skill and accuracy are only equalled by his liberality and zeal in the service of science". Smith named the fern *Woodwardia* after him. The Rev. Dr. Samuel Goodenough, headmaster in Ealing and later Bishop of Carlisle, was one of the founder members of the Linnean Society.

By 21st May that year Stackhouse was writing to Smith from Jermyn Street, London, telling him that he had ordered Whites, his publishers, to send a copy of his Fasciculus to him as soon as it was published, hoping he would "have the goodness to lay it before the society" and noted that he was "particularly apprehensive that no sexual office is allotted to the air bladders; but a more steady and laborious investigation at different times of the year is necessary before the matter will be cleared up".

A week later he wrote again to Smith, this time from Bath, about a conversation he had had with Major Thomas Velley, where in discussing the sexuality of the Fuci he was pleased to find that "*we are got so near in our sentiments that nothing more will be said of "asexual and unisexual plants*". Major Velley was a resident of Bath who also took a great interest in algae, collecting chiefly along the south coast. Over the years he gathered together an extensive herbarium which he annotated and illustrated by numerous dissections and microscopic drawings of grasses and flowering plants, but specially of algae. The eight folio volumes of his work were purchased from his widow by William Roscoe for the Liverpool Botanic Gardens.

September 1795 saw the publication of the first edition of Stackhouse's book "*Nereis Britannica*", or "*A Botanical Description of the British Marine Plants in Latin and English, Accompanied with Drawings from Nature*". In the preface to this work he describes the method he used for preparing and preserving specimens of seaweed.

Photos of two pages of the illustrations in *Nereis Britannica* taken at the Linnean Society. There are 17 plates illustrating the various varieties of British seaweed in this book.

On 16th September shortly after the publication of "*Nereis Britannica*" he writes to Smith from Pendarves that he was "much flattered by a letter from Mr. Woodward, who informed me of your approval of my work," and says he has been "spurred on to take a further peep into the area of marine plants". Pleased by the reception his book had received he now began a microscopic study of the way each species "Fructified".

In October 1795 he read a paper to the Society on the experiments he tried for preserving the colour of Fuci using solutions of alum.

John Stackhouse was a Christian who would have regarded each new species he studied as examples of God's creation. This was long before Darwin wrote "*The Origin of Species*". He had procured a good compound microscope to assist his morphological studies of seaweed. He cut sections of parts of the plants, probably using a sharp cut throat razor and examined these under the microscope. In his examination of *Fucus serratus*, for example, he cut a transverse slice through a tubercle and,

> "having pared off the internal skin on each side of a part of it, I placed the piece on the field of my compound microscope fitted with the lowest power (No.6). I perceived that the internal substance which appears glossy and colourless to the naked eye, was in fact a beautiful network of capillary threads with orbicular masses or granules of a different substance, darker coloured, and not reticulated. These masses were either near the internal coat, or adhering to it, and were furnished with five or six pear shaped seeds each. The external tubercles, of which there were five in the piece under examination, had very sensible apertures, as viewed under the glass, and communicated with the internal process. Having made this discovery with my weakest power at first, to guard against optical deception, I applied my highest powers (No.12.) to the same object: with these I plainly perceived that the reticulated transparent fibres, or threads, were in reality tubes forming meshes, and intersecting each other; and furnished at intervals with transparent septa, or divisions."

He then undertook experiments to see how seaweed seeded itself on to rocks and pebbles. He used wide mouthed glass jars in which he placed specimens of seaweed and changed the water in the jars regularly, so as to imitate the ebb and flow of the tides. He watched his plants seed themselves, noted that the seeds were enveloped in a bright mucus, imiscible with, and heavier than sea water, so the seeds, as he called them, sank to the bottom and there stuck to rocks or pebbles where they began to grow. He was also careful it imitate rainfall, and when rain fell naturally outside he siphoned off the sea water and exposed the seeded pebbles to the air and rain, in imitation of nature. Following his careful observations of several species of seaweed he proposed a method of classification from the different ways in which seaweed produced their fruit and from their comparative morphology.

Linnaeus had divided the Cryptogamia into four orders: Filices (Ferns), Musci (Mosses), Algae (which included lichens and liverworts), and Fungi. He divided the Algae into 14 genera of which only four: Conserva, Ulva, Fucus and Chara are now regarded as Algae. Linnaeus described the fructification of the Genus *Fucus* as having: Male flowers (?) "Bladders smooth; hollow, interspersed with soft hairs." Female flowers (?) "Bladders smooth; filled with a pulpy jelly; sprinkled with grains, prominent at the points. Seeds solitary."

Stackhouse has been given the credit for beginning the transformation of phycology into a science with his description of zygote germination in *Fucus* and he eventually divided the British species of the Linnean Genus of *Fucus* into 6 genera depending on their method of fructification. He was able to make advances in the understanding of the way that different species reproduced by means of improved microscopy. In the new edition of *Nereis Britannica* published in 1798 Stackhouse wrote, "The *anomaly* that prevails respecting the plants which constitute the *genus fucus* is confessed by every writer, and however feeble the attempt here made to substitute a better arrangement, it is hoped it may stimulate abler botanists to unite their labours, in endeavouring to remove the opprobrium that rests on this part of the class *cryptogamia*".

