The LINNEAN SOCIETY of London

The Linnean

NEWSLETTER AND PROCEEDINGS OF THE LINNEAN SOCIETY OF LONDON

Volume 37 Number 1 April 2021

Thomas Watling:
From forger to natural history illustrator

William Yarrell FLS:
A trusted Fellow, scientist & wise advisor

Linnaeus in England:
Tracing his journey

AND MORE...

Communicating nature since 1788

The Linnean Society of London

Burlington House, Piccadilly, London W1J 0BF UK

Toynbee House, 92–94 Toynbee Road, Wimbledon SW20 8SL UK (by appointment only)

☎ +44 (0)20 7434 4479 | www.linnean.org
✉ info@linnean.org | @LinneanSociety

Publishing in *The Linnean*

The Linnean is published twice a year, in April and October. All contributions are welcome, but please contact the Editor or see the *Guidelines for Contributors* document on our website before writing and submitting articles (www.linnean.org/thelinnean).

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

Cover image: Echidna, attributed to Thomas Watling, courtesy of the Library and Archives, Natural History Museum, London

Editor
Gina Douglas
gina@linnean.org

Production Editor
Leonie Berwick
leonie@linnean.org

ISSN 0950-1096 Charity Reference No. 220509

The Linnean

Newsletter and Proceedings of the Linnean Society of London

Contents

Editorial

This issue of *The Linnean* will differ from previous issues, in that the recent death of Professor Brian Gardiner PPLS, the publication's founder and first Editor, will take precedence. Past colleagues and friends have brought together a tribute to his life and work, helping us to remember the many facets of his personality and achievements.

The past year has also been one in which we have all experienced unforeseen changes in the way we live, work and interact. The Society learnt to adapt quickly to different ways of providing services to our Fellows, within ever changing guidance. The building, library and collections may have been physically inaccessible for much of the year to all but a few, but our events, educational activities, catalogues, and the documentation of our collections has all continued, providing wider outreach and improved resources.

Gina Douglas, *Editor*
gina@linnean.org

Society News

With the roll-out of the UK's vaccination programme, we hope we can look forward to some light at the end of the pandemic tunnel and a 'new normal' for the Society—with plenty of new initiatives afoot.

Responding to the 'Planetary Emergency'

Inspirational leadership from Council member Stephanie Holt FLS has ensured that the 'Linnean Future: Planetary Emergency Response Committee' has got off to a flying start, with the formal launch of this initiative on 3 March. Dedicated educational webpages providing links to informative resources present the science behind the crisis. In addition, the Society will practise what we preach—focusing on sustainability and monitoring our carbon footprint, while we garner support, especially from our members. Your responses to the membership survey are being analysed, and we aim to launch a new Customer Relations Management (CRM) system shortly, with functionality that will facilitate better interactions and communication.

Recognising excellence and research sponsorship

Council voted on the Society's medals and awards for 2021, and presentations to the winners, and the winners from 2020, will be made at the virtual Anniversary Meeting in May. The Society granted three awards from its designated funds: the Appleyard Fund to Eve Hills MRes, presently a foster carer, towards a conservation scoping study on what leopards eat; the Anne Sleep Award to Dr Seyyed Saeed Hosseinian Yousefkhani (Damghan University, Iran) for his project on *Darevskia* lizards; and the Dennis Stanfield Memorial Fund to Dr Alejandra Pascual-Garrido (University of Oxford), to investigate the mechanical properties of plants used by wild chimpanzees as tools to exploit termite mounds in west Tanzania. The Attenborough Award 2020 (for outstanding fieldwork) was awarded to Paola Sáez Gonzalez (Universidad de Chile), for her project on *Telmatobius marmoratus* frogs in the Andes.

Attenborough Award winner Paola Sáez Gonzalez (pink jacket) and colleague study *Telmatobius marmoratus* frogs in the Andes

Help us keep our historic home at Burlington House

You will all have received a letter from the President earlier in the year explaining the parlous situation the Society is facing regarding the steeply increasing rent at Burlington

House. We are grateful to all of you who have already contacted your MPs to encourage them to support our case, letting them know that the Society's public benefit value is substantial, and any relocation will be both hugely costly and disruptive, detracting significantly from delivering on our charitable objectives.

Reaching a global audience

It's great to see our live-streamed lectures reaching global audiences of up to 420, while the recordings of these lectures are also attracting much interest, covering topics like the evolution of passerine birds, desmid algae and cancer evolution. Catch up on our YouTube channel with Samanth Subramanian discussing J.B.S. Haldane's life as a scientist, politician, intellectual and science communicator. Researchers from many disciplines came together for the day meeting 'Linnaeus: Race & Sex', to discuss the social and cultural context of contemporary debates on the history of the idea of 'race', decolonial approaches to natural history, and on sex and gender in science.

'Our Local Nature', 'Nature Diaries' & 'Student Futures'

Our Linnean Learning team has initiated collaborations with Stemettes, for mentoring young women, and the National Literacy Trust, for a creative science writers project, while we have ongoing input into the new GCSE in Natural History. Our newly-established Youth Panel reviewed 'Our Local Nature' grants, with the first funding round completed (136 applicants, 11 funded). BioMedia Meltdown workshops are now all online, with the most recent innovation being the creation of a nature diary book, which is being well received by schools and home-schoolers alike. Our Student Futures online conference, in collaboration with the British Ecological Society, allowed undergraduate and postgraduate students from the natural sciences to network, encouraging open conversations about pathways into research.

And it's goodbye from the Executive Secretary

With the Executive Secretary role having been made redundant, I have now left the Society. It's been a privilege and a great pleasure looking after the Fellowship and leading such a fantastic team of staff—they are hugely committed and highly professional. Together with the new CEO, Dr Gail Cardew (to be introduced at the Anniversary Meeting and future issue of *PuLSe*), and our Trustees, the team will take the Society onwards and upwards, towards our vision of a world where nature is understood, valued and protected.

Dr Elizabeth Rollinson, *Executive Secretary*

It was with a heavy heart that staff closed the Library and access to the Linnean Society collections again at the beginning of November. Five and a half months later, we reopened on Wednesday 14 April, initially on the same reduced days and hours as last year. Full details can be found here: **www.linnean.org/library**.

Staff, volunteers and trainees

Digital Assets Manager Andrea Deneau completed a distance learning course on digital records management in December, and will now take on the responsibility of digital recordkeeping at the Society.

Archivist Liz M^{c}Gow started her maternity leave at the end of March. Her maternity cover will be recruited towards the end of May, when the building is once again accessible.

Two volunteers have continued to assist us remotely: Sheila Meredith has been helping with the clean-up of the Library catalogue keywords, and David Pescod has continued to extract information from the historical Presents books, from scans provided by staff.

At this time of year, we usually take in a few graduate trainees and students. This year, it was not possible to go ahead with the UCL archives traineeship, but King's College student Amelia Hockey is currently looking at links between Linnean Society early Fellows and slavery, as part of her History MA internship programme.

A digital spring clean

Collections staff have kept busy on lockdown-tailored projects aimed at improving our catalogues and Online Collections. These have included cleaning-up the Library catalogue keyword index and the oil paintings records; continued cataloguing of the archival materials from OCR-ed finding aids; and cleaning up the Linnaean correspondence on the Online Collections. The archives catalogue was updated in December, with the recently catalogued collections/correspondence of Francis Buchanan-Hamilton, George Bentham, Nathaniel Winch, and Edward M. Holmes.

All collections staff have also been heavily involved in the implementation of the new CRM system, which will encompass an 'archives' section, enabling staff to keep track of deceased Fellows and their related collections.

Virtually yours

The Collections team has maintained a steady presence online, through various media. We have tweeted regularly about collections, especially in the context of the 'Save Burlington House' campaign. A webpage highlighting the uniqueness of the building and collections was developed (**https://www.linnean.org/the-society/savebh/building-and-collections**). Blogs have promoted newly-catalogued archives, as well as the 'Treasure of the Month' feature of Linnean News.

Isabelle Charmantier recording a virtual tour.

We have also instituted virtual Treasures Tours of the collections, to keep connecting with those interested in natural history. These happen monthly, but tailored virtual tours can also be booked by external organisations. Three videos were filmed in the early autumn, including a 30-minute virtual tour of the building, and two shorter films on rare books and archives. Since January 2021, we have held eight virtual tours to a total of nearly 170 people, including students of the Royal Drawing School, UCL and University of Suffolk, as well as to the Anglo-Swedish Society and the Cambridge Bibliophiles Society. Feedback has been positive and encouraging, praising the 'beautiful and pedagogical showing of different parts of the collection' and the staff for being 'excellent and so passionate about their jobs and the collections'.

As you'll see in our *Annual Review*, we have also participated in conferences and meetings: a Linnaeus Link partners' meeting was held on 6 November, to discuss cataloguing matters; staff attended and presented at the Institute of Historical Research's 'History Day' (19 November), the NatSCA conference on 'Decolonising Natural Science Collections' (19 November), the Collect and Connect international conference (21 November), and the UK-Nordic Mobility conference (18 March).

Launching our 'book of treasures'

On 20 November 2020, the Society's first 'book of treasures', *L: 50 Objects, Stories & Discoveries from The Linnean Society of London*, was launched with an online event which featured short talks by six of the contributors. The book, which showcases some well-known as well as rarer treasures in the collections, has so far sold over 360 copies. Its publication was delayed due to COVID-19 and launched far from the building we love, yet the book has come to represent what makes the Linnean Society such a special place, at the end of a year of great uncertainty.

Dr Isabelle Charmantier, *Head of Colllections*
isabelle@linnean.org

Donations

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:

Will Beharrell

Prof. Jeremy Greenwood

Dr Tim P. Milsom

T. F. Robinson

Clive Stace

Barbara M. Thiers

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**.

A printed copy of the list can be sent upon request—please contact the Library staff at **library@linnean.org**.

Misinterpreting 'Two Elephants in the Room?'

Laurence Cook misinterprets the data he presents (Fig. 1, p. 8 - *see also below*) in his piece 'Two Elephants in the Room?' featured in the last issue 26(2) of *The Linnean*. Yes, there is indeed an inverse relationship between human fertility (birth rate) and average income across the globe, but this is not a static 'given'. Thomas Malthus in 1789 argued that it was, and that famine and disease was 'nature's way' of regulating population to the available 'means of subsistence'.

Two centuries later the biologist Barry Commoner (amongst others) has shown that the human 'population explosion' is not a result of some benign 'development' but rather of (continuing) colonial domination. Wealth extracted from their colonies enabled capital's metropolitan heartlands to undergo their demographic transition (falling birth rates and in some cases now, negative rates of 'natural' population growth) whilst preventing the same process from occurring in today's so-called 'developing' nations—a form of demographic parasitism.

Cook hopes that some 'beneficial side effect' of 'business and venture globalisation' will override its environmentally destructive consequences. Unlikely. Human demography is a bit more complex than animal population biology. 'Poor' countries that have succeeded in reducing their birth rates have done so precisely because they have resisted their continued exploitation by multinational capital and we should be on their side.

Richard Clarke FLS

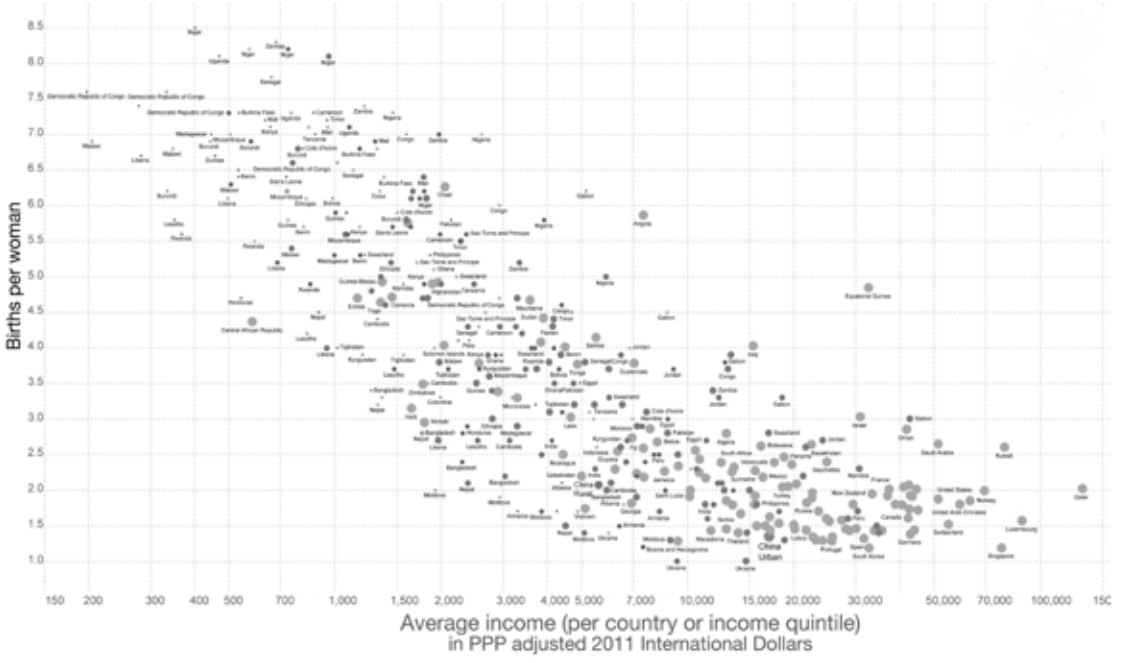


Fig 1. Births per woman by income level, 2013. From Max Roser, 2017: Fertility rate. Published online at OurWorldInData.org. Retrieved from https://www.ourworldindata.org/fertility-rate.

