



# The Linnean

NEWSLETTER AND PROCEEDINGS OF THE LINNEAN SOCIETY OF LONDON

Volume 33  Number 1  April 2017



## ***Cinchona:***

Plants, war and empire

## ***Taxonomic Dates:***

Historical zoological names  
in the SAQJ

## ***Puttbo:***

A secluded Linnaean relic

AND MORE...

*A forum for natural history*

# The Linnean Society of London

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Articles should be emailed to the Editor in MS Word format, or sent on disc. Images should be sent as JPEGs or TIFFs at no less than 300dpi. Correct copyright information for images should accompany the article.

Cover image: *Cinchona* bark © Heike Rau 2017, Shutterstock.com

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# The Linnean

*Newsletter and Proceedings of the Linnean Society of London*

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# Editorial

Sadly, since the last issue went to press, we have lost some significant people in the Linnean Society's history, including Professor Bill Chaloner, President from 1985–88, Elizabeth Young (*RIGHT*), Executive Secretary from 1979–82 and Jeanne Pingree, a Library volunteer after her retirement as Archivist at Imperial College. Brief accounts of their roles in the Society will be found later in this issue.

On a happier note, readers may be interested to know that one of our oldest Fellows, Dr David Goodall FLS (103 in April), has just been reinstated as a Research Associate of Edith Cowan University in Australia.

The departure of Deputy Librarian Elaine Charwat has meant that a planned contribution on the role of the Library collections in resolving taxonomic problems relating to the dating of publications is still to be written. As she has now been elected to Fellowship, we hope it will appear in a future issue, but a good example of this is published in this issue in Kees Rookmaaker's article about zoological names in historical issues of the *South African Quarterly Journal*.

Discussions on how best to deal with books received for review have continued, and we now have a growing list of potential reviewers and new guidelines will be available shortly.



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**Gina Douglas**, *Editor*  
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Those of you who have read Mustafa Zaidi's alternative perspective on Natural Capital in *PuLSe* (no. 32, Dec 2016) will be aware of his thesis—that nature is not our asset but our liability. If Natural Capital (NC) is inserted into the current credit consumption system as an asset, one possibility Zaidi proposes is that NC could speed up the decline of nature; is nature, he asks, being placed on the wrong side of the balance sheet? This question was pertinent to the meeting entitled Conservation 2037: A day to think about shaping the future of our profession and passion held at the Society on 26 January, instigated by Dr Paul Jepson, and enlivened by the participation of around 120 enthusiastic

conservation MSc students from the Universities of Oxford and Cambridge, University College London and Imperial College. With overviews from thought-leaders, breakout workshop sessions and a plenary panel discussion, this is a model the Society will pursue for other important topics in the natural world—aimed at empowering future biological professionals.



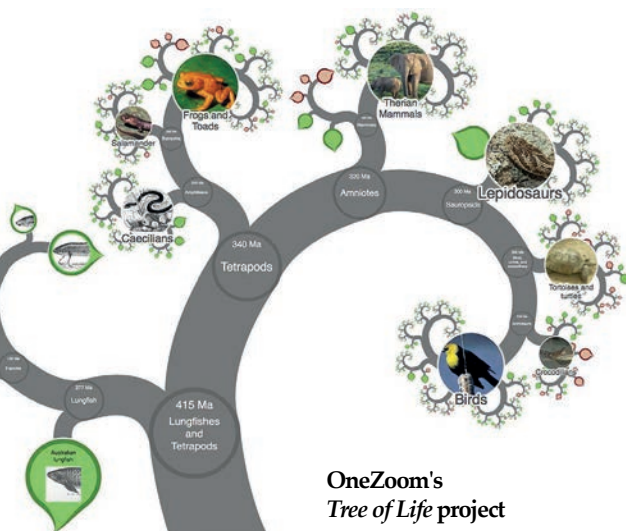
Conservation MSc students in a breakout session

## Fundraising and Outreach

With an eye to broadening our outreach, the Society, and Education team in particular, has been successful in attracting funds, including a £2,000 British Society for the History of Science (BSHS) Engagement Fellowship (a one-month placement for a post-graduate student). We are delighted to welcome Verity Burke from the Department of English Language & Literature at Reading University for the project *Classification Through the Ages*.

Our application to the Patron's Fund, in honour of her Majesty the Queen's 90th birthday, has also been approved (c. £2,000), in addition to the generous support of Jenny Grundy FLS; Jenny has donated £1,000 towards a 3D printer and £800 to AdoptLINN for the conservation of four volumes of beautiful botanical artwork. AdoptLINN (the brain-child of our previous Deputy Librarian, Elaine Charwat FLS) raised over £10,000 in 2016.

Thanks to generous donations pledged by the Wolfson Foundation and the Garfield Weston Foundation, we are now able to move ahead with the installation of special environmentally-controlled display cabinets in the Society's *Linnean Learning Lab* and in the Library. These will enhance our ability to share our treasures, alongside digital projects like our recently initiated partnership with OneZoom (CIO 1163559). OneZoom's charitable purpose is to enlighten the public in the subjects of evolution, biodiversity and conservation, through the development of an online explorer: a scientifically accurate,



educational and visually appealing *Tree of Life*, comprising 1.8 million species and over 100,000 embedded images. We will be working with OneZoom to develop a Linnean-branded version, which will incorporate images and virtual tours from the Society's collections. Further revenues could be forthcoming, through sponsorship, and the project will be launched at our Burlington House premises on the 27 April, so please come along to learn more, or even sponsor your favourite species!

## Events and Registration

The spring events programme has included many varied talks, like Celia Joicey's lecture on the Austrian-born designer Josef Frank and his Linnaean inspiration, Professor Peter Holland's lecture on *Tale of moths and mammals* (how genetic differences have shaped the diversity of animal life on the planet) and Dr Elizabeth Murchison's fascinating insight into transmissible cancers in Tasmanian devils. Society-sponsored Regional Lectures have taken place in Manchester (Irene Manton Lecture by Dr Sheena Cruickshank) on the amazing world of parasites, in Cardiff on palaeobotany (by Dr Chris Cleal), and in Plymouth on the natural history of the nightshades (Dr Sandy Knapp FLS).



**IMPORTANT NOTE:** From autumn 2017, Fellows will be required to register for all meetings (either online, by telephone or in person beforehand), to allow us to better anticipate numbers and provide a more seamless experience for Fellows and their guests.

The Society's Council voted in January on its various medals and honours and the enclosed Anniversary Meeting Agenda lists these. All Fellows are invited to join us at the Fellows' Anniversary Meeting on 24 May when these awards will be presented.

Finally, we hope that you like the accompanying new-style *Annual Review*, designed to provide a more engaging overview of the Society's activities during 2016. The full Financial Statements, which include the Annual Report, will continue to be available on the Charity Commission website.

**Elizabeth Rollinson**, Executive Secretary  
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The Society was very sad to say farewell to Elaine Charwat, our Deputy Librarian for more than five years, at the end of 2016. She has been a dynamic colleague and contributed hugely to the work of the Library during her time with us. An outstanding reference librarian, she has been tenacious in moving Linnaeus Link forward in her role as Administrator for the project, and also initiated the popular Treasures Tours and the AdoptLINN conservation scheme. We wish her well in her move to Scotland.

Dr Isabelle Charmantier joined us in the re-defined role of Deputy Collections Manager/Librarian in March. Isabelle has worked with us before, on the Mellon-funded project to catalogue the Linnaean manuscripts, and was most recently working as Information Scientist with the Freshwater Biological Association at their office on the shores of Windermere in Cumbria.

### Conservation Under Way

The AdoptLINN scheme goes from strength to strength. There are now 17 main Adopters who have contributed more than £10,000 towards the conservation and preservation of some of our most rare and important volumes. Jenny Grundy FLS recently sponsored an “AdoptLINN Treasure”, Sir James Edward Smith’s copy of Jacquin’s *Plantarum rariorum Horti Caesarei Schoenbrunnensis* in four volumes (1797–1804), and, once the conservation work had been completed, she visited the Library with her guests to view the transformation and to have a special tour of the Collections Store and the Conservation Studio. For more information about the scheme visit [www.linnean.org/AdoptLINN](http://www.linnean.org/AdoptLINN)

Linnaeus’s herbarium cabinet has now been conserved and has been returned to the Society’s rooms. Discussions are now under way as to how and where the cabinet can best be interpreted and displayed for Fellows and visitors. It is envisaged that it will stand in a large glass case, with the doors open



*Heliconia humilis* from Jacquin’s *Plantarum rariorum Horti Caesarei Schoenbrunnensis* (1797–1804), conserved thanks to AdoptLINN donations



Linnaean manuscript *On the ontogeny of flowers and leaves* was used in the exhibition *+ultra gestaltung schafft wissen*

or ajar and with simulated herbarium sheets visible on the shelves.