From his careful observations Stackhouse proposed the following six genera: *Fucus, Ceramium, Chondrus, Sphaerococcus, Chorda* and *Codium* arranged in a synoptic table, adding:

> "These general Observations on the divisions of Fuci, as to the mode of fructification, will I apprehend strike any person conversant with marine Botany, as distinctions sufficiently obvious to justify a departure from the Linnean System. As to those Gentlemen, who have made these plants the object of their particular investigation, it is presumed they will think they admit of a still farther subdivision. It is for their inspection that I have ventured to arrange the above Synoptic Table, which is hoped will provide the means of a final and determinate arrangement of the sub-marine plants."

It was not until 1836 that William Henry Harvey (1811-1866) decided to divide the seaweeds into three major groups on the basis of pigmentation, the Rhodospermae, now called Rhodophyta (red), Melanospermae, now called Phaeophyta (brown) and Chlorospermae now called Chlorophyta (green) algae. When Harvey was a shy young Irish botanist of 20, he was befriended by Hooker, who recognised his talent, and invited him to contribute a section on algae to his *British Flora* (1833).

John Stackhouse did not limit his studies on Seaweeds to studying their morphology and fructification but also, with the help of a friend with a knowledge of chemistry, carried out a comparative analysis of the composition of a succulent and a coriaceous seaweed. The former proved five-sixth parts water to the latter's not quite one forth part, and yielded 82.5 cubic inches of different gasses opposed to 267 cubic inches. The succulent had little more than half the quantity of soda and one ninth the quantity of oil found in the coriaceous seaweed. Thus he concluded that "contrary to the generally received opinion amongst Farmers, the coriaceous species are preferable as manure to the succulent ones."

The damp Cornish climate, combined with working in the humid atmosphere of rooms containing tanks and baths of his specimens of seaweed, may have been the cause of John Stackhouse's rheumatism, which may have led to his buying a substantial house in the centre of Bath, at 4 Edgar Buildings, in part for the good of his health and so that he could take the waters. But at the time Bath was a very fashionable place to be, so they would have gone there to enjoy the social life as well. This house is in a prime position in Bath, just below the Assembly Rooms and with a view down the main shopping street, which leads to the Pump Rooms. One can imagine the Stackhouses and their children staying in fashionable Bath in Regency times, going to dances in the Assembly Rooms and taking the waters in the Pump Room. In Northanger Abbey, Jane Austen places the Thorpes in Edgar Buildings, which she always refers to as "Edgar's". No. 4 Edgar Building now houses an Estate Agent and a dentist.

Back at Perranuthnoe, in the rocks in the tidal zone of Stackhouse Cove a double bed sized bath was cut for John Stackhouse which fills with the incoming tide. He had it cut by a mason from Bath and thought that bathing in sea water would be good for his rheumatism. This bath can still be seen there today.

In October 1798 Stackhouse was busy examining the flowers of *Ulex* (Gorse or Furze) in Cornwall and confirming Dr. Withering's observations that there were two distinct native species, but a severe fit of the gout delayed him reporting his observations to James Smith until December. Dr. William Withering was a year older than John Stackhouse. He had followed his father's profession, training as a doctor at Edinburgh University, and developed an interest in Botany. He took over a practice in Birmingham in 1775, and became physician to Matthew Boulton. It was he, as well as Erasmus Darwin, who experimented with the medicinal properties of digitalis from foxgloves in the treatment of heart disease. In 1792 he discovered that "fairy rings" were caused by the roots of mushrooms and he was an active member of the movement for the abolition of the slave trade.

On 1st January 1799 Stackhouse read a paper to the Society on his investigation into the two varieties of Gorse, *Ulex elatior* and *Ulex europaeus*, and was critical of those who blindly followed Linnaeus, saying,

> "On looking at the Specific Character of Linnaeus which has been copied in all our Floras, viz "folius villosis, acutis; spinis sparsis, Leaves wooly, acute; thorns scattered," I cannot but lament that a Character so vague should ever have been adopted. UIex in its full grown state is an aphyllous or leafless plant."

Withering died later that year and his memorial at Edgbaston Old Church includes an engraving of a foxglove.

In 1799 Dawson Turner, a young botanist of 24 and a fellow member of the Linnean Society, was corresponding with Stackhouse, as he was also particularly interested in studying the non-flowering plants, the mosses, algae and lichens, and he was about to set off on a tour of the West of England. Stackhouse wrote to Turner on 30th May, telling him that if he could postpone his tour until July or August it would give him great pleasure to be his "Cicerone." In June Stackhouse wrote again to Turner, saying he would contact a Falmouth friend who could supply him with a boat or anything else he wants and added, "I forgot to say that in the way from Helston to Marazion you will pass by a Marine Box I built many years ago". (Acton Castle) [communicated to me by Dr. Anne Secord]

In 1800 Stackhouse visited Smith in Norwich and in November wrote and thanked him for his "very polite attention to me during my visit at Norwich." He was also writing to warn Smith that the drawing of *Byssus larbata* by Lady E. Noel which had been published in Sowerby's English Fungi was of a different species.