Environmental Record Centres and Museum Collections

In Mandy Henshall's paper in the most recent *The Linnean* 36(2), she draws attention to the frustrations between local record centres (LRCs) and national recording schemes in the 1980s. This frustration has a longer history and in this note I try to explain some of the thinking around 1970. At that time, new Wildlife Trusts were established and many local museums had appointed natural history curators, and the publication of the *Atlas of the British Flora* (Perring and Walters 1962) had stimulated many specialist recording schemes both locally and nationally.

I had joined the museum profession in 1966 at the Liverpool Museum, and as a new recruit, consulted widely with others in and outside the profession, as well as taking an active part in local societies and Wildlife Trusts. I and other young professionals concluded that a number of apparently disconnected threads seemed to coalesce:

- Where were natural history collections kept, who formed them and what did they contain?
- In the previous hundred years or so there had been a proliferation of naturalists studying the British flora and fauna. What happened to their work?
- How could Wildlife Trusts make informed decisions on what to conserve and sites to acquire as nature reserves if they did not have biological data on which to make informed decisions?

Some of these questions were partially answered. Botanical collections and collectors could be located (Kent and Allen 1984) and at least some zoological collections could also be found (Sherborn 1940). For many years, mini biographies of botanists had been published (Desmond 1977). The Liverpool Botanical Society published an extended paper about local botanists (Dallman and Wood 1909). However, information about sites of natural history interest was remarkably scanty. Some sites were well known. In 1915 Charles Rothschild, on behalf of the newly formed Society for the Promotion of Nature Reserves, the forerunner of the Wildlife Trust movement, prepared a list with supporting files of sites worthy of protection (Sands 2012). However, it was not until 1977 that a comprehensive description of sites of conservation importance was published (Ratcliffe 1977) and even then, some sites worthy of inclusion were still to be discovered.

However, natural historians were beginning to answer these questions. Local biological record centres were being established in museums (see for example Greenwood 1971b) and in 1973 the first of a series of conferences on local biological and environmental record centres was held at Leicester (Stansfield 1973). Some of the frustration to which Henshall refers was expressed by Flood (1975) and Copp (1984). Later, a review of the progress in developing local record centres was published by Harding and Sheail (1992).

Meanwhile developments were taking place aimed at finding out more about locally held natural history collections. Following a national survey of museum holdings, the first quantitative information about museum holdings was published (Hancock and Morgan 1980). The Biology Curators Group encouraged the survey of collections on a regional basis and for North West England FENSCORE published a detailed analysis of holdings in the region (Hancock and Pettit 1981).

The link between collections and environmental data was suggested by Greenwood (1971a), who also suggested that it might be more sustainable if collections were held regionally rather than locally; a suggestion made again in an editorial in *Nature* (Anon. 2017). Yet, this latter idea has never been progressed. However, conferences and publications on the importance of natural history collections have increasingly linked the added value provided by specimen data with the environment. An early conference on this theme was held in Liverpool (Greenwood 1977) but since then many more publications have been produced, especially based on North American experiences (Heywood 1968; Lane 1996; Shafer *et al.* 1998; Bradley *et al.* 2014; Meineke *et al.* 2018; Baker *et al.* 2020). The importance of historical data sets was also recognised at a Linnean Society conference (Pisces Conservation 2004) but it has also been shown that younger people fail to notice environmental decline (Jones *et al* 2020) providing further evidence of the necessity for retaining and making accessible historical data. Limited progress has been made in Britain and Ireland in documenting and making accessible specimen data, but the Herbaria@Home Project (**herbariaunited.org**) is making an important contribution. This relies on volunteers to document herbarium specimens which can then be viewed online with the accompanying label data.

This note has not mentioned the important link between environmental records and museums, and botanical and zoological gardens.

In summary, how well have we performed over the last 50 years? The first question of where and what collections exist has been answered, but knowledge of what collections contain is only partially known. It is believed many more collection databases have been compiled than are readily available online. Similarly, the work of earlier workers is often published and/or held by local and national record centres. Whilst distributional data is held locally and nationally through schemes such as the National Biodiversity Network (NBN), or for vascular plants, the Botanical Society of Britain and Ireland, data on sites is not easily accessible.

The story of the Liverpool Botanic Garden illustrates many of these issues (Greenwood *et al.* 2018). The Garden was founded in 1802, and with the help and encouragement of James Edward Smith, founder and President of the Linnean Society, plants were acquired from all over the world, expertise in their propagation was developed (especially ferns), and an important herbarium was assembled. By the 1850s, financial difficulties meant a change of management, and policy leading to neglect of the scientific collections. By the time the vestiges of the herbarium were transferred to the Liverpool Museum in 1909, much was lost. Today, remnants of exchange material

are found in collections throughout the world as a re-evaluation of the Garden and its collections continues.

So, nothing is truly safe. Collections of all types can be lost easily through changes in policy, funding difficulties, catastrophe, simply neglect or ignorance (Baker *et al.* 2020).

E.F. Greenwood FLS

EFgreenwood@aol.com

Acknowledgements

My thanks are due to my wife, Barbara, for helpful comments.

REFERENCES

Anon. 2017. Editorial. Natural-history collections face fight for survival. *Nature* 544: 137–138.

Baker, F.T., et al. 2020. Global Museum: Natural history collections and the future of evolutionary science and public education. *PeerJ* 8: e8225 https://doi.org/10.7717peerj.8225

Bradley, R.D., Bradley, L.C., Garner, H.J. & Baker, R.J. 2014. Assessing the value of natural history collections and addressing issues regarding long term growth and care. *BioScience* 64(12): 1150–1158.

Copp, C.J.T. 1984. Local record centres and environmental recording—where do we go from here? *Biology Curators Group Newsletter* 3(9): 489–497.

Dallman, A.A. & Wood, M.H. 1909. A bibliographical list of deceased Lancashire botanists. *Transactions of the Liverpool Botanical Society* 1: 54–109.

Desmond, R. 1977. *Dictionary of British and Irish Botanists and Horticulturists*. Taylor and Francis Ltd. First published as *A Biographical Index of British and Irish Botanists* by J. Britten and G.E.S. Boulger in 1893. Several editions were published.

Flood, S. 1975. Report on the symposium on biological record centres held at Oxfordshire County Museum, Woodstock, 25/26 September 1975. *Biology Curators Group Newsletter* 1: 6.

Greenwood, E.F. 1971a. Botany and English provincial museum. *Museums Journal* 70(4): 164–168.

Greenwood, E.F. 1971b. North west biological field data bank. *Museums Journal* 71(1): 7–10.

Greenwood, E.F. (ed). 1977. The functions of natural history collections. *Museums Journal* 77(3): 129–133.

Greenwood, E.F., Lyus, S. & Lampert, R. 2018. Liverpool Botanic Garden: Early curators and gardeners. *Transactions of the Historic Society of Lancashire and Cheshire* 167: 111–130.

Hancock, E.G. & Morgan, P.J. (eds.) 1980. *A survey of zoological and botanical material in museums and other institutions of Great Britain.* Report No. 1. Biology Curators Group.

Hancock, E.G. & Pettitt, C.W. (eds.) 1981. *Register of Natural Science collections in North West England*. Manchester Museum.

Harding, P.T. & Sheail, J. 1992. The biological record centre: a pioneer in data gathering and retrieval in: Harding P.T. (ed), *Biological Recording in British Wildlife*. London HMSO. 5–19. (ITE symposium 26.)

Henshall, M. 2020. National Biodiversity Network at 20: Past, Present and Future. *The Linnean* 36(2): 9–17.

Heywood, V.H. (ed). 1968. *Modern methods in plant taxonomy*. Academic Press.

Jones, P.L., Turvey, S.T., Massimino, D. & Papworth, S.K. 2020. Investigating the implications of shifting baseline syndrome on conservation. *People and Nature* 2(4): 1131–1144.

Kent, D.H. & Allen, D.E. 1984. *British and Irish Herbaria*, 2nd ed. Botanical Society of the British Isles. (First edition as *British Herbaria* published in 1968.)

Lane, M.A. 1996. Roles of Natural History Collections. *Annals of the Missouri Botanic Garden* 83(4): 536–545.

Meineke, E.K., Davies, T.J., Daru, B.H. & Davis, C.C. 2018. Biological collections for understanding biodiversity in the Anthropocene. *Philosophical Transactions of the Royal Society B* 374: 20170386. http://doi.org.10.1098/rstb.2017.0386

Perring, F.H. & Walters, S.M. (eds). 1962. *Atlas of the British Flora*. Botanical Society of the British Isles.

Pisces Conservation. 2004. *Looking back for the future*. Linnean Society of London International two-day symposium. CD Pisces Conservation Ltd.

Ratcliffe, D. (ed). 1977. *A nature conservation review.* 2 vols. Cambridge University Press.

Sands, T. 2012. *Wildlife in Trust*. The Royal Society of Wildlife Trusts.

Shafer, H.B., Fisher, R.N. & Davidson, C. 1998. The role of natural history collections in documenting species decline. *Trends in ecology and evolution* 13(1): 27–30.

Sherborn, C.D. 1940. *Where is the—collection?* Cambridge University Press.

Stansfield, G. (ed). 1973. *Centres for environmental records*. Vaughan Papers in adult education, no. 18. University of Leicester, Department of Adult Education.

A Tribute to BRIAN GEORGE GARDINER PPLS (1932–2021)

Fellows of the Linnean Society will be greatly saddened to note the passing, on 21 January 2021, of distinguished biologist and palaeontologist Professor Brian George Gardiner PPLS. Brian was born at Cashes Green, Stroud, on 30 October 1932. He died, aged 88, in St George's Hospital, Tooting, London, from acute respiratory failure. A devoted family man, Brian is survived by his caring and supportive wife Elizabeth (married in 1961), children Nicholas, Catherine and Clare and grandchildren Flora, Albert, Grace, Joshua, Mathew, Lydia and Bethan. He inspired in all of them a love of science, natural history and nature conservation. Through frequent visits to 'the allotment', he pursued an enthusiasm for horticulture and kept the family well-fed. Brian's rich, soothing Gloucestershire accent radiated warmth and charm. He had bold, handsome features with, in his youth, thick, dark curly hair, a powerful handshake and athletic build. Indeed, in 1952, he played in the back-row for Gloucester Rugby Club, who are currently in the top division. A real (as well as academic) marksman, he often practised at the Bisley Shooting Range, Surrey, with Alison Longbottom and others from the Rifle Club of London's Natural History Museum (NHM).

Under the aegis of the formidable Errol White PPLS (1964–67), Brian was admitted to the Linnean Society's Fellowship (June, 1968), served on its Council (from 1971), as Zoological Secretary (1974–81) and as President (1994–97). He was also Editor of the *Zoological Journal*, the *Symposia* series, the original *Newsletter* (1974–81) and its successor *The Linnean* (1983–2013, with increasing support from Mary Morris). For this exemplary work, he was awarded an Honorary Fellowship in 1999. He was a popular and high-profile character in the Society over many decades. Honorary Archivist and close family friend Gina Douglas FLS fondly remembers the cheerful whistle as he bounded up the main staircase to the Library of which she was then in

Images courtesy the Trustees of the Natural History Museum, London

charge. A showman, he followed the custom (revived by Botanist Willie Stearn PPLS 1979–82) of wearing an 18th-century-style tri-corner hat when presiding over formal meetings.