### Collections on Show

Several items from the collections have been on loan to important exhibitions in London and Berlin. The Science Museum's exhibition, *Einstein's Legacy*, where Robert Brown's microscope was on display, was due to close in November but its run was extended until the end of February when the microscope was safely returned to the Society. The Linnaean manuscript *On the ontogeny of flowers and leaves* was on loan to the Humboldt University of Berlin for its exhibition, *+ultra gestaltung schafft wissen*, where it shared a display case with a Goethe manuscript from ca. 1790 illustrated with sketches of plants and insects. This exhibition closed at the beginning of January and the Librarian travelled to Berlin to see the manuscript removed from the display and carefully packed into its travelling case for the return trip back to London. The Wellcome

Collection exhibition *Making Nature* continues until the end of May and the specimen of the John Dory (*Zeus faber* L.) features in the first room which is devoted to taxonomy and classification.

Tours have been arranged for groups from a wide variety of organisations. We have hosted visits from the Australasian Plant Society, the Friends of City Gardens, Gainsborough House patrons (Sudbury, Suffolk), Chelsea School of Botanical Art, the Ilford branch of the Workers' Educational Association (in connection with their course on the Enlightenment) and a group of trainees from the Natural History Museum, London. In early March we were pleased to receive a visit from the new Swedish Ambassador to the UK, HE Mr Torbjörn Sohlström, and members of his staff who enjoyed a tour of the Collections Store and then viewed some of the Society's Linnaean memorabilia with the Curator of Artefacts, Glenn Benson, in the Reading Room.

“It was quite moving to get a glimpse of the enormous treasures that are so well looked after at the Linnean Society.”

—Torbjörn Sohlström  
Swedish Ambassador

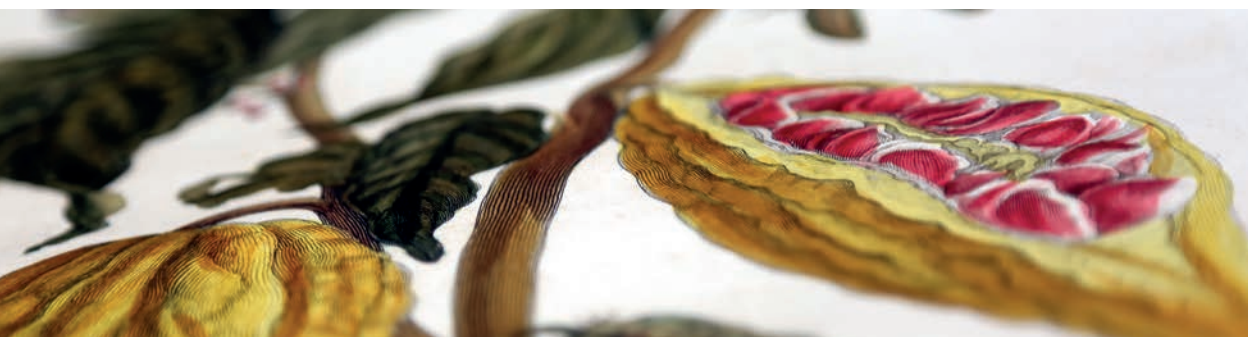
Lynda Brooks, Librarian  
lynda@linnean.org

The following people have made book donations to the Library of the Linnean Society of London. These books will now be in the process of being added to the Society's online catalogue, accompanied by the appropriate donor information.



*THANK YOU TO ALL THOSE WHO HAVE DONATED TO THE SOCIETY:*

Peter Alfrey	Professor Javier	Dr Pat Morris
Aleksandr Antsulevich	Francisco-Ortega	Dr Henry Noltie
Stuart Baldwin	Dr John G.C.M. Fuller	Dorabella Northcott
Glenn Benson	Mary Gregory	Dr Henry Oakeley
Katrin Boehme	Jenny Grundy	Miles Osmaston
Lynda Brooks	Mike Howgate	Thor and Arne Øvelid
John Burton	Eddie John	Hugh Pearson
Ron den Daas	Dr Stephen Jury	Dr Kerstin Ramm
Paul Daley	Gabriela Lamy	Olaf M. Skulberg
Gina Douglas	Katharina Lee Chichester	Dr David Sparrow
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Olga Elina	Henrietta McBurney Ryan	Diane Tough
Dr Mike Faye	Charles R. Magel	Dr Carlo Violani
Dr John Feltwell	Elaine Monaghan	Dr Anthony Walker



The full list of donations is also accessible as a PDF with the online version of this issue of *The Linnean* at [www.linnean.org/thelinnean](http://www.linnean.org/thelinnean).

A printed copy of the list can be sent upon request—please contact the Library staff at [library@linnean.org](mailto:library@linnean.org).

## FURTHER OBSERVATIONS ON 'SEAWEED BALLS'

**F**urther to Bryant and Irvine's article on 'Marimo, Cladophora, Posidonia and Other Plant Balls' in *The Linnean* (Vol 32, Oct 2016), I can add to the 'seaweed balls' and nun's farts, with my observations of tapir droppings in Costa Rica.

The Central American tapir (*Tapirus bairdii*) of the Corcovada National Park in Costa Rica produces tennis-ball sized droppings along the beach.

The droppings are very fibrous, as if loosely woven, and bob around in the surf. The tapirs are herbivorous and are said to consume 15–63kg of fruits and other vegetation a day, producing light-weight droppings known to assist seed dispersal and germination.

Here on the Pacific coast where the rainforest comes down to the Pacific the tapirs live along the beach eating a wide range of plants including fibrous vines. The following photographs show the typical habitat in which the fibre balls are found, the producer and the product.



(TOP) Central American tapir eating foliage deep in coastal vegetation; (CENTRE) Tapir dropping; (BOTTOM) Habitat of the Central American tapir where the rainforest of The Corcovada National Park meets the Pacific. All images © John Feltwell

John Feltwell FLS  
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## UPDATE ON THE FELLOWS' PORTAL

### PLEASE LOG IN TO UPDATE YOUR PROFILE

The revamped Fellows' Portal is now up and running, with new content and interactive features:

- ✧ Find Fellows with similar interests near you
- ✧ Start a conversation with other Fellows
- ✧ Renew your subscriptions
- ✧ Update your interests and change your contact details
- ✧ Register for events
- ✧ Purchase books and other merchandise
- ✧ Take a look at our latest video podcast
- ✧ Get access to *PuLSe* and *The Linnean*
- ✧ Access the Society's Charter and Byelaws

**By now you should have received an email inviting you to log in into the Fellows' Portal. Please make sure to check your spam folder if you have not received this email, and update your profile before the Anniversary Meeting on 24 May 2017.**



## LINNEAN LEARNING: THANK YOU AND UPDATE

The Education team would like to thank everyone who responded to our 'Linnean Learning Needs You' article (*PuLSe* 31, 2016). We received overwhelming support in the form of images for our resources, offers of assistance at our events and completed Careers Profile questionnaires. However, we're not finished yet and we would love your help! Specifically—

- ✧ **Image pairs:** We're looking for pairs of images of the same species (one adult and one juvenile), and sets of three images that show one environment and two individuals of the same species (preferably with a noticeable polymorphism) for card games that we're making to highlight how offspring are similar to their parents and how variation exists within species.
- ✧ **Timeline illustrations:** We also need illustrations for a timeline activity to represent events such as the formation of the Earth and the extinction of the dinosaurs. If you think you have appropriate images, or fancy flexing your drawing muscles, please get in touch.
- ✧ **More Careers Profiles:** Complete a Careers Profile to ensure our new resource series is as comprehensive as possible—any career paths or professions are fine! The questionnaire can be downloaded from <https://goo.gl/IBW2VT>.

Please follow us on Twitter (@LinneanLearning) to stay up-to-date with our education news and events, and please email us at [education@linnean.org](mailto:education@linnean.org) if you think you can help with any of our resources or events.

# Puttbo: A Secluded Linnaean Relic



Per M. Jørgensen

*Professor emeritus FFLS*

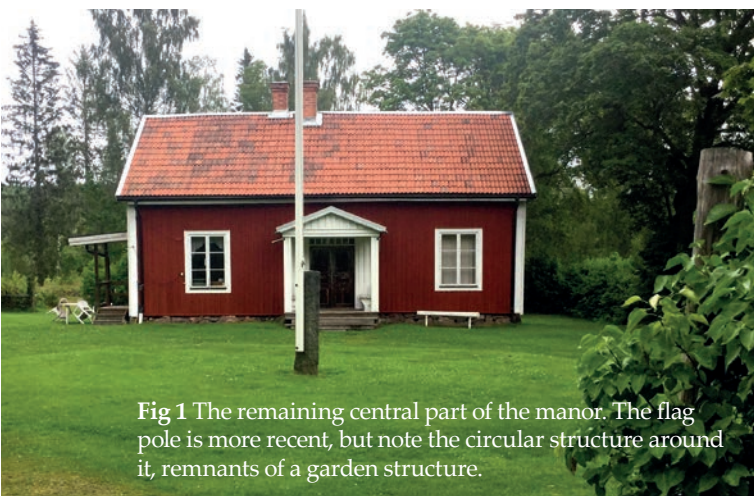
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Ever since coming across Carl Linnaeus's diary notes from his 1733/34 visit to the Falun region in Sweden in the archives of the Linnean Society, I had wanted to see the place he writes of called 'Puttbo'. I concluded that it had to be situated not far from where I spend my summers near the famous 'Sveden' where Linnaeus eventually wedded Sara Lisa Moraea (1716–1806). Although I initially failed to locate it, I was finally told that 'Puttbo' was situated at the end of a rough forest road, and really not worth visiting. After some perseverance we eventually found it situated a few kilometers from Falu Gruva (a copper mine) along a side road towards Nybo. The houses are not so dilapidated as I had been told—at least three of them were still there—and the remnants of the once splendid garden, praised by Linnaeus, could be discerned.