> "I yesterday morning called on her Ladyship & examined her specimens, one of which nicely preserved in spirits is now before me. It is clear that Mr. S(owerby's) drawing, & Dr. Withering's are of different species."

In 1802 John Stackhouse sold Acton Castle to Captain William Mackworth-Praed R.N., previously Nelson's navigator at the Battle of the Nile. The Captain wanted a house with a splendid sea view and John Stackhouse had probably finished his studies of seaweed, so no longer needed this property with its salt water baths where he had carried out his detailed studies of marine plants.

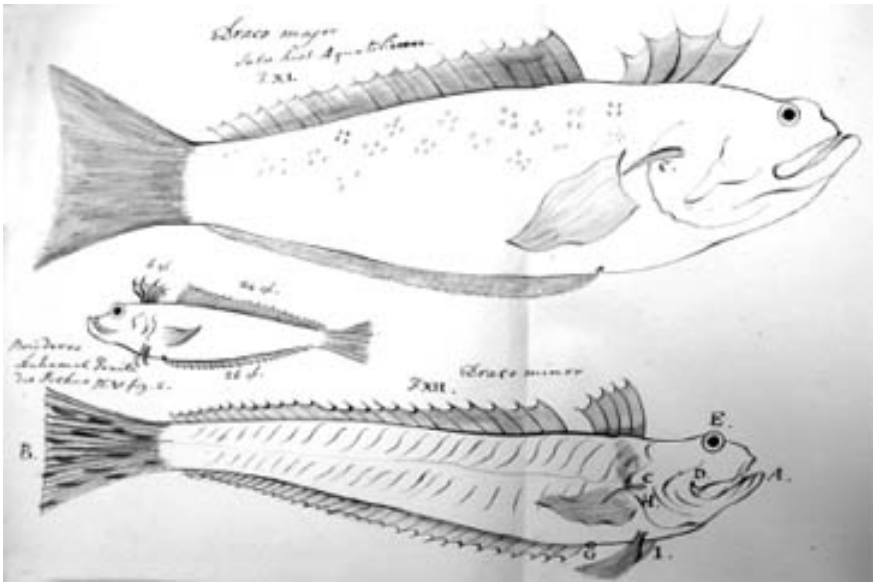
It was during the September of 1802 that John and Susanna Stackhouse went on a journey to Paris, perhaps using the proceeds of the sale, and they took their two daughters, Anne, who was 17 and Catherine who was 12, on what would have been a very interesting and educational visit for them. Susanna kept a detailed diary of this journey which gives an insight in what travel was like in those distant days before Eurostar and motorways. They left London on 4th September and travelled to Paris from Calais in a travelling carriage with four horses and with another horse for the servant, and arrived in Paris on Saturday 11th September.

When the family returned from France John Stackhouse wrote to James Smith, sending him a book that he acquired there concerning the classification of Byssi, a family of filamentous algae that grow in moist places, some endophytic or parasitic, while others grow in close association with fungi, forming lichens. The Byssi are now known as Trentepohliaceae.

In late 1802 Stackhouse was down in Cornwall visiting the Rashleigh estate near Fowey, cutting up a weaver fish caught near Menabilly. Later, back in London, he wanted to research the fish he had found:

> "Having had an opportunity during the Winter of consulting the Banksian Library I extracted from the different Writers in Ichthyology, which that splendid depository contains, the different accounts of the Weaver; Salviani in his historia aquilitium, a work unnoticed by Pennant, is the only author who has noticed two species of Weaver, the Draco and Dracumulus of Pliny."

When he was back in Bath he wrote an extensive letter about the identity and



Top: Draco major; middle: Bois deroi Duhamel,
Traite de Peches, pl. V fig. 2; bottom: Draco minor.

behaviour of this fish to the Linnean Society on 22nd April, ending the first paragraph with the words:

> "Not having the necessary apparatus at hand for making a drawing, I preserved it in the manner I had seen practised by Mr. Sowerby, viz, by dividing the fish lengthways, taking care to preserve the Back and Belly Fins, & after having taken away with a sharp instrument, as much of the meat, as could be done with safety, filling the cavity with moisturised Plaister of Paris. This dried specimen, my first attempt, I have the honour herewith to present to the Society."

He also included some drawings he made while at the Banksian library, copying the outlines of the two larger fish from Salviani and noting that the small fish in the middle, Duhamel's Bois deroi, closely resembles Salviani's Draco minor.

Evidence can be seen of Stackhouse's careful studies of fungi and his skill as an artist in representing them from his notebooks preserved at the Linnean Society. He recorded where they were growing and often the date, so we see he was in Woolhope, Herefordshire in 1790 and November 1791; Castle Wood, near Bath, Beacon Hill, and Coombe Wood, Bath 1791; Pendarves, Cornwall 1799, September 1801 and August 1804.