Brian was educated at Marling School, Stroud (1943–52), then gained the degrees of BSc in Zoology, (1955, Imperial College London, specialising in entomology) and PhD in palaeontology (1958, University College London, under Kenneth Kermack FLS). He worked in conjunction with the NHM, specialising on Liassic fishes in their collections. Later, in 1958, he was appointed Junior Lecturer in the Biology Department of Queen Elizabeth College (QEC), later King's College, by amalgamation in 1985. He gained the degree of DSc (1975) from the University of London for his outstanding research record and progressed through the academic ranks at King's to become Professor in 1985. Brian was a gifted teacher, academic supervisor and supportive mentor to a host of undergraduate and postgraduate students. He took undergraduates out on lively field excursions, including visits to St Mary's Church, Washington village, West Sussex to study bats in the belfry—concluding with delicious lunches hosted in the farm opposite by his friends the Turner family. His lectures (within and outside of the university) were popular and invariably animated, colourful, and humorous, if sometimes a tad chaotic. Brian once gave a talk to Members of the North of England Zoological Society (Chester Zoo, where he was a Trustee on the governing Council 1996–2002). He accidently dropped his transparencies on the floor—rendering them out of sequence, upside-down and back-to-front. Unflustered, he showed them in the same random order as retrieved. The audience were, by turns, amused and spellbound as he powered through a brilliant back-and-forth account of the 'Piltdown man fossil' controversy of 1912 (Gardiner 2003).

"His lectures (within and outside of the university) were popular and invariably animated, colourful, and humorous, if sometimes a tad chaotic."

Private Meeting of Fish Experts, 23 June 1976 (Fish Section, Natural History Museum, London). L to R: Alwynne Wheeler, Peter Whitehead, HIH Crown Prince Akihito (Emperor of Japan 1989–2019 and Foreign Member of the Linnean Society), Colin Patterson, Brian Gardiner, Geoffrey Palmer, Keith Bannister, Humphry Greenwood, Peter Miller, Gordon McGregor Reid and Gordon Howes.

The Old Coach House in 1976 (L to R): Colin Patterson, Stanley Westoll, Pete Forey (to rear), Roger Miles, Brian Gardiner and Gordon McGregor Reid.

His office at QEC was in the Old Coach House, West Kensington. This Georgian annexe (playfully called 'The Philosophers Den' by Brian, now demolished) came complete with hi-tech microscopes, vintage desks, heaped muddles of fossils, pickled specimens, books and research papers, a rickety staircase, a baby rattle employed as a light pull and a large dinosaur vertebral disc used as an ashtray (Reid 2000). The Old Coach House had a cosmopolitan feel, as it was also an outpost for the Primate Research Unit, Smithsonian Institution, Washington, D.C., under Alison Jolly. Brian's office became an oasis for these and other researchers from, for example, the Swedish Museum of Natural History, Stockholm (Erik Jarvik, Erik Stensiö, Lars Brundin), American Museum of Natural History, New York (Donn Rosen, Gary Nelson and Norman Platnick) and the NHM. Visiting NHM luminaries, who conducted research with Brian and co-supervised postgraduate students, included his friends and academic collaborators Humphry Greenwood PPLS, Colin Patterson VPLS, Roger Miles FLS and Roger Miles FLS.

The postgraduates usually worked on the NHM collections (both fossil and present-day specimens) but were registered with the University of London under Brian's care. Research topics included the anatomy, phyletic relationships, zoogeography, taxonomy and classification of fishes; but a few students were entomologists. The long list of postgraduates includes Gordon McGregor Reid PPLS, Melanie Stiassny, Gavin Young, Martha Richter, Angel Viloria, Peter Forey, Peter Zaborski, Alan Bartram and Liz Todd (who famously needed a wheelbarrow to transport her massive, two-volume thesis from the binders). Alan Bartram, when a post-doctoral student at the Natural History Museum, Paris, disappeared under strange circumstances. Working with Alan's parents and French police, Brian went to great lengths to find out what happened but the mystery was never solved.

Past 'disciples', including (as listed above) Melanie (AMNH, New York) and Gavin (ex Bureau of Mineral Resources, Australia), have remarked on his energy, honesty,

Old Coach House courtesy Gavin Young; Group image © Chris Humphries

humility, sincerity, loyalty and kindness—serving as a role model or father figure. Systematist Angel Viloria from Venezuela acknowledged in his thesis that: 'Adapting to a new environment would not have been as agreeable as it was without the warm welcome and immediate friendship I had from my supervisor Brian Gardiner.' As an External Examiner, he wanted students to be relaxed ahead of a verbal inquisition. Vertebrate palaeontologist Angela Milner (NHM) happily recalls him telling funny anecdotes for half an hour before getting down to the serious business of examining her 1978 thesis. Brian had a forgiving disposition. For example, Gordon McGregor Reid was tasked in 1974 with rewiring a vintage heater and thermostat for a laboratory aquarium full of Calabar Eels (*Erpetoichthys*). Brian was studying the evolutionary relationships of these rare, lobe-fin (palaeoniscoid) fishes. Unfortunately, the water boiled overnight and Brian was confronted next day with the pungent aroma of 'fish soup'! Grateful for a second chance, Gordon was persuaded to babysit at Brian and Elizabeth's home. Absent-mindedly snibbing the front door lock before going to bed, he was roused after midnight by Brian tapping frantically on a second story window, shouting to be admitted while teetering precariously on a ladder held by Elizabeth. 'Accidents will happen, my boy!' he said, good naturedly, with a comforting elbow squeeze. Gordon subsequently redeemed himself by sectioning numerous fossil skulls for Brian in the NHM palaeontology laboratory.

Brian's great intellect, affability and personal magnetism made his laboratory an informal international hub for intense and important late 20th-century debates and key research collaborations on the exact relationships between comparative biology, fossils, evolution, biogeography, taxonomy and classification. This involved analyses (or re-evaluation) of anatomical characters in the light of the then revolutionary new discipline of phylogenetic systematics (or cladistics) as developed by Willi Hennig (1966), and helpfully illuminated by the hitherto neglected panbiogeography of Léon Croizat (Croizat 1958). Discussions embraced senior researchers and students alike and often spilled over to a pub, the Cranley or 'Cladists' Arms', as nicknamed by the debaters. Over beer they swopped controversial cladograms sketched on the back of cigarette packets. There was also, from 1985

(L to R): Colin Patterson, Peter Forey, Dave Johnson, Brian Gardiner and Dick Vane-Wright on one of the many walks organised by Brian and Colin.

(L to R): Richard Fortey, Brian Gardiner, Peter Forey and Brian Rosen.

onwards, a more exclusive and senior group who pursued these issues—and other key topics such as industrial archaeology, ornithology, butterflies, plants, books, politics, food and the excessive price of ale—on long, leisurely walks organised by Brian and Colin Patterson. At first, this group comprised Brian, Colin Patterson, Peter Forey, Chris Humphries and Dick Vane-Wright, but later included as guests Richard Fortey, Gary Nelson, David Johnson, Brian Rosen and David Williams (Humphries 2000). Richard recalls Brian regaling them with fascinating stories such as the traditional annual tribute of lampreys (jawless fish) from the City of Gloucester to the Crown.

> **A landmark collaboration between what became known as the 'Gang of Four' concerned cladistic analyses of fossil and living lungfishes alongside bony, ray-finned fishes and tetrapods.**

Throughout his career, Brian wrote scores of published scientific papers, singly or in collaboration with others (see full bibliography **www.linnean.org/bgg**). Pursuing early interests, Brian was, in 1963, briefly seconded to the University of Alberta, Edmonton, Canada. This resulted in a (now classic) Catalogue of Canadian fossil fishes (Gardiner 1966). He described taxa new to science such as seven genera of palaeoniscoid fishes from Witteberg, South Africa (Gardiner 1969) and revisited the classification of tetrapods (Gardiner 1982). A landmark collaboration between what became known as the 'Gang of Four' (Peter Forey, Brian Gardiner, Colin Patterson and Donn Rosen) concerned cladistic analyses of fossil

and living lungfishes alongside bony, ray-finned fishes and tetrapods (Rosen *et al*. 1981). This challenged the conventional 'Adam and Eve' scenario of a linear (ancestor-descendant) evolutionary transition of vertebrates from water to land; and fuelled the 'salmon, lungfish and cow' controversy which at that time raged in the correspondence section of *Nature* (e.g. Gardiner *et al*. 1979).

He made valuable contributions to botany, entomology, ecology and conservation, including through volumes edited for the Linnean Society (e.g. Perring and Gardiner 1976; Sherwood *et al*. 2000). He also wrote extensively on the history of natural history (e.g. Gardiner 1984, 2003) and on popular science (e.g. Dixon *et al*. 1988). Sir David Attenborough HonMLS warmly acknowledges Brian's contribution as referee for the book *Life on Earth*; and Brian also provided (via producer Chris Parsons) expert biological advice for the iconic television series of the same title (Attenborough 1979, p. 312).

As a fitting tribute to a lifetime of dedicated academic service, two Permian palaeoniscoid genera *Gardinerichthys* Heyler, 1976, and *Gardinerpiscis* Romano & Kogan, 2015, and the ptyctodontid placoderm *Ctenurella gardineri* (Miles & Young, 1977; now *Austroptyctodus gardineri*), were named in Brian's honour. His was a life full of outstanding personal and professional achievements. Brian left a large and valuable legacy and will be greatly missed by all who were fortunate enough to know him.

Gordon McGregor Reid PPLS | Richard I Vane-Wright FLS | Gina Douglas FLS | Nicholas Gardiner FLS | Leonie Berwick

---

A Virtual Issue of the *Zoological Journal of the Linnean Society* honouring Brian will be published in April 2021. (https://academic.oup.com/zoolinnean/pages/virtual_issues)

An obituary for Brian can also be found in *The Guardian*:
https://www.theguardian.com/science/2021/apr/15/brian-gardiner-obituary

REFERENCES

Attenborough, D. 1979. *Life on Earth*. William Collins & BBC Books, London.

Croizat, L. 1958. *Panbiogeography*. Caracas, published by the author.

Dixon, D., Cox, B., Savage, R.J.G. & Gardiner, B.G. 1988. *The Macmillan Illustrated Encyclopedia of Dinosaurs and Prehistoric Animals*. Macmillan, London & New York.

Gardiner, B.G. 1966. *Catalogue of Canadian Fossil Fishes*. Royal Ontario Museum, Governors of the University of Toronto, Toronto.

Gardiner, B.G. 1969. New Palaeoniscoid Fish from the Witteberg Series of South Africa. *Zoological Journal of the Linnean Society* 48: 423–452

Gardiner, B.G. 1982. Tetrapod Classification. *Zoological Journal of the Linnean Society* 74(3): 207–232.

Gardiner, B.G. 1984. Linnaeus's Medical Career. *The Linnean* 1(1): 11–17.

Gardiner, B.G. 2003. The Piltdown Forgery: A re-statement of the case against Hinton. *Zoological Journal of the Linnean Society* 139(3): 315–335.

Gardiner, B.G., Janvier, P., Patterson, C., Forey, P.L., Greenwood, P.H., Miles, R.S. & Jefferies, R.P.S. 1979. The Salmon, the Lungfish and the Cow: A reply. *Nature* 277: 175–176.

Hennig, W. 1966. *Phylogenetic Systematics*. University of Illinois Press, Urbana. [See also Willi Hennig (1913–1976): His Life, Legacy and the Future of Phylogenetic Systematics. Joint Symposium with the Linnean Society of London, Natural History Museum, London and the Systematics Association (27 November 2013).]

Heyler, D. 1976. Sur le genre *Amblypterus* Aggasiz (actinoptérygien du Permian inférieur). *Bulletin de la Societé d'Histoire Naturelle d'Autun* 78: 17–37.

Humphries, C. 2000. On Friendship. Pp. 69–74 *in* Forey, P.L., Gardiner, B.G. & Humphries, C. (eds), Colin Patterson (1933–1998) A Celebration of his Life. *The Linnean* Special Issue (2). Academic Press, London.

Miles, R.S. & Young, G.C. 1977. Placoderm interrelationships reconsidered in the light of new ptyctodontids from Gogo Western Australia. *Linnean Society Symposium Series* (4): 123–198.

Perring, F.H. & Gardiner, B.G. (eds.) 1976. The biology of bracken. *Botanical Journal of the Linnean Society* 73(1–3): vi + 1–302 pp.

Reid, G.McG. 2000. Pp. 82–86 *in* Forey, P.L., Gardiner, B.G. & Humphries, C. (eds), Colin Patterson (1933–1998) A Celebration of his Life. *The Linnean* Special Issue (2). Academic Press, London.