This was the farm where Linnaeus stayed during his visit to the Falun district in 1733/34. He had been invited to spend Christmas and New Year at Claes Sohlberg's home (a fellow student), and he stayed until spring came. 'Puttbo' was owned by Claes' father, Erik Sohlberg, a man of great importance who ran the famous copper mine nearby. He was an engineer who looked after the essential water supply to the mine.

In Linnaeus' 'Nemesis divina' manuscript, Erik Sohlberg is described as a rich man who exploits his workers, with five fat sons. This old farm had been bought shortly before 1700 but dated back to 1500, and was then a modest little cabin (probably the origin of the strange name; 'putt', meaning 'minute'). Sohlberg built a manor house, its central part still standing (Fig 1), with an impressive



**Fig 1** The remaining central part of the manor. The flag pole is more recent, but note the circular structure around it, remnants of a garden structure.

original entrance door still present (Fig 2) and two wings, now missing. Altogether there appears to have been up to 30 buildings (16 indicated on a map from 1757 shown at the entrance today), only three of which have survived in some form, the oldest being a storehouse with a brewery and a living room, dated 1652 on the weathervane (Fig 3). The third building (to the north) is recorded as a 'contoir' (office building), but the present one appears to be from a later period.

Sohlberg turned this small farm into a so-called 'bergsmannsgård' (master miner's estate), which would have always included a garden. Located at the back of the house with many sections it was fenced off by a substantial stone wall on all sides (Fig 4), separating it from the surrounding marshlands and fields. Linnaeus praised this as one of the finest gardens of the region, naming several plants he saw there, especially fruit trees, and cherries in particular. Today there are only a few old apple trees in the lower southeastern part which may be the remains of the orchard, below a shrubbery



**Fig 2** The ancient front door of the manor



**Fig 3** The oldest surviving building, a storehouse from ca. 1650 before Sohlberg bought the property

of bridewort (*Spiraea salicifolia*) (Fig 5), listed by Linnaeus. The only other plant recorded by Linnaeus which was observed during my visit was mock orange (*Philadelphus coronaria*). None of the herbs he recorded could be seen, which is not surprising since the garden has obviously been neglected for a long time. Perhaps a reconstruction might be possible if money and interest for such a project could be found.

'Puttbo' is of special importance to the life of Linnaeus, for it was here during the

Christmas and New Year's celebrations that, on several occasions, he met Sara Lisa Moraea (Fig 6, overleaf) to whom he later proposed (possibly love at first sight on his part). He writes that he became aware of this shy beauty, who differed from all the other girls in these gatherings of the bourgeoisie in Falun, due to her modest manners. They met several times, also at her parents' home at 'Sveden'. On one occasion Linnaeus writes that he was well received and adds "p.a." which normally is the abbreviation for 'pro anno' (each year), not fitting in this context. However, William Stearn smilingly told me that this was a cryptic way of noting that her parents were not present (*parentibus absentibus*)! Finally (in 1735) Linnaeus took the courage to ask her stern father Johannes Moraeus (1672–1742), the provincial physician in charge of the medical activities of the mining company, for the hand of his eldest daughter. According to Linnaeus's own biography, the answer was both no and yes. The father clearly liked the young student, but worried about his uncertain prospects. He promised, however, that Linnaeus could marry Sara Lisa if, within three years, he managed to prove himself. Consequently, Linnaeus duly defended a medical thesis on inter-



**Fig 4** The stonewall towards the north-east, fencing the garden off from the surrounding wetlands



**Fig 5** Bridewort (*Spiraea salicifolia*) in today's garden, a living relic from the times when Linnaeus visited Puttbo

mittent fever in Hardewijk in the Netherlands, and on his return to Sweden in 1738 he could proudly declare: "I am now officially engaged." Their wedding took place at her parental home 'Sveden' in 1739.

Sara Lisa was to be of great importance for the future professor, in spite of her rather adverse reputation, mostly from foreign visitors to their home at 'Hammarby', with whom she could not speak (she knew only Swedish); they found her boring and rather hostile. (She obviously disliked running a B&B in addition to her many other duties.



**Fig 6** Sara Lisa Moraea in her wedding dress in 1739, engraved from an original painting by Johan Henrich Scheffel

She bore him six children.) An interesting exception is the couple of Norwegian students (whose language she understood!) who reported that she took an interest in their well-being and often visited them at their lodging (Jørgensen 2009). They understood that she liked a cup of coffee which they, as foreigners, were allowed to drink. There can be no doubt that Sara Lisa was a most capable housewife who took care of the household, though rather strictly according to her son (Carl *filius*). She managed the farm at Hammarby, which was more suited to her than the life among the academic circles in Uppsala. She

**“Sara Lisa was to be of great importance for the future professor, in spite of her rather adverse reputation, mostly from foreign visitors to their home at ‘Hammarby’, with whom she could not speak.”**

carried out the necessary domestic chores so that her multifarious husband was able to spend his time on science. Accordingly, the stay at ‘Puttbo’ held crucial significance for Linnaeus.

Fortunately ‘Puttbo’ is now part of the UNESCO World Heritage Site ‘Falun Gruva’ and thus is hopefully secured for the future. At the entrance there is an excellent information board, with English and German texts.

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# On the Date of Issue of No. 5 of the *South African Quarterly Journal* Containing New Zoological Names Proposed by Andrew Smith—1831 or 1832



Dr Kees Rookmaaker

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**T**he *South African Quarterly Journal* (SAQJ) was a serial publication issued by the South African Institution, which had been formed in Cape Town in August 1829. The Institution amalgamated in 1832 with the South African Literary Society of 1824 to form the South African Literary and Scientific Institution (Crawford 1934). Not only is the journal extremely rare, its odd and apparently erratic system of numbering of the parts has proved a challenge to librarians. The papers contributed by the Scottish physician and explorer Andrew Smith (1797–1872), who was also the first Superintendent of the South African Museum, have attracted the attention of taxonomists to identify the new zoological names. The SAQJ is largely available on the Biodiversity Heritage Library (BHL) using a copy in the Natural History Museum, London (NHM).

The SAQJ was published in three series or volumes (Rookmaaker 2016). The first series consisted of 5 numbers issued from 1830 to 1831 (or early 1832). The second series consisted of 4 numbers each containing 4 individual parts issued from October 1833 to September 1835. A third final series had just one part published in 1836 or 1837. The date of series 1 number 5 is uncertain, but is important as it contained ‘Contributions to the natural history of South Africa, &c. No. I’ (pp. 9–24) by Andrew Smith, describing several new species:

**Mammals:** *Erinaceus frontalis*; *Petromus*; *Macroscelides rupestris*; *Petromus typicus*; *Balaenoptera australis*.

**Birds:** *Ploceus stictonotus*; *Vidua* sp.; *Buphaga africanoides*; *Corythaix burchellii*; *Cinnyris veroxii*; *Alcedo natalensis*; *Otis afroides*; *Otis arabs*; *Otis ruficollis*; *Otis coleii*; *Otis afra*; *Otis torquata*; *Otis vigorsii*; *Otis veroxii*; *Otis afroides*.

**Reptiles:** *Alligator cowieii*; *Varanus gillii*; *Chamaeleo taeniabronchus*; *Chamaeleo namaquensis*; *Coronella leucopilus*; *Lycodon capensis*.

**Amphibians:** *Tremeropugus*; *Tremeropugus typicus*.

**Fishes:** *Diacopoma*; *Diacopoma typicus*; *Diacopoma typicoides*; *Serranus cuvierii*.

**Mollusca:** *Limax melanostictus*; *Limax lamarckii*; *Cyamus leachii*; *Cyamus latreilleii*.

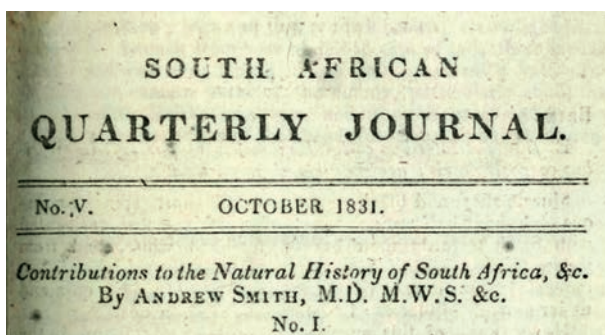
**Myriapoda:** *Julus dorsalis*; *Julus erythronotus*; *Julus striatus*; *Julus cuhas*; *Julus erythromelas*.