The Linnean Society serves as a focal point, putting people with specialist interests in touch with each other to their mutual benefit. An example of contacts being made through the society in John Stackhouse's day involves a Professor Robert Scott (ca. 1757–1808) of Trinity College, Dublin, Fermanagh's first botanist. He corresponded with Dawson Turner (1775-1858), a Norfolk Banker who was also an antiquarian and an eminent botanist who, as previously mentioned, had earlier corresponded with John Stackhouse. Turner was elected a member of the Society in 1797. Apart from his botanical interests, Scott collected samples of rocks and ores and in September 1802

Left: *Agaric xeramphilinus* Acton Scott, Salop.
Right: *Agaric xeramphilinus* var. *caesarius*

he wrote to Turner to ask if his Linnean friend, John Stackhouse, could send him some Cornish minerals, probably knowing of his involvement in tin and copper mining.

A couple of years later Scott discovered oxalic acid crystals on drying specimens of a fungus identified as *Boletus sulphureus*. His observations were eventually described in detail in a letter dated 5 March 1804 which Turner read to The Linnean Society of London and the edited letter was published in the Society's Transactions. John Stackhouse would have been interested to read of Scott's findings having made a special study of fungi and a splendid painting of Boletus sulphureus can be seen in his notebooks which are preserved in the Society library.

Left: *Agaric rutilis* – Pendarves 1804 Peziza cochlearis; *Agaric nolitus*, Pendarves Aug. 1804
Right. *Agaric iriginosus* – Green Agaric; *Agaric rulilis* Pendarves Sept 1801, under trees.

Boletus coriascens, Boletus sulphurinus, Witherage. oak stump, Woolhope, Herefordshire, November 1791 – Brimstone Boletus.

A very recent example of Linnean networking occurred at the meeting of the Society on 22nd March 2007 when I was introduced to Dr. Anne Secord from the University of Cambridge by our librarian, Gina Douglas, who knew of our common interest in John Stackhouse. Dr.Secord, the Vice-President of the Society for the History of Natural History, is currently researching him and other botanists who were investigating marine algae in the 18th century. Since our meeting we have been corresponding, to our mutual benefit.

In the Autumn of 1806 Stackhouse was in Barnstable from whence he made a short expedition to Ilfracombe where he was told that the Glower or Glover Fish was then "in high season". As the name was new to him he "procured a fisherman" who brought him some and as he had not come across this species before, he drew a specimen as accurately as he could and wrote a detailed description of this fish, and a second fish, the Witherage Fish, which also was brought to him by the fisherman. He read his paper on these fish and presented his paintings of them to the Society on 2nd December 1806.

At around this time John Stackhouse had miniature portraits made of the family. He appears as a white haired man with dark eyebrows and a sensitive and kindly face.

The Glover or Glower Fish – *Gadus barbosus* (Sashtral) *Gadus luscus* (Linn. 1758) now known as The Whiting Pout – *Trisopterus luscus* (Linn 1758)

The Witherage Fish – *Gadus minutus* (Linn)
now called *Trisopterus minutus capelanus* (Risso) 1826.

His wife is a smiling, golden haired lady with a white hat partly covering her hair, one hand to her cheek, wearing a short sleeved black dress, with the wide neck trimmed with white lace.

Apart from his major work on Seaweed, John Stackhouse made a methodised abridgement of Theoprastus's work on Botany and wrote to James Smith:

J. E Smith M.D.
Linn. Soc. Rooms
Gerrard St.
Soho
London

Bath May 22. 1811

Dr. Sm.

I am much obliged to you for yr. letters just recd. & write this to catch you in London, as I shall be very glad to be fac(ed) with yr, Criticisms in the Tab. Syst as you have in addn. to yr. own practical Knowledge in Botany the acceptance of Sibthorps Herbarium. I kept a copy inter lined to receive all such communications. I flatter myself that in future Travellers by the assistance of my methodised Abridg(ment) of Theopr(astus): will be able to ascertain most of his Species: and where his Discn. (Description) is so accurate & striking as it is with respect to many species aplicl (applicable) will occur in the Prosecution of the Flora Graeca, you may probably think it right to notice it.

I leave this place for Cornwall next week and am truly sorry I could not attend the anniversary. I shall be at Acton Scott near Church Stretton, Salop in August, & as you sometimes visit Liverpool I think I am not much out of yr. direct Road. It will give me gt. pleasure to receive you and would be happy to show the beauties of our neighbourhood to Mrs. Smith; such as Downton Castle & Ludlow Castle & I am within a morning's ride of that famous place for Lichens the Stiper Stones.

I am, my Dr. Sr
Yr most faithful Srt J. Stackhouse

John Stackhouse

Susanna Stackhouse

By November 1813 Stackhouse's first volume of his *Theoprastis Graeca* was published and he sent a copy to Sir James Smith.