Romano, C. & Kogan, I. 2015. *Gardinerpiscis* nom. nov., a replacement name for the preoccupied genus name *Gardineria* Kazantseva-Selezneva, 1981 (Actinopterygii, Osteichthyes). *Paleontological Journal* 49(6): 677–678. [Original Russian text published in *Paleontologicheskii Zhurnal* 2015(6): 111–112.]

Rosen, D.E., Forey, P.L., Gardiner, B.G. & Patterson, C. 1981. Lungfishes, tetrapods, paleontology and plesiomorphy. *Bulletin of the American Museum of Natural History* 167(4): 159–276.

Sherwood, B.R., Gardiner, B.G. & Harris, T. (eds.) 2000. *British Saltmarshes*. Linnean Society and Forrest Text, Tresaith, Ceredigion, UK.

Thomas Watling: An Early Natural History Painter in Australia

John Currey FLS

e: johncurrey@ozemail.com.au

When the founders of the Linnean Society held their first meeting in April 1788, they were unaware that a new English penal colony had been founded in New South Wales nine weeks earlier. When the news eventually reached them, it held out the tantalising prospect of a vast new hunting ground for the European naturalist. Almost immediately the process of recording the natural history of the colony began, and none waited more eagerly to receive specimens of flora and fauna than the early Linneans. One of the first to supply them was John White (c. 1756–1832), the colony's surgeon-general. White was among the handful of civil and military officers of the colony who were also amateur naturalists. For the next four years he observed and collected specimens of its nondescript animals and birds, but it was not until 1792 that he found a man who could make accurate drawings of them: a convicted forger, Thomas Watling (b. 1762).

Surgeon-general John White, oil on ivory, attributed to Thomas Watling 1792. (WikiCommons)

Watling, of whom no likeness is known, was 26 when he was arrested for forgery in Dumfries, Scotland, in 1788. The son of a soldier and orphaned as a child, Watling had been raised and sent to school by his mother's unmarried sister. His education had included tuition in painting and he was also an accomplished calligrapher, capable of producing impeccable copperplate script. As a young man he advertised as a 'limner' (portrait painter) in Dumfries and was teaching drawing there in November 1788 when he was charged with forging 12 Bank of Scotland one-guinea promissory notes, an offence which carried the death penalty. Although he initially admitted having made the forgeries for an engraver friend, John Roberts, he later claimed his admission was false and made under pressure. Nevertheless, he petitioned to be transported without trial to avoid being hanged, and in April 1789 he was given a 14-

year sentence. Watling was put aboard the convict transport *Pitt,* but when the ship called at Cape Town in December 1791 he escaped and hid, hoping to get aboard a ship returning to England. He remained free until after the *Pitt* sailed for Sydney, but a month later was captured by the Dutch and imprisoned for eight months until he was put aboard an East Indiaman, the *Royal Admiral*, which was also taking convicts to New South Wales.

When Watling landed at Sydney on 7 October 1792 he was known to be a professional artist, and at White's request Governor Arthur Phillip (1738–1814) assigned Watling to him as a hospital clerk. By this time White had amassed a collection of natural history drawings; they were unsigned but probably made by naval officers or seamen from the convict fleet. In November 1788 White sent the drawings, with his narrative journal and a collection of bird skins and specimens, to a publisher friend, Thomas Wilson, soon to be a Fellow of the Linnean Society. Wilson edited the text for the London bookseller John Debrett (1753–1822), and it was published in 1790 as *Journal of a Voyage to New South Wales*. The book contained 65 coloured engravings of 'Nondescript Animals, Birds, Lizards, Serpents … and other Natural Productions'. Some of these were derived from the drawings White had sent, but most had been made in England by artists such as Sarah Stone (c. 1760–1844), Charles Catton junior (1756–1819), and Frederick Polydore Nodder (fl. 1770–c. 1800), from White's specimens. The book sold well and White began to contemplate a sequel, encouraged by the fact he now had an artist working at his direction.

Watling's illustration of an 'echidna' (Short-beaked echidna, *Tachyglossus aculeatus*), held at the Natural History Museum, London.

Echidna courtesy the Library and Archives, Natural History Museum, London; Collins portrait courtesy Mitchell Library, State Library of New South Wales

From the outset White and Watling shared a mutual dislike. Even if they had not been master and servant they would have been incompatible. Watling, a professed romantic who could be precious and overly sensitive, did not submit easily to servitude. He saw White as a tyrant and philistine who denied Watling's talent and treated him as a slave. For his part, White thought Watling had delusions of artistry. On one of Watling's drawings he sent to a friend in London in March 1797 he wrote: 'The pride and vanity of the draughtsman has induced him to put his name to all the drawings, but should you publish them I think the name may as well be left out.'

Watling worked for White for about two years, during which time he appears to have made more than 140 drawings, mainly of birds but also mammals, reptiles, fish, mollusks and plants. Watling never expressed any enthusiasm for drawing fauna or flora but ironically his ability to render authenticity—the talent which led to his conviction for forgery—also made him valuable as a natural history painter. Some of his plant drawings have been compared in quality to the work of Sydney Parkinson (c. 1745–71), Sir Joseph Banks' artist on the *Endeavour*. Although Watling yearned to produce romantic landscapes in the style of 18th-century classicism, he was forced to do White's bidding until December 1794, when the surgeon sailed for England.

Five weeks after White's departure, Watling was making drawings of Aboriginal ceremonies for David Collins (1756–1810), the colony's judge-advocate. Collins was aware that White's book and two others by Watkin Tench of the Royal Marines had been well received in London and was considering the publication of his own journal. Collins did not share White's preoccupation with flora and fauna. He was aware of the criticism being made in London that the colony was a waste of money; he wanted to refute this by recording the tangible progress it was making, and to give an account of the customs and language of its indigenous inhabitants. He wanted his book to contain illustrations, but once again,

Portrait miniature of David Collins, watercolour on ivory, c. 1797–c. 1803, by John T. Barber.

not of the genre Watling wished to produce. Collins wanted views of public buildings, farms, roads and Aboriginal ceremonies, and these were the drawings Watling spent a further two years producing for his new master until Collins returned to England in September 1796.

In London, Collins approached the publisher William Davies of the firm Cadell & Davies in The Strand, offering him his manuscript journal and at least 20 of Watling's drawings. Cadell & Davies was a long-established and respected publisher whose list embraced books of travel and exploration as well as literature. Davies would have been aware of the interest aroused by the books of White and others. He also knew that these had contained little in the way of views of the infant settlement. He agreed to publish Collins' book and decided to produce it in a large format, illustrated with engravings.

Many of Watling's illustrations were in pencil or monochrome wash, mediums that could not easily be reproduced by commercial printers and had to be converted into line drawings for engraving. Watling seems to have expected that his drawings would be handed directly to an engraver, since some of his portraits of Aboriginal men and women contained instructions for how the transition was to be made. On one he wrote: '… it will be necessary to observe that the high lights should be broke down to sable, as the pencil cannot give that strength without much labour and difficulty', and on another: 'All the lights should be broke down to a sombrous tint.' But instead of giving Watling's drawings directly to engravers, Davies had the originals re-drawn by a well-known artist Edward Dayes (1763–1804), a watercolour painter of landscapes whose work is said to have influenced the young J.M.W. Turner. (Davies might have done this to ensure that the dimensions of the pictures complied uniformly with those of the printed page or to preserve the valuable originals from damage.) Dayes had already made illustrations for John Hunter's *Historical Journal* published by John Stockdale in 1793, and he would produce an acquatint *View of Sydney Cove* for the publisher Dukes in 1804, though he never visited Sydney. Seven watercolours by Dayes, now in the Petherick Collection in the National Library of Australia, appear to be the originals made for Collins' book, and art historians also accept that Dayes re-worked Watling's drawings for the book's ethnographic engravings, though none of Watling's originals have been found. Dayes' illustrations were in turn given to three well-known engravers. Most of the topographical views were engraved by James Heath (1757–1834); two of the textual vignettes, 'Saunderson's Farm' and 'Baker's Farm' were by Wilson Lowry (1762–1824); the illustrations of ethnographic subjects were engraved by James Neagle (1760–1822). The fact that the illustrations were derived from Watling's originals was not disclosed. The book was published on 25 May 1798 as *An Account of the English Colony in New South Wales with remarks on the Dispositions, Customs, Manners, &c. of the Native Inhabitants of that Country* [etc]; it was widely reviewed and a German edition followed.

By that time John White's friends at the Linnean Society had been examining and making use of his collection, which provided the first extensive knowledge of the

Kookaburra, potoroo and cockatoo (overleaf) courtesy the Library and Archives, Natural History Museum, London

Watling's illustrations of the 'great brown Kingsfisher' (Laughing kookaburra, *Dacelo novaeguineae*) and the marsupial the long-nosed potoroo, (*Potorous tridactylus*—a member of the rat-kangaroo family).

unique fauna of Australia. Some art historians believe the engravings by James Sowerby (1767–1822) in two early books by Society members may have been copies of Watling drawings sent back by White before his return to London. These were *Zoology of New Holland* (1794) by White's friend the zoologist George Shaw (1751–1813) and the Society's founder James Edward Smith (1759–1828); and Smith's own book *A Specimen of the Botany of New Holland* (1795), which was dedicated to White's friend and editor Thomas Wilson.

Back in London, White was still considering a second book based on his collection of drawings, and sought encouragement from the botanist and natural history collector Aylmer Bourke Lambert (1761–1842), Vice-President of the Linnean Society. In March 1797, he asked Lambert to suggest what might be done with the drawings 'for to have them all engraved would be so expensive that I could never carry such a work into execution'. Lambert recognised their value and had accurate copies made of them at his own expense, but the book project did not go ahead and after White's death the originals remained with Lambert for many years before passing into private hands. (The Lambert copies are now in the Mitchell Library, Sydney.)

In 1902, White's entire collection of 488 numbered drawings (24 of the original 512 having gone missing), was purchased by the Natural History Museum for 52 pounds ten shillings from its then owner, James Lee of Kensington. The collection

was subsequently named 'The Watling Collection' by Richard Bowdler Sharpe (1847–1909), curator of the museum's bird collection—despite the fact that three quarters were unsigned and many appear to be the work of other artists. The collection today contains 123 items signed by Watling, many of which are annotated in John White's handwriting. It has been suggested that at least a further 11 unsigned illustrations are by Watling and others may be copies by Watling of the works of other artists. Most (77) of the authenticated or attributed Watlings are drawings of birds; the others are: ethnographic subjects, including portraits, (12); reptiles (8); molluscs (9); plants (6); fish (7); landscape views (6); mammals or monotremes (4); insects (2), and miscellaneous subjects (3). In the absence of positive attributions, the majority of works whose authorship has not been ascertained have since been collectively attributed by museum curators to a notional 'Port Jackson Painter'.

The 'Banksian cockatoo', or red-tailed black cockatoo (*Calyptorhynchus banksii*) by Watling.

Nothing is known of Watling's activities in New South Wales after the departure of David Collins, though his circumstances seem have improved under Governor John Hunter (1737–1821). Hunter, who assumed office in September 1795, was himself a creditable amateur artist, and while a naval officer with the First Fleet had made many drawings of the flora and fauna. Hunter was also close to David Collins, who had acted as his secretary. He would have been aware of the work Watling had done for Collins and may even have encouraged the artist, since Watling wrote to him many years later thanking Hunter for his 'patronage and protection'. In April 1797, Watling

received a full pardon from Hunter, and seemingly not long afterwards he sailed from Sydney. He is next heard of in 1801 when he was in business in Calcutta as a painter of miniatures for a few years before returning to Dumfries in 1803 where he taught art at the Dumfries Academy, painted houses, coaches or signs, and advertised his expertise at imitating in paint the appearance of marbling, lapis lazuli and tortoise-shell. He also gave private lessons in drawing at studio above a local bookshop.

The careers of White and Collins advanced after they left Sydney. White served as a naval surgeon for more than 20 years; in 1796 he was elected a Fellow of the Linnean Society; in 1797 he was made Doctor of Medicine by the University of St Andrews, and at his death in 1832 he left an estate valued at £12,000. Following the publication of his *Account* in 1798 and a second volume in 1802, David Collins was appointed lieutenant governor of a new penal colony in Van Diemen's Land (Tasmania). Watling, however, was less fortunate. His past returned to haunt him, and in 1805 he was charged with having forged at least seven five-pound Bank of Scotland promissory notes at Dumfries. Although the evidence against him was extensive, a jury of 15 in Edinburgh in January 1806 gave a verdict of 'not proven' and he was freed. A few years later, when he was in his early fifties, he wrote to ex-governor Hunter, who was then living in London, declaring that he had been diagnosed with cancer and had not long to live. While stating that he had received assistance from some 'academecians', he asked Hunter for financial help. If Hunter answered, his reply has not been found, and the circumstances of Watling's last days, like so much of his life, remain unknown. In 1793 he had predicted that in his old age he would be 'unhoused and indigent' and it seems likely his words were prophetic.