In recent literature, these new names in the fifth number of the *SAQJ* are almost invariably associated with the date 1831, for instance mammals in Wilson et al. (2005), birds in Clancey (1980), reptiles in Ulber (1999) and Branch & Bauer (2005). Also Sherborn (1922–32) always dated all these names to October 1831. Branch & Bauer (2005), however, noticed that No. 5 was “incorrectly dated 1832 by Salvin (1880) and some other 19th-century authors”. The source of this discrepancy needs further investigation.

The Cambridge-based ornithologist Alfred Newton (1829–1907) was one of the first to point at the extreme rarity of the *SAQJ*, of which he could only locate three incomplete sets in London, in all of which No. 5 was missing (Newton 1868a). Later that same year, he could report that the Cape bibliophile Charles Aken Fairbridge (1824–93) had donated complete sets to him as well as to the Zoological Society of London (Newton 1868b). The set received by Newton himself still had the original wrappers of the various numbers, and was used by Osbert Salvin (1835–98) to reprint the ornithological contributions by Andrew Smith as facsimiles (Salvin 1880). Although Newton’s private library came to rest in the Balfour and Newton Libraries of the Department of Zoology, University of Cambridge, this set of *SAQJ* cannot now be found in the catalogues of its holdings (Balfour and Newton Libraries 2016).

Andrew Smith’s contribution in No. 5 of the *SAQJ* was reprinted by Salvin (1880: 57–63) and more recently by Branch & Bauer (2005: 42–57). These reprints, as well as the scanned pages on BHL, identify the number (no. V) and date (October 1831) at the top of page 9 (Fig 1). Page 9 was the first page, because pages 1 to 8 were never published due to a printer’s error. However, Newton (1868b) examined the wrapper of No. 5, and concluded that: “‘No. V.’ of the original Series, though called that for ‘October 1831,’ bears 1832 as the date of publication on its wrapper. Its pagination begins at page 9 and extends to page 140.” Salvin (1880: iii) reinforced this stating that “the first series contains five numbers, the first four bearing the date 1830, and the fifth, 1832” and adding in the footnote: “No. V. October, 1831. Published by George Greig, Keizersgracht; 1832.” The publisher and his address, as well as the year 1832, must have been information obtained from the wrapper as it is absent from the printed page 9 or the remainder of the printed text.

Andrew Smith himself referred a few times to his descriptions



**Fig 1** Top of the first page of No. 5 of the *South African Quarterly Journal*

in *SAQJ* No. 5 in his major work on the South African fauna, the *Illustrations of the Zoology of South Africa*, issued in 28 parts between 1838 and 1849 (Low & Evenhuis 2014). In the text, he sometimes gave references to the original description of a certain species, including the following:

ILLUSTRATIONS	TEXT TO PLATE	REFERENCE AS GIVEN BY SMITH
<b>Mammalia</b>		
Pt. 2, 1838	Pl. 3	No. 5, Oct. 1831
Pt. 9, 1840	Pl. 20	No. 5, page 2. (no date)
<b>Aves</b>		
Pt. 8, 1839	Pl. 35	No. 5, page 13, Oct.1831
Pt. 11, 1840	Pl. 57	No. 5, page 13, 1831
Pt. 13, 1841	Pl. 66	No. 5, p.11, Oct. 1831
<b>Reptilia</b>		
Pt. 4, 1838	Pl.5	No. 5, page 18, June 1831
1848	Appendix	References to No. 5, October 1831

Smith himself therefore always gave a date in 1831, usually October as printed on the first page of that issue, but once as “June 1831”. While the significance of the latter is unknown, it may be noted that he never gave the date as 1832. Maybe he did not have access to issues of the *SAQJ* in wrappers when he was compiling his *Illustrations*, or maybe he was aware of the exact date of publication.

Only a few sets of the *SAQJ* have been preserved, but copies in which the wrappers are preserved are almost non-existent. The library of the Linnean Society of London preserves the first three numbers of the first series (1830), which fortunately still have their original green wrappers (Fig 2). Examination of the wrappers shows that the information on the wrappers is not always identical to that on the first page of each number. For instance, No. 2 has no date in the

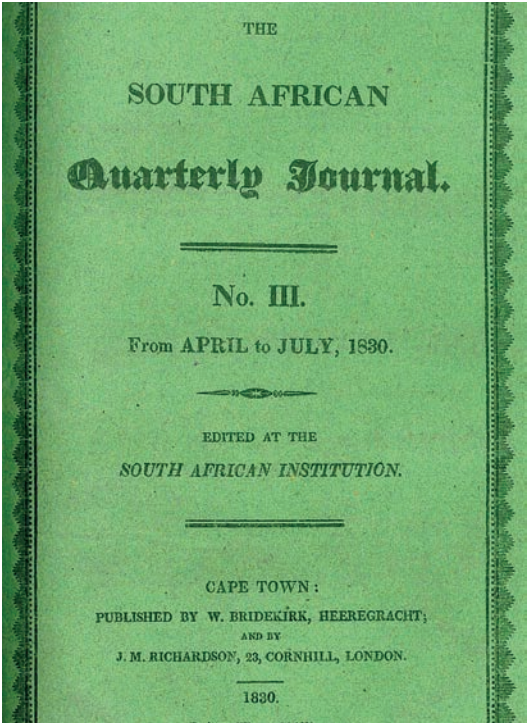


Fig 2 Front wrapper of the *South African Quarterly Journal*, First Series. No. 3 (1830)

issue itself but is dated “January to April 1830” on the wrapper. No. 3 is dated April to June, 1830 in the text (p. 225), but “April to July, 1830” on the wrapper.

The exact date of publication is always important in zoological nomenclature, when the earliest name is usually the valid name. I believe that it is almost certainly true that No. 5 of the *SAQJ* was available only during the first months of 1832, because that is the date on the wrapper according to Newton (1868b). I need to say ‘almost certainly’ because no copy of this wrapper appears to remain in existence, and hence the information can no longer be verified.

For the sake of stability of nomenclature, I believe therefore that the date of No. 5 as October 1831 should be maintained.

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# The Linnean Society of London's Smith Correspondence and Dr James Anderson LLD (1739–1808): Some Observations



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Tom Kennett's biography of Sir James Edward Smith, *The Lord Treasurer of Botany* (2014)—founder and first President of the Linnean Society of London—is based in part on the Society's collection of Smith's correspondence. This includes letters from Dr James Anderson (dated 21 May 1794 and 6 February 1797) and another of which I own myself, dated 6 March 1797.<sup>1</sup> Other correspondents of Smith mention Dr Anderson a number of times, including George Cumberland, Thomas Johnes and Johnes's daughter, Mariamne.<sup>2</sup> There are a number from Thomas Johnes in particular, who had consulted Anderson about improving his estate in Hafod, Cardiganshire, Wales, after moving there in 1783. The warm relationship between the philanthropic Johnes and Anderson benefitted the latter's daughter, as well as one of his sons.

Thomas Johnes was a Member of Parliament, a landscape designer, farmer, scholar, founder of a private press and social benefactor. He devoted his fortune to developing the estate of Hafod, where he built a mansion equipped with a large library and laid out the grounds in the picturesque fashion of the day. In 1797 he was married with an 11-year-old daughter (Mariamne, 1784–1811), who suffered with spinal problems (possibly scoliosis). Smith often visited Hafod in his role as physician to treat Mariamne, but also to encourage her considerable talents in natural history; Johnes spared no expense in employing private tutors for her education.

Dr Anderson was a lesser-known figure of the Scottish Enlightenment: a widely respected agriculturalist and expert on sheep (Fig 1), he wrote extensively on

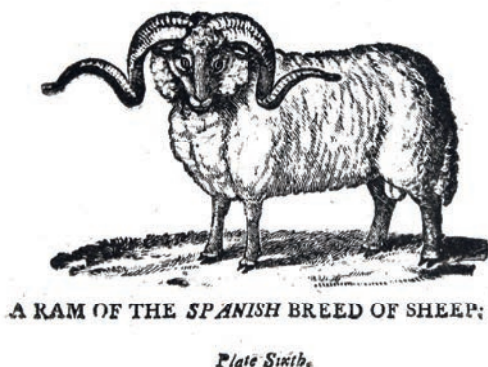


Fig 1 Plate from James Anderson's *An account of the...sheep found in the Russian Dominions...* (1794)

farming and the economy, as well as inventing the Scotch plough. His acquaintance with Johnes began in 1792 when Johnes provided a short biography and portrait of medieval author Jean Froissart for Anderson's periodical, *The Bee*.<sup>3</sup> (His botanist son, George Anderson FLS, is the subject of a recent biography in *The Linnean*.)<sup>4</sup> Johnes went on to obtain advice from Dr Anderson about making his estate more profitable, and Anderson also designed special gardens for Mrs Johnes and Mariamne.<sup>5</sup>

To advise Johnes, Anderson visited Hafod during 1794, 1795 and 1796, and as a consequence became friendly with Mariamne; she enjoyed his company and looked forward to his visits.<sup>6</sup> In October 1794, on his first trip to Hafod, Anderson's daughter Margaret accompanied him and stayed behind, spending nearly a year with the family and becoming an older companion for Mariamne, joining her in her classes. Margaret would write a vivid account of her life at Hafod.<sup>7</sup>

Also in 1794, Dr Anderson had earlier corresponded with Smith, sending him seeds and discussing various natural materials which could be 'felted' (Smith had an interest in textiles as his father was a merchant).<sup>8</sup> He wrote again on 6 February 1797: "Be so kind as to remember me [...] to Mrs Smith and the young ladies—my son, who is well, joins in the same." Two floral imprints on the last page of the letter were by his son's hand (Fig 2). John Anderson (1775–1807), an ex-apprentice of master engraver Thomas Bewick (1753–1828) had recently joined his father in London, and they tactfully demonstrated to Smith the younger Anderson's skill; John "Warwick" Smith had made watercolours of the Hafod estate in the early 1790s and Dr Anderson hoped that his son would be commissioned to engrave them.<sup>9</sup> (The watercolours were the basis for the engravings later used by Sir James Edward Smith in his *Tour to Hafod*.) In any event, John made at least one engraving before Smith published his *Tour...* in 1810 (which was printed complete with 15 aquatints, see Fig 3). Perhaps this commission was a test, for only one impression from an incomplete and damaged printing block is known.<sup>10</sup> The damaged block may have convinced Johnes and Smith that the more reliable method of copper engraving should be used for the small print run (100 copies).