John Stackhouse died at his house in Bath, on 22nd November 1819 aged 78. A memorial to him was inscribed on the wall of the church at Acton Scott, on a large stone tablet under a Gothic arch decorated with floral rosettes, which reads:

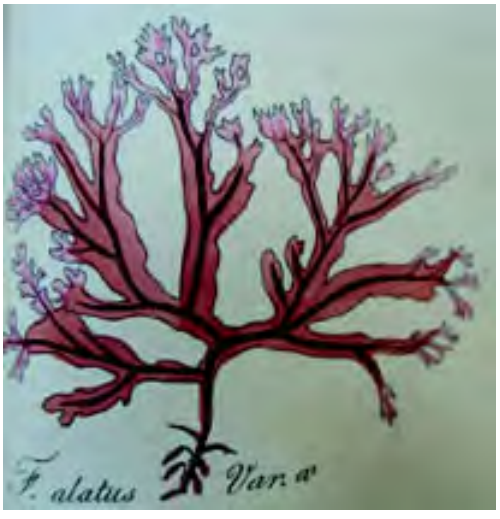
> "John Stackhouse of Pendarves in the county of Cornwall Esq., youngest son of the Revd. William Stackhouse D.D. of Trehane in the same county, and nephew of Thomas Stackhouse, the historian of the Bible, who died at Bath November 22nd 1819 aged 78 years and was buried at Weston near that city, having made a bequest for the creation of this aisle.
>
> He was a man distinguished by his mental acquirements, by sweetness of temper and gentleness of manner and, above all, by a tolerant, sincere and unaffected piety.
>
> He devoted a considerable portion of his time, after fulfilling the duties of a country gentleman, to the patient and successful pursuit of science and general literature, and having lived to an advanced age in the full enjoyment and affection of his family, he died, esteemed and respected by all who knew him. He married Susanna, only child of Edward Acton of Acton Scott Esq., niece and heiress of William Cope Gregory of Woolhope in the county of Herefordshire, who, with her two sons and two daughters, survive to lament her loss.
>
> This monument was erected by his youngest son, Thos Pendarves Stackhouse, heir to his mother's estate."

My thanks are due to Tom and Lucy Acton for their kind help with information about John Stackhouse and his family. His name is preserved for posterity alongside some of the species of seaweed he described and named. I have found the following varieties that were named and described by him that bear his name today:

Among the Red Algae (Rhodophyta) we find:

Fucus pusillus Stackhouse 1795 – which was changed to *Acrocarpus pusillus* (Stackhouse) Kützing 1849 – before being re-named *Gelidium pusillum* (Stackhouse) Le Jolis 1863 grows in the mid shore region of rocky coasts in patches on or amongst barnacles.

Left*: Chondrus crispus* Stackhouse (Irish Moss or Carragheen) –- this has even more alternative names and is of importance in the food industry as a thickener, in beer making as finings, and as a thickener in calico printing. *Mastocarpus stellata* (Stackhouse) (below) Batters (Tufted Red Weed) grows on rocks in the lower intertidal zone, often in large continuous mats and is widespread and abundant.



Left: *Membranoptera alata* (Hudson) Stackhouse grows in the sub-tidal zone on hard rock or epiphytic, often on kelp sites.

Left*: Nitophyllum punctatum* (Stackhouse) Greville, grows as tufts or blades, in delicate fronds that tear easily, in waters up to 24 metres deep

In the Brown Algae (Phaeophyta) there are, for example:
Chorda filum (Linneus) Stackhouse (right) (Smooth Cord Weed) grows as long thin cords in the shallow sublittoral region

And in the Green Algae (Chlorophyta) we find: *Codium tomentosum* Stackhouse (Velvet Horn), grows mainly in the south west of Britain and is becoming quite rare It attaches to exposed rocks and in rock pools on the lower shore. The frond is solid and spongy with a felt-like touch.

Perhaps because of his work "when he was very busily engaged in arranging the Animals in Australia & Aelians Histories for the Publishers of the new Ed. of Stephen's Thesaurus" there was also a family of plants, the Stackhousiaceae, found in Malaysia, Australia and New Zealand, which were named after him, in the same way that the genus Banksia were named in honour of Sir Joseph Banks for his contribution to botany. It was possibly his friend Banks who gave him some of the specimens to identify and classify, from the large number brought back to Banks by the explorers he commissioned. The Stackhousiaceae are divided into three genera, the Macrogregoria, Stackhousia and Treptococcus, in which there are 28 species and they are flowering land plants, not marine algae.

Right: *Stackhousia monogyna* photographed in the Stirling Range, Western Australia by L. Watson in October 2005

Books received for review

The following titles have been submitted by publishers for review in the Society's journals. Due to lack of space they have not been given extensive reviews but we wish to acknowledge their significance by providing brief notices here.

Biological Journal

Anapol, Fred, German, Rebecca Z. & Jablonski, Nina G., eds. 2004. *Shaping primate evolution: form, function and behavior*. Cambridge: Cambridge University Press. ISBN: 0 521 81107 4.

With almost 40 contributors, this review is dedicated to Charles Oxnard (University of Cambridge) whose life-long interest in the relationship between size and form in primates shaped not only his own career but that of his many students and colleagues. Several of the papers deal with aspects of primate movement; others with ecology, diversity and morphometrics.

Ashmole, Philip and Myrtle, 2000. *St Helena and Ascension Island: a natural history.* Oswestry: Anthony Nelson. ISBN: 0 904614 61 1.

The fauna and flora of St. Helena, formed volcanically about 14 m.y. ago, and of Ascension Island, a much younger volcanic island, are of exceptional scientific interest not only through processes of establishment and evolution in Atlantic isolation but also because of the dramatic effect of recent human occupation. The authors' long interest in the biota of these islands is reflected in a detailed, balanced treatment.