REFERENCES

Anemaat, L. 2016. *Natural Curiosity—Unseen Art of the First Fleet*. Sydney.

Collins, D. 1798. *An Account of the English Colony in New South Wales … .* Vol. 1. London.

Gladstone, H. S. 1938. *Thomas Watling, Limner of Dumfries*. Dumfries.

Rienits, R. and T. 1963. *Early Artists of Australia*. Sydney.

Rienits, R. 1967. "John White", in *Australian Dictionary of Biography*. Vol. 2. Melbourne.

——. 1967. "Thomas Watling", in *Australian Dictionary of Biography*. Vol. 2. Melbourne.

Smith B. and Wheeler A. (eds). 1988. *The Art of the First Fleet & other early Australian drawings.* New Haven.

The Watling Collection, Natural History Museum, London. nhm.ac.uk

Watling, T. 1794. *Letters from an Exile in Botany Bay to his Aunt in Dumfries* (Sydney University Library transcription). trove.nla.gov.au

William Yarrell: A Linnean Society Fellow (1825–56)

Christine E. Jackson FLS

e: cejsuffolk@gmail.com

Members of the society have told me that they know the name 'Yarrell' (Fig. 1), but nothing about him, despite his having been elected a Fellow in 1825, was on the Council from 1831–56; Treasurer from 1849–56; and one of its Vice-Presidents from 1849–51.[1] He contributed seven articles to the *Transactions of the Linnean Society* between 1827 and 1853, an article to the *Proceedings of the Linnean Society* in 1838 and one to the *Linnean Society Journal* in 1856 (see References).

Across Piccadilly from the Linnean Society in Burlington House, Duke Street and Bury Street run south down to Pall Mall and St James's Park. Bury Street is dissected by Ryder Street that in Yarrell's day was called Little Ryder Street (the Western part) and Great Ryder Street (the Eastern part). William Yarrell (1784–1856) was born in Duke Street, lived in Great Ryder Street following the death of his father and moved to 6 Little Ryder Street, next to his business on the corner of Bury Street, after his mother' death in 1812, where he lived until his death in 1856. The Linnean Society, during Yarrell's lifetime, was situated at 32 Soho Square. From 1808 a bookseller and newsvendor business, Jones and Yarrell, was on the corner of Bury and Little Ryder Street, owned and co-partnered by William Yarrell and his cousin Edward Jones. Both their fathers and grandfathers had been co-partners in the firm, founded in 1760. Edward and William had been school fellows at Great Ealing School in the 1790s when it was considered to

Fig. 1 Portrait of William Yarrell (reference C33892), painted in 1839 when he was 55 years old, by Mrs Margaret Sarah Carpenter, the expense having been defrayed by 40 Fellows of the Linnean Society.

be an equal to Eton. The business supplied newspapers to the Royal Family, receiving a Royal warrant in 1828, and also supplied the Members of Parliament with papers and magazines. The firm expanded during the years that Edward and William were in charge and provided both with good incomes. By judicious allocation of his time and energy, Yarrell served both the firm and the societies. The firm is still in existence today, trading as 'JYL Hand to Hand', is a Royal Warrant holder and is the largest Corporate News Delivery Specialist in the UK.

In his youth, some of Yarrell's leisure time was spent in the fields of Hertfordshire where his maternal grandparents had a farm, Claypits Farm, in the small village of Bayford, two miles from the county town of Hertford. There he had learnt to observe the animals and fishes and collect eggs (he eventually had two sets of almost every British birds' egg), and to fish and shoot.

After leaving school Yarrell spent nearly a year in a bank in the city and this short basic training, plus the mathematics learned at school, enabled him to act as an effective Treasurer to both the Linnean and Entomological Societies for many years. The banking firm was Herries, Farquhar and Company, to which Yarrell transferred the finances of the Linnean Society when he became Treasurer. Herries, Farquhar and Company was taken over by Lloyds in 1897 that remained the Linnean Society banker until recently.

Yarrell attended natural science lectures at the Royal Society in 1817. Following his recognition that anatomical studies were of prime importance to his natural history studies, he dissected specimens that came to hand and made anatomical drawings. These formed the basis of what was to become a very large collection much admired and visited by his natural history colleagues. His anatomical observations led to his providing evidence of the use of an egg tooth by hatching birds; that eels are oviparous; seahorse males incubate the young in their pouches, and several other major discoveries.

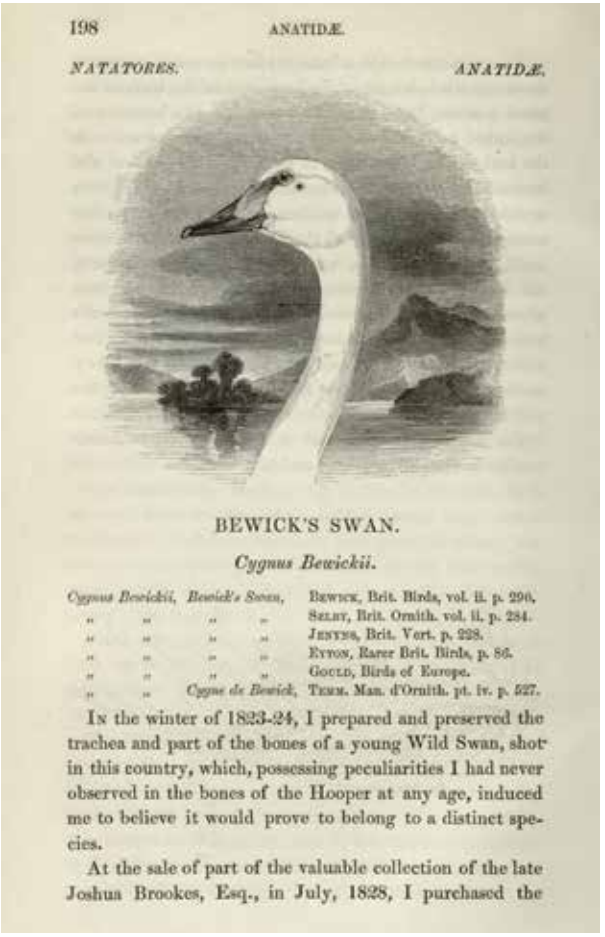
"His anatomical observations led to his providing evidence of the use of an egg tooth by hatching birds; that eels are oviparous; seahorse males incubate the young in their pouches, and several other major discoveries."

He remained a bachelor and invested a good deal of his earnings in the creation of an extensive library and museum. His library contained not only natural history books, but titles on coins and medals, architecture, travel, and literature (mainly poetry, with few novels). It also had a large collection of books with wood engravings because Yarrell was a great admirer of Thomas Bewick (1753–1828) and his engravings of birds.

In January 1830 he made probably the most important contribution to his zoological work, presenting 'On a new species of wild swan taken in England and hitherto

confounded with the hooper'. This was read to a meeting of the Linnean Society and published later that year.[2] He named this new species, both to Britain and to science, *Cygnus bewickii*, Bewick's swan (now *Cygnus columbianus*). Yarrell had entertained Bewick, at home in London, five months before the old engraver died in 1828.

Yarrell was aged 46 when this ground-breaking article was published and, with its clear evidence backed by careful anatomical details, it established his career as a great naturalist. Part of his original manuscript description also featured on the 31p stamp issued for the Linnean Society's Bicentenary in 1988. His earlier publication record, in the previous decade, included 20 articles, 14 on birds, four on mammals and two on fishes. He demonstrated the anatomy of the specimens at Society Meetings, taking drawings and examples to show his findings.



198 ANATIDÆ.

NATATORES. *ANATIDÆ.*

BEWICK'S SWAN.

Cygnus Bewickii.

Cygnus Bewickii, Bewick's Swan, Bewick, Brit. Birds, vol. ii. p. 290,
" " " " Selby, Brit. Ornith. vol. ii. p. 284.
" " " " Jenyns, Brit. Vert. p. 228.
" " " " Eyton, Rarer Brit. Birds, p. 86.
" " " " Gould, Birds of Europe.
" " *Cygne de Bewick,* Temm. Man. d'Ornith. pt. iv. p. 527.

In the winter of 1823-24, I prepared and preserved the trachea and part of the bones of a young Wild Swan, shot in this country, which, possessing peculiarities I had never observed in the bones of the Hooper at any age, induced me to believe it would prove to belong to a distinct species.

At the sale of part of the valuable collection of the late Joshua Brookes, Esq., in July, 1828, I purchased the

Fig. 2 Bewick's swan (*Cygnus bewickii,* now *Cygnus columbianus*) from Yarrell's *A History of British Birds* (1837–43).

In the 1830s, Yarrell wrote two books on British birds and fishes that became the standard reference works for the rest of the century. The first was *A History of British Fishes,* two volumes published in parts from 1835–6, the second, *A History of British Birds,* three volumes published in parts 1837–43 (Fig. 2), both published by his close friend John Van Voorst (1804–98). Yarrell adopted the format of Bewick's *A History of British Birds* with wood engravings of each species, nomenclature, a physical description with outstanding anatomical details, and vignettes. The main difference between his Histories and former books on the subjects was an account of the first record of each species in British ornithological and piscatorial texts.

Yarrell attended numerous meetings of the Linnean Society and other major London natural history societies where he made the acquaintance of the foremost naturalists over the years from the 1820s up to his death. He made a large number of friends

Bewick's swan courtesy BHL

and entertained them at very popular convivial dinners in 6 Little Ryder Street. Robert Brown (1773–1858) who was one of these friends, became President of the Linnean Society (from 1849–53) and nominated Yarrell as a Vice-President in 1849.

Several members who had zoological as well as botanical interests formed a Zoological Club of the Linnean Society in 1824. With the establishment of the Zoological Society in 1826, of which Yarrell was a founder member, the need for this group became unnecessary and it terminated in 1829.

He joined the Linnean Society Club, whose members met for dinner at the Freemason's Tavern in Great Queen Street prior to a Council Meeting. The Club also arranged excursions, for example, to visit John Ray's grave at Black Notley; Saffron Walden; St Albans and other venues reached by mail or stagecoach for a day or two out of London. Serious study was combined with pleasant socialising.

His associates valued him as a wise adviser and counsellor. When ornithologist John Gould (1804–81) went to Australia, he gave his secretary strict instructions to consult Yarrell whenever a problem arose. Charles Darwin (1809–82) deferred to his advice on several occasions. Sir William Jardine (1800–74) valued him as an equal and conferred about conflicting opinions on species. Edward Lear (1812–88) fondly remembered Yarrell having taken a kindly interest in him at the commencement of his career, giving him lessons in drawing bones and muscles. The list of Yarrell's thoughtful and helpful deeds is long, probably a good deal longer than we know.

Following his death on 1 September 1856, John Van Voorst arranged his funeral and the burial in St Mary's Churchyard, Bayford, among his family, who had all predeceased him. He was attended to his grave by the President and other office bearers of the Linnean Society and his executors, publisher Van Voorst and his old school friend Edward Bird, all of whom had made the long journey out from London.

A memorial tablet was placed on the north wall of St James's Church, Piccadilly where he had been a regular worshipper each Sunday. It was paid for by his executors.

Yarrell had successfully pursued the three occupations of author, businessman and active society member with amazing efficiency and in such a genial and efficient manner as to earn both the admiration and respect of his colleagues.

Notes

1. Gage and Stearn, 1988. A brief summary of Yarrell's appointments and achievements are mentioned on p. 47. See also C.E. Jackson. *A Newsworthy Naturalist: The Life of William Yarrell.* BOC and John Beaufoy Publishing (due October 2021).
2. *Transactions of the Linnean Society,* 1830, xvi: 445–53.

REFERENCES

Bewick, T. 1797. *A History of British Birds. Newcastle upon Tyne*: Beilby & Bewick.

Gage, A.T. & Stearn, W.T. 1988. *A Bicentenary History of the Linnean Society of London.* London.

Yarrell, W. 1838. On an interwoven mass of filaments of *Conferva fluviatilis of extraordinary size. Proceedings of the Linnean Society* 1: 65.

Yarrell, W. 1827. Observations on the trachea of birds, with descriptions and representations of several not hitherto figured. Read 6 February 1827. *Transactions of the Linnean Society* 15: 378–91.

Yarrell, W. 1828. Description of a species of *Tringa* (*T. rufescens*) killed in Cambridgeshire, new to England and Europe. Read 18 June 1828. *Transactions of the Linnean Society 16*: 109–13.