That John Anderson was considered for this important commission is supported by the postscript of a letter in the Society's collection of correspondence, from Sir Thomas Frankland to Smith:

You showed me the drawings of Hafod, but I thought they were to be engraved on wood by some pupil of Bewick's, some samples of whose works you showed me at Mr [Aylmer Bourke] Lambert's.<sup>11</sup>



Fig 2 Dr Anderson's letter to Smith in 1794, adorned with two floral imprints by his son John



**Fig 3** An aquatint of Hafod House in Sir J E Smith's *Tour to Hafod* (1810)

However, John Anderson did provide Johnes with a small woodcut for the Welsh edition of Johnes's handbook, *A Cardiganshire Landlord's Advice to his Tenants*, of which three editions were published (two in 1800 and a third, ca. 1804, printed at his Hafod press). The title page of *Cynghorion Priodol o Garedigion I Ddeiliaid ei Dyddynod* (London, 1800) is decorated with a woodcut identical to one amongst several John produced for the 1799 edition of *Letters of Junius* (vol 2), a series of polemic open letters critical of the George III's government, written by an anonymous author.<sup>12</sup>

## ENDNOTES

1. Smith Correspondence: (GB-110/JES/COR/1/42) and (GB-110/JES/COR/1/43)
2. Anderson in Smith Correspondence: JE Smith (GB-110/JES/16/20, /24, /25, /26, /30, /31, /34, /35, /50); Mariamne Johnes (GB-110/JES/16/4, /5, /6, /7); Cumberland – British Library (Add.MS.36497, f.98; 36498, f.100, f.112, f.375; 36499, f.7, f.341). Not to be confused with Dr Robert Anderson of Edinburgh who advised Johnes on setting up the Hafod press.
3. 1792. *The Bee or Uterary Weekly Intelligencer*. (Vol 14): 8 February. Eighteen volumes were published between 1790–94.
4. van der Lande V. 2016. George Anderson (1773–1817) FLS: Botanist, early Fellow and officer of the Linnean Society. *The Linnean* 32(1):17–22.
5. Inglis-Jones E. 1950. *Peacocks in Paradise*. Hafod was one of the earliest 'Romantic' properties.
6. Smith Correspondence: (GB-110/JES/COR/16/34) Mariamne Johnes made drawings of *Strelitzia* for Dr Anderson (as well as for Smith). Her letters express concern for his health.
7. Outram MF. 1932. *Margaret Anderson: The Mother of Sir James Outram*. (London: John Murray)
8. Smith Correspondence: (GB-110/JES/COR/1/42)
9. Although Thomas Maurice's *Grove-Hill* (1799) and Robert Bloomfield's *The Farmer's Boy* (1800)—both featuring John Anderson's engravings—had not yet been published, his work was already highly regarded. He was one of 19 signatories on the certificate presented to the Directors of the Bank of England (5 April 1797) in support of Alexander Tulloch's method of engraving forgery-proof banknotes. Six of the signatories held Royal appointments (*The European Magazine and London Review*, vol 73, 1818: p 254).
10. <http://www.worldcat.org/title/cascade-cavern-part-of-the-hafod-estate/oclc/49390336%3E> (Accessed 22/10/16) Large engravings were often made by firmly clamping several blocks of boxwood together.
11. Smith Correspondence: (GB-110/JES/ADD/32)
12. Anonymous. 1799. *Letters of Junius*. (London: Vernor and Hood) <https://babel.hathitrust.org/cgi/pt?id=mdp.39015073721931;view=1up;seq=11> (Accessed 22/10/16)

# Plants, War and the Natural Capital of Empire



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Plants and their derivative products have frequently been integral to, and the sources of, conflict within the framework of imperial trade and international law. From Spartans burning Greek olive groves to weaken their opponent's economy in antiquity to notable early-mid modern period examples including cinchona, cloves, nutmeg, shipbuilding timbers and opium. "Botanists and botanical gardens played a major role" (Baber 1996, p 168) in the successful international transfer of botanical economic products and so the fortunes of the British Empire were dependent upon these skills and institutions.

On 21 November 1815, British botanist Aylmer Bourke Lambert read at the Linnean Society a paper entitled 'Note on a collection of specimens of *Cinchona*' (Society paper no. 495). The paper recounted a set of collections of the genus, notable not only by their taxonomic diversity but also the route of their acquisition by their final owner.

The specimens "came in a Spanish Frigate, which was taken by the French, and afterward, retaken by the English". Although the febrifugal qualities of the bark of *Cinchona* species was well known to native South Americans, the 'discovery' by western powers of the anti-malarial properties attributable to the alkaloid quinine within the bark quickly drew it into imperial conflicts. The genus *Cinchona* had originally been named in 1753 by Linnaeus in honour of the Condesa de Chinchón



**Fig 1** Illustration of *Cinchona* (LINN 230.4) held in the Linnaean herbarium

(Fig 1), who was the first widely reported European sufferer of malaria in Lima to be successfully treated with the bark in 1638 (Hsu & Harris 2010).

Lambert, a Founding Fellow of the Linnean Society and a Fellow of the Royal Society, was very well connected. This facilitated his acquisition of several important herbarium collections as well as an extensive library (Fig 2). The 'Spanish Prize' was heading from Lima to Cadiz before its double interception, and enabled a thorough comprehension of species figured in *Flora Peruviana* (Ruiz & Pavon 1799), as well as taxa thought to be new to science (Humboldt *et al* 1821), following Lambert's own description of the genus (Lambert 1797). An international race developed not only to find, but to cultivate, varieties of *Cinchona* containing the highest quantities of the active anti-malarial ingredient. Taxonomic skills employed in

this imperial context were critical to success (Bleichmar 2012: 145). In 1854, *Cinchona* trees were introduced to cultivation in Java by Dutch botanist Justus Hasskarl, and the Buitenzorg Botanical Gardens were instrumental in making Java the largest producer of the bark for treatment of malaria through the development of plantations.

This illustrative example embodied the historical interaction of plants, war and the quest for botanical materials for mankind, in this case embedded within the array of conflicts among the British, French and Spanish during the course of the Napoleonic Wars (1803–15). Malaria was a debilitating influence on Europeans attempting to maintain power throughout the tropics and sub-tropics and *Cinchona* provided key medicinal support to enable the running of these empires. The East India Company's troops were dependent on the transfer of *Cinchona* plants from South America (Baber 1996, p 170). Indeed, Richard Spruce lamented "How often have I regretted that England did not possess the magnificent Amazon valley instead of India!" (Spruce 1908, p 217). Later, Peru and Bolivia introduced laws against the export of *Cinchona* as it became a government monopoly. Thus, the impact of the exploitation of *Cinchona* was felt across the global range of imperial rule.

The significance of *Cinchona* and quinine extended far beyond this period of history. During the Salonika Campaign of the First World War, malaria was a major cause of army hospitalisations in Greece, and daily doses of quinine were given to troops



Fig 2 A specimen of *Cinchona officinalis* L. from the 'Spanish Prize' (K001092879)

serving there. The Second World War then led to the resurfacing of the need for new sources of quinine, leading in 1944 to the creation of synthetic quinine and subsequent profitable commercialisation (Smocovitis 2003). Japanese occupation of Java in 1942 had cut off the Allies' supply of the medicinal plant, forcing the need to turn attention once again to South America as well as the development of plantations elsewhere (including in Africa).