Burkhardt, Frederick *et al*., eds. 2004. *The correspondence of Charles Darwin.* Vol. 14. Cambridge: Cambridge University Press. ISBN: 0 521 84459 2.

Covers the year 1866, in which Darwin's health improved and he worked on his manuscript of *Variation of plants and animals under domestication*. He also worked on a new 4th edition of *Origin of species* and began to prepare for a third German edition. This is an exemplary work of scholarship, now supplemented by an online resource providing access to all the letters located by the Darwin Letters Project.

Dudley, Robert, 2000. *The biomechanics of insect flight: form, function, evolution.* Princeton: Princeton University Press. ISBN: 0 691 04430 9.

An overview of flight biomechanics and the contrasting demands of stability and manoeuvrability leads to an examination of the role of selection in determining modes of flight in relation to predation, pollination, colonisation and migration, together with ecological perspectives. The book takes a novel approach to a complex subject, and also addresses issues arising from flightlessness.

Fleming, Theodore H. & Valiente-Banuet, Alfonso, eds. 2002. *Columnar cacti and their mutualists: evolution, ecology and conservation*. Tucson: University of Arizona Press. ISBN: 0 8165 2204 9.

This book deals with the pollination ecology of macro-cacti and nectar-feeding bats, birds and bees, drawing valuable conclusions for the conservation of these species.

The extensive distribution of columnar cacti, from the Sonoran Desert to the northern Andes, makes this work of wide geographical relevance.

Thompson, John N., 2005. *The geographic mosaic of coevolution.* Chicago: Chicago University Press. ISBN: 0 226 79762 7.

This is a textbook describing processes of coevolution whereby reciprocal changes in the evolution of interacting species are driven by natural selection. It covers a wide range of topics from population genetics to evolutionary biochemistry and physiology, and shows that species can co-evolve with more than one or a few other species simultaneously.

Truett, Joe C. & Johnson, Stephen R., eds. 2000. *The natural history of an arctic oil field: development and the biota.* San Diego: Academic Press. ISBN: 0 12 701235 4.

The fragility of the Arctic ecosystem is now widely recognised, and the impact of oil exploration and exploitation has been widely researched in recent years. This book synthesises such research and provides a concise point of reference to the literature.

Botanical Journal

Flora of North America Editorial Committee, 2003 ('2002'). *Flora of North America vol. 23, Commelinidae (in part): Cyperaceae.* ISBN: 0 19 515207 7. 2005. F*lora of North America vol. 25, Poaceae part 2*. New York: Oxford University Press. ISBN: 0 19 516748 1.

These two volumes, along with vol. 24 (*Poaceae part 1*) which was published more recently, cover a significant part of the monocot flora of North America. The grass volume differs somewhat from the standard format as it has incorporated work done in preparation for a new edition of Hitchcock's *Manual of grasses of the United States.* It is good to see Peter W. Ball's name among the list of contributors to the Cyperaceae volume, as he worked on *Flora Europaea* as a research assistant in his earlier career. This continent-wide flora served as a model for this exemplary new flora, now well on the way to completion.

Flora Neotropica Organisation, 2004. *Flora Neotropica monograph 91: Endlicheria*, by André S. Chanderbali. 2005. (with) *monograph 92: Rhodostemonodaphne*, by Santiago Madriñán. New York: New York Botanical Garden. ISBN: 0 89327 454 2. *Flora Neotropica monograph 97: Marchantiidae*, by Hélène Bischler-Causse, S. Robbert Gradstein, Suzanne Jovet-Ast, David G. Long and Noris Salazar Allen. New York: New York Botanical Garden. ISBN: 0 89327 465 8.

These monographs covering the flora of tropical south and central America, through their completeness and high quality of text and illustrations, are exemplary publications. The liverwort treatment is accompanied by SEM images of spores, as well as the more usual dot distribution maps and text figures. The two monographs of genera in the Lauraceae include useful lists of exsiccatae.

Ellstrand, Norman C., 2003. *Dangerous liaisons? When cultivated plants mate with their wild relatives.* Baltimore: Johns Hopkins University Press. ISBN: 0 8018 7405 X.

Written by a geneticist, this book examines both the natural processes of hybridisation and the impact of hybrids between wild and cultivated species, particularly of wheat, rice, maize and soybeans but also mentioning a wide range of other crops from strawberries to cotton. In some cases this leads to problematic weeds and it has other impacts, such as the near extinction of wild species.

Kharkevich, S.S., chief editor; Tzvelev, N.N., editor; Sokolova, Irina, translator. *Vascular plants of the Russian Far East. Volume 1: Lycopodiophyta, Juncaceae, Poaceae (Gramineae).* Enfield, N.H.: Science Publishers, Inc. ISBN: 1 57808 290 0.

The Russian Far East region, which lies beyond Siberia on the Pacific coast of Asia, is rich in temperate species. This translated flora, originally issued as *Sosudistye rasteniya sovetskogo Dalnego Vostoka* in 1985, includes original drawings by N.N. Kachura, who also compiled the dot distribution maps. The largest part comprises the Poaceae, written by N.S. Probatova who has made a lifetime's study of the grasses of this region.