Yarrell, W. 1829. On the organs of voice in birds. Read June 1829. *Transactions of the Linnean Society 16: 305.*

Yarrell, W. 1830. On a new species of Wild Swan taken in England (*Cygnus bewickii*) and hitherto confounded with the hooper. Read 19 January 1830. *Transactions of the Linnean Society 16: 4*45–54.

Yarrell, W. 1834. Description of the organs of voice in a new species of Wild Swan (*Cygnus buccinator* of Richardson). Read 20 March 1832. *Transactions of the Linnean Society* 17: 1–4.

Yarrell, W. 1834. Description of three British species of fresh-water fishes belonging to the genus *Leuciscus of Klein. Read* 19 June 1832. *Transactions of the Linnean Society* 17: 5–10.

Yarrell, W. 1838. On an interwoven mass of filaments of *Conferva fluviatilis* of extraordinary size. *Proceedings of the Linnean Society* 1: 65.

Yarrell, W. 1853. On the habits and structure of the Great Bustard. Read 18 January 1853. *Transactions of the Linnean Society 2*1: 155–60

Yarrell, W. 1856. On the influence of the sexual organ in modifying external character. *Linnean Society Journal* 1: 76–82.

PUBLICATIONS

Harvey, W. H. 1859. *Sea Side Book; an introduction to the natural history of the British coasts,* 3rd edition. London. Chapter VIII by W. Yarrell, *'On Marine Fishes'.*

Yarrell, W. 1834–36. *A History of British Fishes.* 2 vols. London: Van Voorst.

Yarrell, W. 1837–43. *A History of British Birds.* 3 vols. London: Van Voorst.

Yarrell, W. 1839. *On the Growth of the Salmon in Fresh Water.* London: privately published.

Linnaeus in England, Summer 1736

E. Charles Nelson FLS

On Michaelmas Day, 29 September 1729, in Princes Square, less than a kilometre east of the Tower of London, a Swedish Lutheran Church was consecrated (Fig. 1). This long-demolished church had several significant Linnaean connections—it was to be the original burial place in 1782 of Daniel Solander, Linnaeus' pupil, while in the late summer of 1736, the minister, Tobias Elias Björk, accommodated Linnaeus himself during the only visit he made to Great Britain.

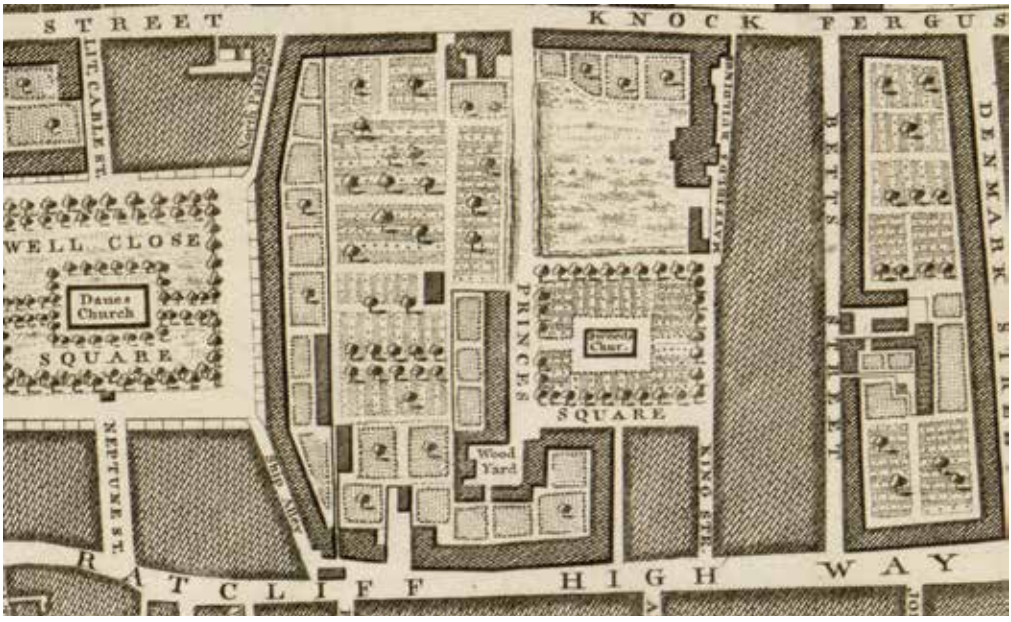


Fig. 1 Princes Square, situated between Ratcliff High Way (now The Highway) and Cable Street, with the 'Sweeds [sic] Chur[ch]'. as shown on John Rocque's 1746 A plan of the cities of London and Westminster, and borough of Southwark (Library of Congress, via Wikipedia).

The exact details of Linnaeus' activities and travels during those several weeks are not easy to establish but, as far as we know, his itinerary was restricted to the environs of London and Oxford (Jackson 1926, Blunt 1984). He left from Amsterdam on 21 July NS [10 July OS]. By Tuesday, 7 August NS [27 July OS], 18 days later, he was in London,

'Lodging at the Swedish Minister in Princes Square',[1] so he probably had arrived several days earlier. That day Dr Cromwell Mortimer, Secretary of the Royal Society, sent Linnaeus a note (reproduced in Jackson 1926: Fig. 4) arranging for him to visit the Society's museum, then at Crane Court off Fleet Street, on the following Thursday and the next day if convenient, to examine Sir Hans Sloane's herbarium.[2] Those few dates are the only ones that are certain; the rest of Linnaeus' activities cannot be dated.

Given this visit was at the behest of his employer, George Clifford, and the principal purpose was to obtain plants for Clifford's garden at Hartekamp in Holland, Linnaeus called at Chelsea Physic Garden and travelled as far as Oxford where he spent several days at the university's botanic garden. Linnaeus claimed, in conversations many years later with his pupil Paul Giseke, that Johann Jakob Dillenius, Professor of Botany in Oxford, 'kept me a month and gave me all the live plants I wanted', but the visit did not last more than a week (Blunt 1984: 115). Returning to London, Linnaeus may have stayed in the capital a short time longer, but as he was in charge of several valuable collections of living plants and was responsible for getting these safely across to Hartekamp, any further prolonged stay is most unlikely. Blunt (1984: 115) stated that Linnaeus was back at Hartekamp 'before' the end of August.

The scant extant information about Linnaeus' visit extends to the people he met. When in Oxford with Dillenius, he also encountered James Sherard: it was to Sherard that Dillenius had remarked that 'This is the man who has thrown all botany into confusion' (Jackson 1926). Another encounter at Oxford was with the Revd Dr Thomas Shaw. Philip Miller was Linnaeus' contact at Chelsea Physic Garden and he surely met Isaac Rand there too. No specific information is linked to his meeting John Martyn, Professor of Botany at the University of Cambridge, but Linnaeus is most unlikely to have ventured to Cambridge. As for Peter Collinson, years after the visit Collinson reminded Linnaeus that 'You have been in my museum and seen my little collection' (Jackson 1926: 10) so he must have explored Collinson's remarkable garden in Peckham.[3]

One source, perhaps never before quoted in this context, is an undated letter Linnaeus penned to Johann Burmann 'a few days' after returning to Hartekamp.[4] He listed the men he had spoken with in England[5]: '... ibi locutus cum Sloane, Martino [*sic*], Millero, Dillenio, Sherardo, du Bois, Randio, Collisono [*sic*], Catesbeo, Petræo & reliquis

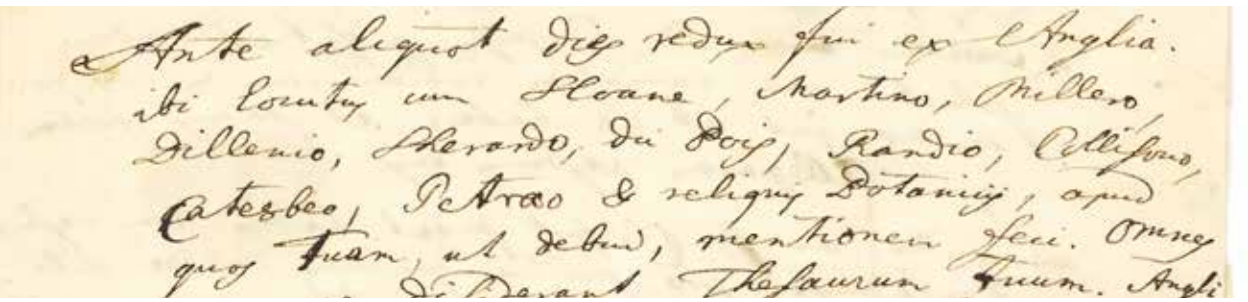

Ante aliquot dies redux sum ex Anglia.
ibi locutus cum Sloane, Martino, Millero
Dillenio, Sherardo, du Bois, Randio, Collisono,
Catesbeo, Petræo & reliquis Botanicis, apud
quos fuam, ut debui, mentionem feci. Omnes
Sherard Thesaurum suum. Angli

Fig. 2 Extract from Linnaeus' letter to Johann Burmann, undated [c. September 1736].[4]

Botanicis ...' (Fig. 2). This cadastre adds several people, all Fellows of the Royal Society, to Linnaeus' English contacts, namely Charles du Bois, Mark Catesby and Robert Petre (Lord Petre).

Catesby's is perhaps the most interesting name, because hitherto there was no explicit evidence Catesby and Linnaeus had ever met. Catesby was then in the process of preparing and publishing his *Natural History of Carolina, Florida and the Bahama Islands*—he had presented the seventh part to the Royal Society in January 1736. Catesby's biographers Frick and Stearns (1961) suggested 'there is a strong possibility that Linnaeus met Catesby in the course of [Linnaeus'] visits to British gardens and museums', yet Jackson (1926) evidently found no proof that they had encountered one another. Both Charles du Bois and Lord Petre had gardens rich in newly-introduced exotic plants and, incidentally, were among Catesby's patrons, du Bois being one of the dozen men who in 1722 sponsored Catesby's visit to North America and the Bahamas. The 24-year-old Lord Petre (1713–42)—'the Phoenix of his Age'—was a protégé of Collinson who noted in his commonplace book in 1733 that 'for so Young a Man [Petre] has a surprising genius for Building, Designing and Planting ...' (O'Neill & McLean 2008: 67; Armstrong 2002: 110; Chambers 1993). William Houstoun, according to Linnaeus (1737: 319), coined the generic name *Petrea* (Verbenaceae) in Petre's honour (Fig. 3)—'*Nobilissimo* Roberto-Jacobo, *Domino* Petre *Baroni de Writtle*, *plantarum rariorum & exoticorum* (*in Anglia*) *æstimatori & cultori summo*, *consecra fuit hæc plant ab Houstono*' (see also Linnaeus 1753: 626).

Fig. 3 *Petrea volubilis* L. from E.H. Norton's *Brazilian Flowers, drawn from nature...* (1893)

Notes

1. http://linnean-online.org/158034/
2. http://linnean-online.org/777772490/
3. To reach Peckham, Linnaeus had crossed to the south bank of the River Thames, probably by one of the innumerable ferries.
4. Available on http://www.alvin-portal.org/ (Alvin-record: 234603): original holograph Centraal bureau voor genealogie, Den Haag, Burman inv nr 19.
5. Linnaeus did not speak English, so all conversations would have been in Latin or, with compatriots such as Tobias Björk, in Swedish.

REFERENCES

Armstrong, A. 2002. *'Forget not Mee and my Garden' Selected Letters 1725–1768 of Peter Collinson, F.R.S.* Philadelphia: American Philosophical Society.

Blunt, W. 1984. *The Compleat Naturalist. A Life of Linnaeus*. London: Collins (paperback edition).

Chambers, D.D.C. 1993. *The Planters of the English Landscape Garden*. New Haven & London: Paul Mellon Centre for Studies in British Art by Yale University Press.

Frick, G.F. & Stearns, R.P. 1961. *Mark Catesby. The Colonial Audubon*. Urbana, University of Illinois Press.

Jackson, B.D. 1926. A visit of Carl Linnæus to England in 1736. *Svensk. Linné-Sällsk. Årsskr.* 11: 1–11.

Linnaeus, C. 1737. *Hortus Cliffortianus*. Amsterdam.

Linnaeus, C. 1753. *Species Plantarum*. Stockholm: L. Salvius.

O'Neill, J. & McLean, E. P. 2008. *Peter Collinson and the Eighteenth-century Natural History Exchange.* Philadelphia: American Philosophical Society.