For centuries, empires have been established and cemented through conquest of lands and peoples, facilitated by the discovery and exploitation of natural resources, in particular plants. Botanical resources have also enabled the exertion of imperial dominance through, for example, large-scale deforestation for shipbuilding. Extending the lands and seas under the political and military control of any one nation simultaneously stimulated the need to catalogue new floras and cultural practises. Enhanced understanding of what was there, in turn, led to the investigation of methodologies through which these new resources could be utilised within that empire. From the 18th century, Royal Navy warships were mainly constructed from tropical woods as the British Empire expanded—for example, the valuable hard timber of *Oldfieldia africana* Benth. & Hook.f. (African oak) from West Africa was incorporated into the construction of Admiral Nelson's flagship, *HMS Foudroyant*, in 1798 (RBG Kew Economic Botany Collection, EBC16030).

Increasing technical understanding of wood properties informed choices of materials for the age of flight. Scots pine (*Pinus sylvestris* L.) was an important species for the construction of First World War aeroplanes through its strength and stiffness per unit weight. Hard woods, principally mahogany (*Swietenia* Jacq.) and walnut (*Juglans* L.) were important for propeller manufacture, being strong, of uniform grain and easily workable. Samples of woods intended for military use during the First World War were sent to the Royal Botanic Gardens, Kew (RBG Kew) for authentication,

advice on suitability, and interpretation of "strange grain formations" which could affect durability in the air (Wearn 2015a). Botanical expertise at Kew was, therefore, an essential component of the war effort. Several of the samples sent to Kew were retained, including the samples pictured here (Fig 3). Kew responded to enquiries from the Royal Flying Corps, Royal Gunpowder Factory, Royal Small Arms Factory, Ministry of Munitions, and many others concerning wood related military matters.

Taxonomic skills were a vital component of the war effort during both world wars. Identification of much needed substitute materials, where traditional supply lines



**Fig 3** Wood samples of *Cornus florida* L. (EBC10769) and *Frangula purshiana* Cooper (EBC5015, as *Rhamnus purshiana* DC.) sent to Kew by the Royal Gunpowder Factory, London, for authentication during the First World War

had been broken, and diagnosis of crop pests to increase yields were among the applications of botanical and mycological taxonomic expertise (Wearn 2016). Reports on economically important plant materials necessary for the war were spared wartime publication cuts (eg Chevalier 1916).

Perhaps most intriguing has been the botanising of active military personnel with either a professional or amateur interest in plants, resulting in more than 2,000 plant collections from Salonika during the First World War alone, which led to a much expanded knowledge of the Balkan flora (Wearn 2015b). However, even the destination herbaria and museums were at risk; those in Berlin and Manila being largely destroyed during the Second World War. Specimens from the Linnaean collection, Natural History Museum, London (NHM) and RBG Kew were evacuated to Tring in Hertfordshire during the Second World War (Gardiner & Morris 2007, NHM Archive file DF WAR/1201/6).

Examples of historical artefacts from the Economic Botany Collection of RBG Kew were recently showcased under the heading ‘Wood at War’ at the *Wizardry in Wood* exhibition held during October 2016 at Carpenters’ Hall in London to highlight the intimate association between plants and conflict. Nevertheless, such connections are by no means a wholly historical phenomenon. In an age where the economic value of anything natural is being comprehensively analysed and quantified, the ‘economic botany’ of old has undergone a resurgence (Salick *et al* 2014), now placed under the broader umbrella of ‘Natural Capital’. Jasanoff (2006) commented: “Just as the life sciences advanced the interests of bygone empires, so modern biotechnology is likely to support today’s transboundary exercises of political, economic and cultural power.” This is a potentially controversial thought to ponder during the present age.

Revitalised consideration of the web of interactions among plants, sociocultural and political development and conflict has unlocked new fields of research, from species-focused botanically derived products and novel bioinspiration to the study of conflict landscapes and effects upon native floras. The discovery of biodiversity hotspots and plants previously unknown to science due to inaccessibility imposed by wars has accompanied post-conflict research (eg Mabberley 2009, DEPG 2014). This has provided a platform to extend our understanding of polemobotany—the study of plants impacted upon during the course of, or utilised for, military activity (Wearn 2016).

Thus, taxonomy remains and should remain a critical foundation for modern multidisciplinary studies which integrate sciences with humanities. Herbaria, museums and zoos have long been important expeditors of associated activity. Moreover, they are

“ Perhaps most intriguing has been the botanising of active military personnel with either a professional or amateur interest in plants, resulting in more than 2,000 plant collections from Salonika during the First World War alone. ”

now the repositories of the materiality of this activity, presenting an under-appreciated resource for investigation of the legacy of the combined interactions among plants, war, and the natural capital of empire.

## ACKNOWLEDGEMENTS

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## BILL CHALONER PPLS (1928–2016) AND THE CHALONERESQUE APPROACH

“A man for all subjects.”  
Alfred Traverse (1993)

William Gilbert Chaloner ('Bill' to many Fellows) died at his home in Sheen, Surrey, on 16 October 2016. Bill was born 22 November 1928, the fourth child of his journalist parents then living in King's Road, Chelsea. Bill essentially remained a Londoner all his life, moving between homes in Roehampton, Kensington, Barnes and lastly to suburban Sheen, with temporary residences in Germany, Nigeria and USA.

Elected FLS in 1967, he served as President 1985–88 (Anon. 1988a, b, 1989b) during many of our Bicentennial celebrations (eg the visit by our Patron, HM The Queen, figured). Bill was the sixth of seven of our presidents to have published their research on fossil plants. Volume 97(2) of *The Botanical Journal of the Linnean Society* is dedicated to Bill for the work he did during his presidency. At the Palaeobotany Specialists' Group meeting held at Burlington House 23 November 2016, Professors MC Boulter FLS and ME Collinson FLS gave illustrated and heart-warming accounts of Bill's industrious and generous character; Bill's palaeopalynological colleague Professor A Traverse (1993) coined the term 'chaloner-esque' to describe Bill's manner. From the list of references below, Fellows may read accounts of Bill's major contributions to palaeobotany, palynology, plant evolution and climatology that resulted in his FRS status in 1976, Linnean Medal for Botany in 1991 (Hawkes 1992) and many other major awards.

Why palaeobotany? At Chelsea Polytechnic, Bill was encouraged to study Botany and Geology by William Fleet. Dr Herbert Duerden suggested Bill read MC Stopes's 1910 book *Ancient Plants*; her use of plain, logical English, of scaled photographs and ex-

Profs WG Chaloner (RIGHT) and WT Stearn present the Society's Patron, Her Majesty The Queen, with a copy of *A Bicentenary History of the Linnean Society* of London during Her visit to Burlington House 17 March 1988



planatory diagrams were features Bill adopted in his own publications from 1951 to 2016. Bill wrote an obituary and two further biographies of Stopes FLS, plus biographies of John Lindley FLS, Lucy Cranwell, Leslie Audus FLS and his palaeobotanical mentor at Reading, TM Harris PPLS (see Scott & Collinson 1993 for refs). He was most polite and tactful (eg Chaloner 1987), but Bill followed Stopes in scribbling marginalia in many of his offprints and books. I must not name the author, but I laughed to read Bill's "How nice to be so sure" beside one bold remark in his offprint from a palaeobotanist, matched elsewhere by "fair point".

Both at Bill's funeral and later at Burlington House, Mike Boulter emphasised Bill's kindness and generosity. Bill not only taught and researched within the universities of London, Pennsylvania State, Nigeria and elsewhere, he was also an external examiner (at Leeds, Cambridge, Montpellier, etc.) and reviewer for such bodies as the Natural History Museum, London, Royal Botanic Gardens, Kew and Birbal Sahni Institute at Lucknow, India. Boulter also emphasised Bill's unstinting labours as an editor and reviewer of scientific papers and books. Crookall's six-volume *Fossil plants of the Carboniferous rocks of Gt. Britain* would not have appeared without Bill's work on the original manuscript. He did not hold back on criticism but aimed to give positive proposals where he found fault; this included compliance with the International Code of Botanical Nomenclature, for which he was erstwhile editor, having attended every International Botanical Congress from 1960 to 2005. Bill saw some aspects of botanical nomenclature as unduly legalistic and outdated for the third millennium—for example, the use of latinised diagnoses. However, he also expressed concern over certain changes in information technology that might risk the loss of accessibility to publications going back to Linnaeus (1753) for neobotany and Sternberg (1820) for palaeobotany. It is fitting that Bill is commemorated at family (Chaloneriaceae Pigg & Rothwell), genus (*Chaloneria* P. & R.) and species ranks (eg *Ocksisporites chaloneri* Hills *et al.*).