Levin, Donald A., 2000. *The origin, expansion and demise of plant species* (Oxford Series in Ecology and Evolution). Oxford: Oxford University Press. ISBN: 0 19 512728 5 (h.b.); 0 19 512729 3 (p.b.).

This work examines the life (and death) of species as dynamic entities, covering both speciation processes and the breakdown of specific unity through differentiation, as well as the decline and demise of species. It includes a large bibliography.

McVaugh, Rogers, 2000. *Botanical results of the Sessé and Mociño expedition (1787-1803). VII. A guide to relevant scientific names of plants.* Pittsburgh: Hunt Institute for Botanical Documentation. ISBN: 0 913196 68 1.

As the title states, this compilation from both the pictorial (*Icones Flora Mexicanae*) and non-pictorial sources, along with unpublished names applied by De Candolle, provides a handy point of reference to the voluminous literature generated by this pioneering expedition. Arranged in alphabetical order of families, genera and species it also provides critical discussions of typification issues.

Meney, Kathy A. & Pate, John S., eds. 1999. *Australian rushes: biology, identification and conservation of Restionaceae and allied families.* Nedlands: University of Western Australia Press; Canberra: Australian Biological Resources Study. ISBN: 1 876268 01 8.

With keys, descriptions and beautiful illustrations, this book summarises knowledge on this important component of Australia's flora that is well adapted to the peculiar conditions prevailing there. A series of short multi-author chapters gives information on the classification, growth, response to fire, reproduction and propagation of the group. A chapter on conservation concludes the book.

Miller, James S., Taylor, Mary Sue & Rempala, Erin, 2005. *Ivan M. Johnston's studies in the Boraginaceae* (Monographs in Systematic Botany from the Missouri Botanical Garden, no. 101). St. Louis: Missouri Botanical Garden Press. ISBN: 1 930723 44 X.

Johnston's somewhat chequered research career is first described in some detail, but the main content of this book is an index to the botanical names of plants treated by him in his long series of papers on the Boraginaceae. Appendices contain a full list of his publications; types listed by binomial; and types listed by collector. This is an exemplary summary of the taxonomic output of a prolific monographer.

PROSEA, 2001. *Plant Resources of South-East Asia no. 16: Stimulants*. Van der Vossen, H.A.M. & Wessel, M. eds. 2000. ISBN: 90 5782 053 6. 2003. *no. 15 (1), Cryptogams: algae*. Prud'homme van Reine, W.F. & Trono, G.C., Jnr. eds. 2001. ISBN: 90 5782 096 X. *no. 15 (2), Cryptogams: ferns and fern allies.* de Winter, W.P. & Amoroso, V.B. eds. 2003. ISBN: 90 5782 128 1. Leiden: Backhuys Publishers.

The Fibres volume of this important series has recently been reviewed in the *Botanical Journal*; these three volumes cover a further range of important economic plants. Taken as a whole, they will constitute an encyclopedia of valuable information as well as a record of the cultural heritage of the region.The Algae volume, in particular, contains a great deal of previously unpublished data on economic (e.g. culinary) uses. The book also includes a useful section on sources of illustrations.

Van Steenis, C.G.G.J. (illustrated by Amir Hamzah and Moehamad Toha) 2006. *The mountain flora of Java.* 2nd edition. Leiden: Brill. EAN: 978 9004153 47 9.

The original issue of this work is long out of print, and on the occasion of the publication of a new Indonesian edition the opportunity has been grasped to prepare a parallel edition in English, in large format to do justice to the high quality of the illustrations. 456 plant species are depicted in full colour, accompanied by floristic descriptions and distribution notes; the introductory text includes a detailed account of habitat types together with monochrome photographs of the vegetation.

Zoological Journal

Bouillon, Jean, Gravili, Cinzia, Pagès, Francesc, Gili, Josep-Maria & Boero, Ferdinando, eds. 2006. *An introduction to Hydrozoa.* Paris: Publications scientifiques du Museum. EAN: 978 2 85653 580 6.

The Hydrozoa, a class or superclass, fide Cornelius, of the phylum Cnidaria were first described in detail by John Ellis, assisted by the noted 'botanical' artist Georg Ehret; indeed prior to Ellis's work they were thought to be plants. This modern treatment is more than a simple introduction; it contains a taxonomic synopsis, keys to the hydroids (colonial) and medusal (free-living) states, and lists of included accepted species (nominally 3,702 in all). The book is well illustrated with line drawings. No ecological or distributional data are included.

Firouz, Eskandar, 2005. *The complete fauna of Iran.* London: I.B. Tauris. EAN: 978 1 85043 946 2.

This first English edition of a vertebrate fauna of Iran is based on the Persian edition published in the year 2000 with treatments of only 162 species including nine marine mammals. The present work encompasses 168 species; around 18% are endemic, which shows the importance of Iran as a centre of diversity in the Middle East. The coloured

illustrations, mostly taken from other works, include both drawings and photographs. There is an informative introduction which covers such topics as the history of exploration of Iran and the current state of conservation of habitats.