New Information Concerning Page Turners, Paper-knives, Paper Folders, and Letter Openers

Emeritus Professor Ian Spellerberg FLS

e: spellerbergian@gmail.com

This research on reading and writing accessories has achieved the following: provided material for the first ever history of paper-knives; highlighted the little known accessory known as a paper folder; clarified the difference between paper-knives and letter openers.

Much of that research has benefited from my searches for primary evidence, the benefits of which I have recommended on many occasions to research students. By way of a brief explanation, there are many examples in ecology and biogeography where a misinterpretation of information has led to subsequent authors repeating time and time again what are in effect fallacies. A 'classic' example in the 1970s was a silly and futile debate about whether or not large nature reserves were better than small nature reserves because the large reserves may contain more species. Species-area curves were in abundance in the scientific literature. The topic was both controversial and acrimonious and was prompted by models based on numbers of species of a limited number of taxa collected from some island archipelagos (Spellerberg 1991). Another example from about the same period was the much published support for 'ecological corridors' or 'wildlife corridors'. A common belief was that the effects of habitat fragmentation could be addressed by creating 'corridors' between habitat fragments, thus ensuring plant and animal species could move freely from fragment to fragment. There was little or no empirical data at that time to show that such 'corridors' could function as conduits for movement between fragments.

It's interesting that the same advice (about seeking the primary evidence) can also be applied to antiques and collectables. My main research has always been natural history. Like so many other natural historians I have immersed myself in places such as Down House, Selbourne, Dorchester, and the houses occupied by Charles Dickens. However, in this instance my research was directed at reading and writing accessories, especially those used in libraries (both private and public) and also desk accessories used by some of our great naturalists and chroniclers of Victorian life. Some items on their writing desks such as quill pens, dip pens, desk seals, and ink erasers were familiar to me but some I could not recognise. For me this was an invitation to ask questions and undertake some research.

Many members of the Linnean Society will have sought the sanctuary of the Society's library. While there they may have admired some of the larger antiquarian volumes and understood the need to treat such tomes with due care and respect. Turning the pages of very old and valuable books needs to be done with great care and for this purpose, some libraries provide either bone or thin Teflon folders or stiff cards with rounded edges to help turn the old and delicate pages.

Some readers of *The Linnean* may have encountered references to the term 'page turner' including unsubstantiated comments about their use. For example there was the claim that historically, as libraries and reading rooms became available to the general public, page turners were provided to prevent grubby hands soiling the pages of books, magazines and newspapers. It has been suggested that another use for page turners is to assist in turning newspaper pages so as to prevent soiling the fingers with printing ink.

During my research I discovered that page turners were often listed in auction catalogues, particularly when the sale includes small items and objects of *vertu.* Page turners are also included in the collections of some museums and historic places. A Google search will reveal many hundreds of page turners (ruler-like hand-held blades). Such a search will additionally list thousands of books, with a 'page turner' also being a book you can't put down.

I was curious to find out more about page turners, particularly their history, evolution and design. I had assumed that page turners would have been in use during the late 1800s and early 1900s. My sources of primary evidence included advertisements in 'old' newspapers, contemporary trade catalogues, patents and registered designs, and reference to such reading accessories in the writings of social commentators such as Charles Dickens (1812–70). However, after having searched through those sources, I was most surprised to find no reference to the term 'page turner'. I then sought comments from library archivists, book conservators and social historians. There were many such comments, all were useful and constructive, but no one could offer any information about the history, use or design of page turners. Some individuals were concerned that a page turner as described might in fact damage the pages. Having no found relevant primary evidence, I concluded that page turners were a myth (Spellerberg 2016).

During this research I discovered a large amount of material about paper-knives (otherwise known as a paper-cutters). These were mentioned and illustrated in 'old' advertisements, old trade catalogues, patents, registered designs and chronicles of social history. I was also delighted to find examples of paper-knives that once belonged to members of the Darwin Family (Figs. 1 & 2). Other examples were used by Queen Victoria, Florence Nightingale and Thomas Hardy.

It gradually became that what were termed page turners by many people were in fact paper-knives. These implements were designed not for turning pages, but were

Darwin paper-knives courtesy The National Trust

Fig. 1 (Top) Charles Darwin's paper-knife. The inscription reads: 'This paper cutter belonged to Charles Darwin A.D. 1885.'; **Fig. 2 (Bottom)** Erasmus Darwin's (older brother to Charles Darwin 1804–81) paper-knife.

designed to cut paper into small pieces and to cut open the un-cut pages before the pages could be turned.

Readers of *The Linnean* will be aware that for a period of time in the 19th century, books, magazines and newspapers were published with leaves uncut. A signature, made by folding a large sheet of paper several times provided the basic structure. Books were assembled from several signatures. The Linnean Society Library has some examples of uncut books. It was common practice for publishers not to trim the pages but to leave the cutting open of the pages to the reader. There was much discussion at the time about the joy of using a paper-knife and being the first to cut open and read the pages. For example in *The Works of Oliver Wendell Holmes* R.W. Emerson (1803-82) there is the following delightful passage (Vol. II, p. 340) : 'Blackwood's was then in its glory, its pages redolent of 'mountain dew' in every sense; the humour of the shepherd, the elegantly brutal onslaughts upon Whigs and Cockney poets by Christopher North, intoxicated us youths. It was writing, and made for the young. The opinions were charmingly wrong, and its enthusiasm was half Glenlivet. But this delighted the boys. There were no reprints then, and so to pass the paper-cutter up the fresh inviting pages was like swinging over the heather arm in arm with Christopher himself.'Some

biologists have drawn attention to similarities between specimens and paper-knives. In 1833, there was the following note in the *Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, Geology and Meteorology* (Longman Press, London, Vol. 6): 'A puzzling specimen of an oyster catcher. The beak, from the side view, has the appearance of being blunt at the point, but is so compressed laterally as to be but little thicker than an ivory paper-cutter, admirably adapted for being pushed in between the shells of mussels, oysters and other bivalves.' Another biological observation was made by Sir Ray Lankester (1847–1929). On page two of his 1915 book *Diversions of a Naturalist*, he wrote about sampling marine creatures of Guernsey: 'The dredge came up. And as its contents were turned out near me, a semi-transparent, oblong, flattened thing like a small paper-knife began to hop about the boards. It was the first specimen I ever saw of the lancelet, *Amphioxus.*' Reading that account revived happy memories of my first-year zoology practicals.

References to paper-knives in English literature have provided me with valuable information about the materials used to make them. From simple, plain slivers of wood to Faberge paper-knives made from Siberian nephrite, the range of material used was extraordinary. The earliest reference that I found was to a boxwood paper-knife thought to belong to King Charles II (1630–85). In the 1839 edition of the Canterbury Journal *Kentish Times & Farmers Gazette* there is a report of a 'beautifully curved boxwood paper-knife' that had been gifted by a Miss Whitehurst to the then newly established Mesman Museum (1834–48) in Cambridge. There was a motto on the blade 'SHE THAT WOULD AT QUITE BE MUST SHUN ALL EVILL COMPANY. E.B. 1678. Charles R'. The whereabouts of that paper-knife is unknown (Spellerberg 2018). Other references mention bone, ivory, silver, nephrite, jade, and mother-of-pearl. On the basis of what is mentioned in the literature and those examples of paper-knives that still exist, bone, ivory, wood and silver appear to have been the most common materials used.

The smallest example of a paper-knife that I found was just nine cm long. The longest was 54 cm. The average length appears to be about 28 cm. The majority are straight, like rulers, but a few are scimitar-shaped. Some paper-knives have multiple uses such as a combination paper-knife and pencil or a combination paper-knife and desk seal. Many of the French examples came as boxed sets including a dip-pen, desk seal, ink eraser and paper-knife. Victorian stationery cabinets and travelling cases often included a paper-knife together with dip-pen, desk seal and ink eraser.

The blades of paper-knives were often decorated with scenes inspired by nature. The designs ranged from simple poker-work on wood to Japanese ivory made for the Western market. The latter were often beautifully carved with primates, grapevines and birds with trees inlaid with hard-stones in the Shibayama style (Fig. 3). I have several wooden paper-knives portraying hand-painted mammals, birds and plants. All have the same basic design and are made from various woods, including boxwood and walnut, with simulated bamboo handles. The longest I have found is 50 cm. The bird images include white storks, bulbuls and European Jays (not shown in the illustration: Fig. 4). I am hoping that someone may offer suggestions as to where and when they were made.

Ivory and wodden paper-knife images courtesy the author

Fig. 3 Ivory paper-knives. From top to bottom: an ivory tusk paper-knife (dated 1896 and 53 cm long), as advertised in the Army and Navy Stores Catalogues from around 1907; a Japanese ivory paper-knife from the late 1900s and made for the western market, the handle carved with apes among grapevines on a rock and the blade gold-lacquered with trees inlaid with hard stones in the Shibayama style; a plain ivory paper-knife with handle on the right; ivory paper-knife with a carved snake like handle; an ivory paper-knife with an Art Nouveau style silver handle.

Fig. 4 A series of wooden paper-knives all hand painted with various birds, mammals and wild flowers. The longest is c. 50 cm. The origin of these paper-knives is a mystery.

Paper-knives were often used in conjunction with paper-folders (also known as paper creasers or folding sticks). Paper folders appear to be a relatively unknown reading and writing accessory. Today they are usually described as either letter openers or paper-knives. The function of paper-folders was to smooth and crease the paper prior to using the paper-knife. Their shape is characteristically straight with rounded or bull-shaped ends. They are commonly about 23 cm in length. In *Miss Leslie's New Receipts for Cooking* (1874) there is the following advice about folding a letter: 'In folding a letter let the breadth (from right to left) far exceed the height. A letter the least verging towards squareness (sic) looks very awkward. It is well to use a folding stick (or ivory paper-knife) to press along the edges of the folds, and to make them smooth and even.' From those instructions we may gather that using ones thumb or fingers to crease the paper was considered to be in poor taste.

Paper folders were often decorated with original paintings or transfers of a botanical nature (Fig. 5). They were commonly made from wood though occasionally silver and or nephrite was used.

Fig. 5 Wooden paper folders c. 1880–1900. Length about 26.5 cm.

Whereas the term paper folder may be unknown to many, the term bone folder will be more familiar, particularly anyone engaged in book binding or arts and crafts. Bone folders (now days made of Teflon or plastic) are used for folding paper, scoring card-weight paper, rubbing down (burnishing) freshly glued materials and smoothing leather. The term bone folder has long be mentioned in the literature. Paper folders are basically the same as bone folders. The term seems to have first appeared in the late 1800s.

Paper folder image courtesy the author

Letter openers became popular towards the end of the 1900s. Interestingly enough, the term 'letter opener' is a misnomer because they don't open the letter, they opens the envelope. Early patents more often than not used the term 'envelope-opener'. Letter openers are not the same as paper-knives. They have different histories, different functions, and different designs. They have thin blades for inserting beneath the flap of an envelope. Paper-knife blades are smooth and broad for slipping between folded sheets of paper.

Most letter openers are hand-held. However, in 1884 there were patents for desk top letter openers in the form of a small paper guillotine. For offices receiving amounts of mail there were mechanical letter openers.

There is a multitude of designs for letter openers. Many were made for the tourist market, some celebrated special events and others were abstract designs. Compared to paper-knives, far fewer letter openers were decorated with natural history themes. That probably reflects the fact that paper-knives were especially common in the Victorian era and at a time when nature inspired many designers. Despite the diminishing practice of letter writing, new and imaginative designs for letter openers continue to appear on the market. However, will the slow demise of sending letters in envelopes through the post result in the extinction of the letter opener?

In conclusion, although there is widespread use of the term 'page turner' in the world of antiques and collectables, this research has shown that the term is a fallacy. Prior to publishing a book on the subject, I wrote articles about 'page turners' for several journals and magazines. My conclusions were received with some disbelief but no one has ever found primary evidence that challenges my conclusions. Very little has ever been written about the history, design and use of paper-knives. This is surprising, given the widespread and common use of paper-knives during the 18th and early 19th centuries.

REFERENCES

Emerson, R.W. 1803–82. *The Works of Oliver Wendell Holmes.*

Spellerberg, I.F. 1991. Biogeographical basis of conservation. In *The Scientific Management of Temperate Communities for Conservation*. Edited by In Spellerberg, I.F., Goldsmith F.B. & Morris M.G. pp. 293–322. The 31st Symposium of the British Ecological Society, Southampton 1969. Blackwell Science.

Spellerberg, I.F. 2016. *Reading and Writing Accessories. A study of paper-knives, paper folders, letter openers and mythical page turners*. Oak Knoll Press, New Castle, Delaware.

Spellerberg, I.F. 2018. Whatever happened to the King Charles II paper-knife? *The Quarterly* 105: January 2018.