Teaching and training researchers at undergraduate, postgraduate and postdoctoral levels absorbed a lot of Bill's time and energy. Scott & Collinson (1993) listed his research assistants and doctoral students up until his retirement, but hundreds more undergraduates and conference-goers will have benefited from Bill's instruction and mentoring in areas including taxonomy and anatomy of the plant kingdom, ecology, palynology, ecology and his intercollegiate course in palaeobotany. Whilst encouraging students to read widely (and not just in English), he greatly valued fieldwork. As his student at Bedford College, London 1981–87, I recall excursions he led to see bryophytes on Box Hill, Surrey; to investigate leaf physiognomy and nearest living relatives of fossil plants at RBG Kew; to discover Tertiary plants from the Cobham lignite and London Clay of Sheppey (Kent) and to collect Carboniferous adpressions from the coal tips at Kilmersden (Somerset) and Writhlington (Kent). As Traverse (1993) remarked, Bill was a better driver than passenger, giving up many Sundays and college vacations to take students by minibus not only to those English localities but also to conferences in Bonn (1976), Montpellier (1983), Frankfurt-am-Main (1990) *etc.* Mike Boulter described how Bill overcame linguistic and political

It is little known that Bill declined an offer to work in the then British Museum (Natural History) Geology Dept., instead taking up an assistant lectureship at University College, London, in 1956.

obstacles to cope successfully with his separation from both his wife (Judy) and their passports on a train journey to Soviet-regime Russia. Bill's bravery extended beyond his driving in London to his use of hazardous substances, such as HF for spore preparations and now-banned fixatives for electron microscopy. Dr CB Thomas FLS recalls his bold approach to a Yorkshire coalface to help her collect Carboniferous spores just a few seconds before tons of rock collapsed at their feet.

Generosity and modesty are two of the qualities that certainly fall under the umbrella of Traverse's adjective 'chaloneresque' (Traverse 1993). Readers of *The Linnean* will often have seen Bill's name in the donations part of our Library reports.

He told me he considered his 1958 *Geological Magazine* paper as "over-quoted". With some embarrassment, he told me how Professor J Walton FLS had excused him a *viva voce* for his PhD examination in 1953. Also, following his National Service in Germany, it is little known that Bill declined an offer to work in the then British Museum (Natural History) Geology Dept., instead taking up an assistant lectureship at University College, London, in 1956.

Although music and sports had not been his favourite subjects at school, Bill listed swimming and tennis as two of his interests in *Who's Who*. At the joint Linnean Society/Systematics Association palaeobotanical symposium held at Goldsmiths' College, London, in 1985, he and Judy were the first to foxtrot aboard the Thames pleasure boat following the academic events. An americanophile, Bill often took his family on holiday to Maine, but latterly they enjoyed Mediterranean resorts. Bill's sense of humour was often dry and he appreciated the musical satire of American mathematician Tom Lehrer; it is fitting, however, that the theme tune to *Dad's Army*, one of his favourite TV comedies, was played at Bill's funeral.

Upon retiring from his post as Head of School of Life Sciences at Royal Holloway, University of London, Bill became Professor Emeritus in the Dept. of Earth Sciences. He maintained his research and reviewing, continuing to teach palaeontology and ecology at Egham, UCL, RBG Kew and Herriot Watt. When heart problems curtailed his tennis, Bill took up watercolours; he was once commissioned to paint the Temple of Bellona at Kew. He enjoyed making wine at home; Dr U Bertram (University of Bayreuth) recalls Bill shared a bottle of 'Chateau Chaloner' with colleagues at Bedford College, University of London in 1984.

Although palaeobotany took Bill into prehistory, he lived enthusiastically in the present and often looked to the future. Concluding his Bicentennial presidency, Bill planted a blue cedar at Oxford, 6 September 1988 (Anon.1989a) and he appreciated plants at home too. The last conversation I had with him in his kitchen in July 2016 was on the ecological oddity of a *Dryopteris* sporeling growing in the same pot as an

*Opuntia* cactus. Professor Margaret Collinson is co-ordinating an attempt to archive many of Bill's 35mm lecture slides, offprints and teaching specimens currently housed at Royal Holloway University of London; with more of his books to be offered to our Library. Profs Collinson, AC Scott and JC McElwain are planning part of the tenth European Palaeobotany & Palynology Conference (Dublin, 12–17 Aug 2018) to include talks and posters in appreciation of Bill's scientific career.

**Hugh L Pearson FLS**

[hugh.pearson@edf-energy.com](mailto:hugh.pearson@edf-energy.com)

Another obituary for Professor Chaloner was published in *The Guardian*:  
<https://www.theguardian.com/science/2016/nov/06/william-chaloner-obituary>

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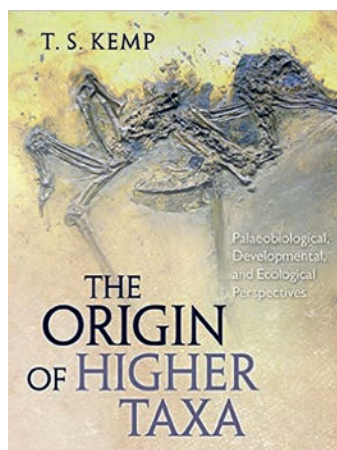
**ELIZABETH YOUNG** (1925–2016): Born in 1925, Elizabeth was the Society's first female Executive Secretary, taking over from Mr Theodore O'Grady in 1979; she stepped down from the role in 1982. In addition to her careful guidance of the Society, as a botanist she was a keen supporter of the Botanical Society of Britain and Ireland (BSBI). She continued to take an interest in the Society and visited our stand at the Chelsea Flower Show in 2007. Elizabeth passed away on 16 September 2016.

**JEANNE PINGREE** (1925–2016): was elected FLS in 1998, an unforgettable personality to all who knew her. Following her retirement from Imperial College, she worked as a voluntary archivist for us, totally immersed in sorting trolleys full of files in the Reading Room. Her wide ranging knowledge of the history of science, arts and music, as well as food and wine both shamed and educated us. Her work is still invaluable in that it provided accessible lists of many of our archive collections. She died on 17 December 2016.

# THE ORIGIN OF HIGHER TAXA PALAEOBIOLOGICAL, DEVELOPMENTAL AND ECOLOGICAL PERSPECTIVES

TS Kemp

201pp, Oxford University Press, 2016, paperback.  
Mono or halftone illustrations. £32.50 (Hardback £75)  
ISBN 978-0-19-969189-0



Thomas Huxley advised Charles Darwin that he had given himself an unnecessary difficulty, by only invoking multiple small changes in traits by Natural Selection. While we can all see how species within a class or order have arisen in this way, is that also the case for higher taxa or has ‘something else’ like a major mutation been required for the novel features at this level?

The study of a few gradual changes in characters like weight and beak size may show how a new species arises but that will not explain the origin of higher taxa. The process of their evolution has to be studied in the context of the huge expanse of deep geological time. Some readers will recall Kemp’s paper in the Society’s *Zoological Journal*, ten years ago, on the origin of mammalian endothermy, which is a major taxonomic shift by any standard. In that, he demonstrated just how much physiology can be inferred from the skeletal features in the fossil record.<sup>1</sup> However, his central theme then, as in this book, was to concentrate on many small interrelated changes evolving in the organism rather than looking for a major single character shifts. So, once again, he points out that any naturally selected change in a character of an organism can be no greater than that which permits continued functional integration with all its other traits. Further change of the character (in any direction and however strongly favoured by natural selection) can only occur after and in concert with other adjustments (also naturally selected) in the organism as a whole *ie* in all its interconnected traits. This is the ‘Correlated Progression’ model which the author has been elaborating for over 30yrs.<sup>2</sup>

This may sound rather obvious but, as the author points out, there has a very strong tendency to look for the origin of a single novel trait to characterise a phylum or class, when in fact the members of such a taxon share multiple interrelated differences from other taxa (as well as multiple similarities, of course). The implication from this is that Darwin’s proposed mechanism of gradual accumulation of small amounts of variation being summated into major differences can indeed be applied to the origin of higher taxa as well as to the origin of species, without requirement for single major mutations to produce novel traits.

As indicated by previous publications, the author’s strong suit and indeed the source of the best evidence for these ideas comes from vertebrate palaeontology, where

there is a good sequence of intermediate types. There are gaps but they pale by comparison with those in the invertebrate record in which almost all phyla seem to have separated by the time of the Cambrian explosion. Defining intermediate grades between invertebrate stem members and their crown group derivatives, is still very much work in progress. Nevertheless by bringing together the available evidence (with a comprehensive bibliography) from palaeontology, developmental biology, the current understanding of how genes work to produce organisms and the palaeo-ecological circumstances (as far as they can be inferred), the author does arrive at a very readable and convincing synthesis in favour of the correlated progression model of evolution. Only accumulated small changes need be imputed to produce the large differences between higher taxa. Long periods of time are necessary (and available) but great leaps up the steep side of Dawkins' Mount Improbable are not required.

Brian Livingstone FLS

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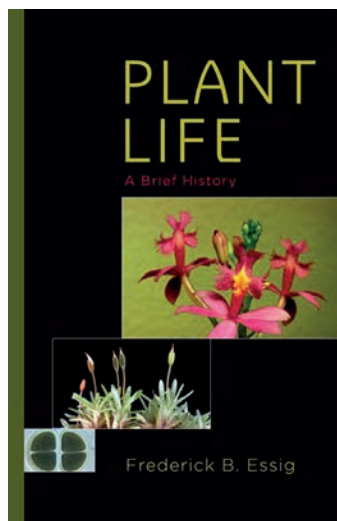
## PLANT LIFE A BRIEF HISTORY

Frederick B Essig

261pp, Oxford University Press, 2015, hardback.  
Halftone illustrations. £47.49  
ISBN 978-0-19-936264-6

About 12 months ago, I reviewed *Evolving Animals* by Wallace Arthur. This book covers the same ground for plants and is aimed, I think, at a similar audience.