Grimaldi, David & Engel, Michael S., 2005. *Evolution of the Insects*. Cambridge: Cambridge University Press. ISBN: 0 521 82149 5.

Drawing heavily on fossil evidence (often from amber) as well as the anatomy of extant insects, this work covers each of the major groups of hexapods in considerable detail: the authors clearly have an inordinate fondness for insects. Figures 4-16 and 4.24 show the phylogeny of living and extinct insect orders as proposed by Martynov in 1938 and by the authors in the present work. The group is thought to have diversified from the late Silurian through the Carboniferous to the Permian, and by the Triassic most modern orders are recognisable long before the radiation of the Angiosperms.

Holdich, David M., ed. 2002. *Biology of freshwater crayfish*. Oxford: Blackwell Science. ISBN: 0 632 05431 X.

This multi-author work provides chapters on every aspect of crayfish biology and includes a section on pathogens, parasites and commensals. Part 2 deals in more detail with crayfish of commercial importance: *Astacus*, *Pacifiastacus*, *Procambarus*, *Orconectes*, *Cambarus* and *Cherax*. An ancient group dating back to the Triassic, the crayfish are successful colonisers and some are even semi-terrestrial. They are a keystone animal featuring in the food webs of many other species.

Kerney, Michael, 1999. *Atlas of the land and freshwater molluscs of Britain and Ireland.* Colchester: Harley Books. ISBN: 0 946589 48 8.

This mapping scheme, which generated 10 x 10 km dot distribution maps for the whole of Britain, Ireland and the Channel Isles, aimed to map all the non-marine molluscs and ran from 1961 for over 40 years with a provisional atlas by the same author appearing in 1976. The present work is much more polished and includes a short introductory section followed by a taxonomically arranged sequence of maps, one per page, with accompanying text and a small illustration placed in a blank North Atlantic part of the map. The names of recorders are listed, and a gazetteer is provided of localities mentioned in the text.

Nixon, Marion & Young, John Z., 2003. *The brains and lives of cephalopods*. Oxford: Oxford University Press. ISBN: 0 19 852761 6.

This work focuses on the central nervous system of cephalopods and is largely the work of the late John Young who sadly didn't live to see its completion. It reproduces his meticulous drawings of the nervous systems, based in large part on serial sections of brains made from his early work in Naples in 1929 through to his retirement in 1974 and beyond. It highlights morphological differences of the brain which relate to different sensory styles, such that *Octopus* has lobes associated with touch learning whereas *Sepia* does not. Though not primarily a systematic treatment it does characterise the unique features of many of the principal lineages.

Sues, Hans-Dieter, ed. 2000. *Evolution of herbivory in terrestrial vertebrates: perspectives from the fossil record*. Cambridge: Cambridge University Press. ISBN: 0 521 59449 9.

"This book represents the first comprehensive overview of the evolution of herbivory in land-dwelling amniote tetrapods in recent years … Leading experts review the structural adaptations for, and the evolutionary history of, feeding on plants in the major groups of land-dwelling vertebrates, especially dinosaurs and ungulate mammals." – from blurb.

JOHN EDMONDSON
Editorial Secretary

The Linnean Society
Programme

24th Jan.*	Thurs.	LINNAEUS' MATERIAL OF MAMMALS AND BIRDS: THE LAST TWO GROUPS OF SPECIMENS TO BE STUDIED Anthea Gentry FLS	
31st Jan.	Thurs. 18.30	EXPLORE Alastair Land FLS	Sixth-form lecture
13th Feb.	Wed.	Darwin's birthday party lectures at the Natural History Museum † Centre for Ecology and Evolution - see www.ucl.ac.uk/-ucbtcee/cee	
21st Feb.	Thurs.	PLANT LIFE ON GRANITE OUTCROPS AND INSELBERGS: A REVIEW Stephen Hopper FLS	
29th Feb.	Fri. 13.30	LONDON FRESHWATER GROUP † Carl Sayer (c.sayer@ucl.ac.uk)	
6th March	Thurs.	Prof Phil Rainbow Launch of new Linnean Synopsis on Barnacles	
13th March*	Thurs.	GREAT APES AND CLIMATE CHANGE Ian Redmond OBE	
3rd April	Thurs.	JOHN STACKHOUSE AND THE LINNEAN SOCIETY Ian Caldwell FLS	
17th April	Thurs.	CONSERVING NATURE IN LONDON David Bevan FLS	
24th April	Thurs. 18.30	ORDER Alistair Land FLS	Sixth-form lecture
8th May	Thurs.	HOOKER AND ISLANDS Sam Berry FLS	The Hooker Lecture
15th May	Thurs.	THE ROLE OF BOTANIC GARDENS IN THE 21st CENTURY † Dawn Saunders FLS	Two-day meeting
23rd May*	Friday	ANNIVERSARY MEETING	Afternoon meeting
29th–30th May	Thurs –Fri.	WOOD MATTERS: A CELEBRATION OF THE WORK OF JOHN BARNETT † David Cutler PLS	Day meeting

† organiser * Election of new Fellows

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

Typesetting and layout by Mary J Morris, West Mains, London Road, Ascot SL5 7DG