It is well known that in Darwin's day the fossil record showed flowering plants appearing quite suddenly as new complex forms. This was difficult for Darwin and his supporters to square with the gradual accumulation of small changes that was the hallmark of his theory at that time ("an abominable mystery"). Their get-out was that the fossil record must still be very incomplete with more to be discovered. It was, and still is, incomplete. As Professor Essig says, fossilisation is not an "equal opportunity process" but to fill the gaps we can now turn to biochemistry and genetics.



For amateur botanists, the problem is that these are fast moving fields and the published results are usually very technical. Just keeping up with flowering plant taxonomy and phylogenetics is hard work so this book should be very welcome to many readers. As the subtitle indicates, it covers the story of evolution in the whole plant kingdom, not just the angiosperms. In nine chapters Essig covers everything from 'Origin of Photosynthesis' to the evolution of Monocots. Next time you see *Acorus* (Sweet Flag, shown below), recall that phylogenetic studies indicate that it represents the most ancient lineage in the Monocots but this does not mean that its ancestors were themselves aquatic. An origin on savannah type landscape was quite possible. You should read chapter nine if this was news to you.

The text is supported by a very comprehensive and up to date bibliography (which includes review and discussion papers on several topics). The style of writing is easy to read and I do think it will be really useful to those Fellows of the Linnean Society who, like me, are amateur scientists rather than professionals (at least with regard to botany).

While the chapter headed 'Adaptation for Pollination and Seed Dispersal' sounds like one from David Attenborough's 'Life of Plants' (Essig strongly recommends the videos, by the way) the treatment of these topics will almost certainly add to most readers' knowledge or jog memory to resurrect forgotten facts. Professor Essig does not talk down to the reader. A very nice feature is the use of vintage illustrations and one of the author's goals was to showcase what he considers to be examples of the best line art ever published on botanical topics. Indeed, even though many date back to the 19th century, they provide excellent depiction of the salient points.

So I strongly recommend this book despite a gloomy forecast for the future in the epilogue. As a reviewer I have the option to keep the book and I look forward to re-reading it and checking out some of the review articles that are cited.

Brian Livingstone FLS



## FELLOWS ELECTED FROM JANUARY 2016 TO JANUARY 2017

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Mr James Abell	Dr Kathleen Cole	Mr Robert Gibbins
Mr John Aitchison	Dr Ross Coleman	Mr Ric Glenn
Mr Gilberto Algar-Faria	Mr Richard Collett	Dr Jean-Guy Godin
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Mr Jonathan Stephens	Mr Sik-Yan Tse	Professor Joseph Williams
Dr Sotirios Stergiopoulos	Dr Sergei Tshernyshev	Dr Samuel Williams
Dr Lena Struwe	Mr Durgesh Verma	Ms Andrea Wulf
Mr Alex Suherman	Dr Ram Vijayvergia	Dr Yannick Wurm

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Mr Kevin Arbuckle	Mr Maxton Hipperson	Mr William Rimington
Mr Fergus J Chadwick	Ms Boroka Kiss	Mr Daniel Stec
Ms Rachel Graham	Mr Reuben Margerison	Mr Oliver White
Ms Gabriella Harman	Mr Carlos Martinez-Ruiz	

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Mr Nicholas Barton	Ms Julia Needham	Ms Victoria Standing
Mr Dean Bell	Mr Alex Owens	Ms Deanna Tricarico
Mr Nigel Haywood	Ms Virginia Page	Mr Shan Wong
Ms Tara Lal	Ms Charlotte Powell	
Ms Roberta Graboski Mendes	Mr Edmund Montagu Ryan	

# FOREIGN MEMBER ELECTED IN 2016

Dr Frederick Hochberg

# HONORIS CAUSA ELECTED IN 2016

Dr Lewis Norman  
Derrick

Professor Grenville  
Llewellyn Lucas

# DEATHS REPORTED TO COUNCIL IN 2016

Lady Prudence Cradock-  
Hartopp

Professor William Gilbert  
Chaloner

Mr Patrick Coffey

Mr Eric Westbrook Curtis

Dr Peter Lawrence Forey

Mr Jeremy Franks

Professor Jim Green

Dr Dennis Hill

Mr Ray Hutchins

Professor Zofia Kielan-  
Jaworowska FMLS

Dr John Laurent

Dr Raymond Mitchell  
Lawton

Mr Tyrrell George Marris

Dr Neville Taylor Moar

Mr Sven-Erik Sandermann  
Olsen

Professor Peter Parsons

Mrs Jeanne Pingree

Mr David Anthony Quine

Mr Geoffrey John Swales

Mr Ewart John Thomas

Mrs Patricia Vlasto

Professor Nikolai  
Nikolaievicz Tzvelev FMLS



**I**n *The Lord Treasurer of Botany: Sir James Edward Smith and the Linnaean Collections*, discover how James Edward Smith, the shy, diffident son of a Norwich textile merchant, took a passion for botany and forged it into a highly successful career in natural history in 1790s London, in the process becoming a focal point for the study of botany and natural history in Great Britain, Europe and beyond.

Using Smith's letters, books, manuscripts and personal diary, Archivist Tom Kennett gives us an honest portrayal of Smith, from his unrealised medical career, to his brushes with royalty, to his close allegiances and rivalries with other naturalists. Rich in detail, we are offered an insight into the inner workings of a man who, with the fame brought to him by the purchase of the Linnaean collections, helped to change the way the study of natural history was perceived by the public, particularly women.

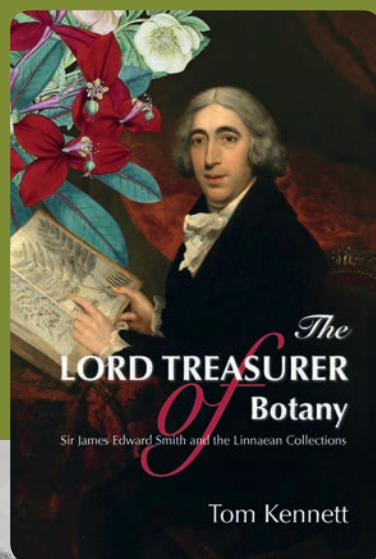


Beautifully illustrated, *The Lord Treasurer of Botany* is the definitive work on this major, and under-appreciated, player in the field of natural history.

388pp., London: The Linnean Society of London, 2016, flexibound. £25.

ISBN 976-0-9935510-0-0

**To order visit** [www.linnean.org](http://www.linnean.org)  
**or email** [info@linnean.org](mailto:info@linnean.org)





# The Linnean Society of London : Programme of Events

## May–October 2017

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- 10 May**  
**12.30–13.00**      **Fascination of Plants Day**  
Monique Simmonds FLS, *Deputy Director of Science, Royal Botanic Gardens, Kew*  
(In association with the Royal Society of Biology)
- 24 May** <sup>\*\*A</sup>  
**16.00–19.00**      **Anniversary Meeting**  
Presentation of medals and awards, AGM and reception  
FELLOWS' EVENT  
Registration for the dinner is essential: [www.linnean.org/events](http://www.linnean.org/events)
- 7 June**  
**12.30–13.00**      **Starting the Revolution from my Easel**  
Jess Shepherd FLS, [www.inkyleaves.com](http://www.inkyleaves.com)
- 7–9 June** <sup>\*\*</sup>      **Maria Sibylla Merian Conference 2017**  
PARTNER EVENT: Taking place in Amsterdam, The Netherlands  
The Maria Sibylla Merian Society—Speakers include: Dr George McGavin, *Oxford University Museum of Natural History*, Professor Kay Etheridge, *Gettysburg College* and Professor Erik A. de Jong, *University of Amsterdam*  
Registration essential: <https://www.aanmelder.nl/merianconference>
- 15 June** <sup>A</sup>  
**18.00**      **Plan Bee: How can Society Respond to Pollinator Decline?**  
Dr Lynn Dicks, *NERC Research Fellow at University of East Anglia*  
(This lecture replaces 'Reproduction in Sponges'.)
- 8 July** <sup>\*</sup>      **Conversazione**  
Taking place at University of Oxford Botanic Garden, Rose Lane, Oxford  
FELLOWS' EVENT  
Registration is essential: [www.linnean.org/events](http://www.linnean.org/events)
- 7 Sept**      **Taxonomy and Systematics Plenary Forum**  
DAY MEETING: Please check website for registration information
- 14 Sept** <sup>\*A</sup>  
**18.00**      **Modelling and Projecting Global Land-use Impacts on Local Terrestrial Biodiversity: The PREDICTS Project**  
Dr Andy Purvis, *Natural History Museum, London*
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↑ Organiser(s)   •   \* Registration required   •   \* Payment required   •   <sup>A</sup> Admission of Fellows

All meetings are held in the Society's Rooms unless otherwise stated.

A tea reception precedes evening meetings at 17.30.

Evening meetings begin at 18.00 and are followed by a wine reception in the Library.

For more details and other events visit [www.linnean.org/events](http://www.linnean.org/events)