Jenny Brasier (1936–2020): The close of 2020 brought the sad news of the death of Jenny Brasier, botanical artist and recipient of the Society's Jill Smythies Award for botanical art in 2002. As a former volunteer in the Library, she identified and listed zoological images in albums of Albert Günther (her neat script in the slip indices remains as a reminder of her work and her lovely, outgoing personality). The Society's 2002 *Annual Report* includes the citation for her award, listing the Christmas cards she painted for the Society, one featuring gold, frankincense and myrrh, other Society commissions, as well as her other awards and exhibition record. She was 'artist in residence' at Liverpool Museum during part of the James Bolton exhibition in 1995, giving live demonstrations of painting on vellum.

In an autobiographical note she describes learning to draw as a child in Worcestershire, growing plants and studying dairying, before qualifying as a teacher, but continuing to draw and paint. The arboriculturist, John Whitehead FLS, provided lifelong friendship, constructive advice and encouragement, bringing plant specimens from all over the world to be painted rapidly before they went to Kew. A chance meeting with Wilfrid Blunt, at the Watts Gallery, resulted in another supportive friendship and encouragement for her to submit paintings to the Hunt Institute in Pittsburgh. Their acceptance for an exhibition, in turn, led to a gift of some of Rory McEwan's unused vellum, something she treasured and used to paint 20 leaf studies for a Royal Horticultural Society exhibition in 1988, each leaf having associations with Wilfrid Blunt. That gained her the first of several RHS Gold Medals for botanical painting, though she had won a gold medal in 1982 for pencil drawing. Her work has appeared in many exhibitions, as illustrations in books, and examples of her work are held in several major institutions worldwide, but a long struggle with rheumatoid arthritis put an end to her ability to paint. Additional information is available at: https://www.botanicalartandartists.com/news/jenny-brasier-1936-2020

Trevor James FLS (1947–2020): Born in Kenton, Middlesex, Trevor's family moved to Cuffley in Hertfordshire, leading to his lifelong involvement in documenting and recording the natural history of Hertfordshire. He served as first Chair of the National Federation of Biological Recording as well as on the Linnean Society's

Jenny Brasier image courtesy Jim Brasier; David Lees image courtesy John Allen

Taxonomy & Systematics Committee. His awards included the Hertford Natural History Society prestigious 1875 Award in 2015, the National Biodiversity Network's Gilbert White Award in 2018, and the British Empire Medal in the New Year Honours in 2020. All were in recognition of Trevor's services to biological recording and nature conservation. His publications include the *Flora of Hertfordshire* (2009) and the *Beetles of Hertfordshire* (2018). A fuller description of his life and achievement can be found in the *Transactions of the Hertfordshire Natural History Society* 52(1) 37–38 (2020): https://www.hnhs.org/publication/hertfordshire-naturalist-2020

David Roger Lees FLS (1942–2021): It is with sorrow that we report the death of David Lees, best known to members of the Society as the third editor of the *Biological Journal of the Linnean Society*, a role that he carried out skilfully from 1990 to 1997. Born in Birmingham, he acquired a keen interest in natural history, a passion that resulted in him studying Zoology at the University of Cambridge. After graduating, David moved to Oxford to work with Bernard Kettlewell in his classic studies on industrial melanism in moths, the data from which formed the basis of his D.Phil. In the early 1970s David joined the University of Cardiff, where he became a lecturer and then senior lecturer, specialising in evolutionary and population genetics. His research remained focused on melanism in moths as well as colour polymorphism in the meadow spittlebug, *Philaenus spumaris*. David loved teaching—his lectures, practical classes and field courses were renowned for being both clear and engaging—and his responsibilities became increasing focused in this area, culminating in his appointment as Director for Teaching in the then School of Pure and Applied Biology. Under David's leadership, education within the School was delivered smoothly and expertly. In his interactions with students and colleagues, he was always fair, kind and considerate, and it is these very qualities that also made him such an efficient and even-handed editor of the *Biological Journal of the Linnean Society*. David retired in 2004 and, sadly, died from motor neurone disease on 2 January 2021 at the age of 78. He is survived by his wife, Helen, and their sons, Daniel and Patrick. https://academic.oup.com/biolinnean/pages/david-r-lees-virtual-issue

Robert Desmond Meikle OBE FLS BA LLB (1923–2021): In February we were very saddened to learn of the death of botanist Robert Desmond Meikle (known as Desmond), at the age of 97. Born in County Down, Northern Ireland, he would work at Royal Botanic Gardens, Kew, after World War II, under the mentorship of Victor Summerhayes, 'the Kew Orchid King'. He was elected to Fellowship of the Linnean Society in 1953 and served on its Council from 1957–60, and was awarded the Order of the British Empire by Her Majesty The Queen in 1983.

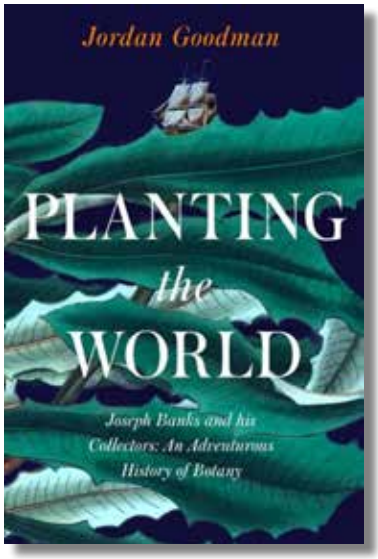
Desmond Meikle image © The Board of Trustees of the Royal Botanic Gardens, Kew

Desmond dedicated 30 years to his *magnum opus*, the two-volume work *Flora of Cyprus* (1977 and 1985). Other publications included the BSBI handbook *Willows and Poplars of Great Britain and Ireland* (1984), and he made contributions to *Flora Europaea*, *The European Garden Flora,* as well as articles for the *Irish Naturalists' Journal.* He was seen as the expert on native British and Irish willows, with everyone consulting him about identifications, and is remembered fondly by all who knew him for his wicked sense of humour.

Planting the World: Joseph Banks and his Collectors: An Adventurous History of Botany

Jordan Goodman

560pp, London: William Collins, 2020, hardback
Col. illustr. £25.00 ISBN 9780007578832



Books on collectors and collections are currently in fashion, and this heavyweight but readable account of the way Joseph Banks despatched his 'collectors' to all accessible parts of the world complements other recent publications by Mark Carine (*The Collectors: Creating Hans Sloane's Extraordinary Herbarium*, 2020) and Toby Musgrave (*The Multifarious Mr. Banks: From Botany Bay to Kew, The Natural Historian Who Shaped the World*, 2020).

An outline biography of Banks leads into a series of sections documenting natural history collectors, especially botanists and gardeners, in 20 chapters, each focussing on a geographical region or voyage of exploration. The reader quickly begins to anticipate the disappointing ending to most of these, with precious plants, nurtured and tended, lost due to storms or other natural disasters when almost within reach of their destination. Returning new living plant specimens for the growing collection at the Royal Gardens at Kew was the ultimate goal, with special 'plant cabins' constructed on ships to protect the living cargo from sea spray and other threats. On Captain George Vancouver's voyage in the 1790s, Archibald Menzies repeatedly collected living plants from the Pacific coasts of the Americas, only to find that the changing seasons killed his plants, and the requirements for maintaining the plant cabin resulted in conflict with the commander and crew. Even when plants did survive the journey, delays in customs on arrival could result in them dying before they were delivered.

Banks' friendship with the King, his network of contacts and his reputation as an explorer all helped to ensure that no opportunity was lost, both in exporting European plants of use or value to Britain's growing colonies, and to bring back any plants of potential commercial, horticultural or rarity value (with breadfruit one of the eventually successful examples). The East India Company, other trading organisations and diplomatic missions all had naturalist or gardeners added to their entourage, some funded by Banks himself.

Seven maps (unnumbered) at the front define the areas the collectors were active in, and the list of persons featured occupies over 12 pages. Roughly one third of the book comprises accompanying notes on sources or providing added information. Two sections of colour photographs feature relevant portraits, plants and scenery.

The storyline continues from the *Endeavour* voyage with Captain James Cook in 1769, to the return of the ill-fated voyage of Captain Tuckey to the Congo in 1817. The death of Banks in 1820 put an end to further efforts, and the Royal Botanic Gardens at Kew only became a national institution in 1840.

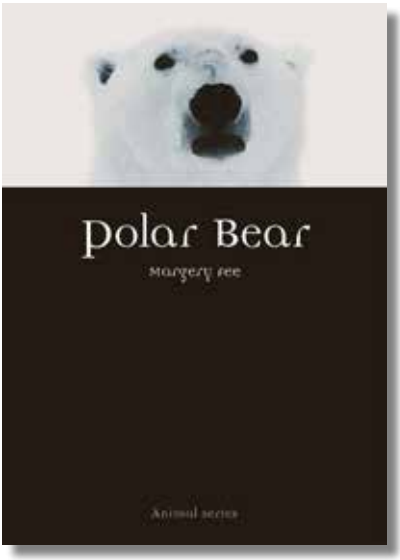
Goodman uses Banks' own words to convey his enthusiasm and mission, as well as those of his collectors, giving a first-hand view of the difficulties involved. The reader ends up being surprised at how Banks managed to maintain his hopes for successful translocation of living plants in the face of constant disasters, including the deaths of people as well as plants. Seeds were always more successful, capable of surviving the rigors of travel on board ship, and were essential for effective living plant transfers.

Gina Douglas FLS

Polar Bear

Margery Fee

224 pp., Reaktion Books, London, 2019, paperback.
Illustr. (some col.) £12.95
ISBN 9781789141467



When visiting the Singapore Zoological Gardens a few years ago, I asked the General Manager, while we admired together one of two impressive exhibits for proboscis monkeys (*Nasalis larvatus*), which animals were the most popular among zoo visitors. Naïvely, I expected him to say proboscis monkeys, or at least some other remarkable species native to Southeast Asia. Instead, marketing studies had determined that white tigers (*Panthera tigris*) were at the top of the popularity chart, closely followed by the Polar bear (*Ursus maritimus*). Southeast Asian orang-utans (*Pongo pygmaeus*) came in only third.

Why Polar bears are popular, not only in Singapore, is the thread that binds all six chapters of Margery Fee's passionately written and handsomely illustrated new monograph within Reaktion Books' well-received 'Animal' series. The chapter 'Entertaining Polar bears' includes a rather depressing photograph of a lonely Polar bear, Inuka, born in the Singapore Zoo in 1990 to a Canadian father and a German mother. As Fee's image indicates, Inuka was kept throughout his 27-year lifespan in a somewhat sterile, air-conditioned hall with a large swimming pool. In fact, the zoo determined to terminate

Inuka (in Singapore Zoo), the first Polar bear born in the Tropics, died in 2018. (Flickr/Akika8)

Polar bear husbandry once Inuka passed away—which he did in April 2018.

The 'Animal' series presumably needs no introduction. To date it lists 98 titles and few authors appear to be experts on their subject. Margery Fee is introduced on the back cover as a Canadian 'Emerita Professor of English', and *Polar Bear* is apparently her first foray into natural history. This is not necessarily a bad thing: well read, and a good writer, she offers a fresh perspective on an iconic mammal of which much has already been published. Unfortunately, good literature on Polar bears is not limited to what's at hand in English, yet she apparently did not consult a single publication in another language, narrowing her frame of reference. This becomes especially obvious when discussing the history of Polar bear studies: Norwegian, Danish, German and Russian scholarship, for example, is ignored, and French only where their works have been conveniently translated into English.

Concentrating more on the cultural history and less on the natural history of the Polar bear, Fee is occasionally tempted to wander off subject altogether. For example, writing about Polar bears in captivity, she takes the opportunity to criticise exotic folklore exhibitions as 'human zoos': 'where groups of people from distant lands were displayed to the public' (p. 111). Fee highlights the fate of an Inuit family from Labrador, enticed by the wild-animal dealer and circus proprietor Carl Hagenbeck (1844–1913) to tour Germany; many of the venues were zoos. 'Human zoos' have nothing to do with Polar bears anyway, but public imagination quickly identifies the species with Inuit, thus providing the author with an excuse to vent what else was on her mind.

On the whole, however, Fee's text does the series and the species justice. She concludes her portrait of an endangered species with an excellent survey of the effects of global warming on Polar bear populations and conservation. Readers familiar with the problem may not find anything essentially new in her synthesis, but for those looking for an introduction to the controversies surrounding climate change and those who would deny it, her insight taken from the Polar bear's angle is both enlightening and amusing. The selection of illustrations throughout—almost one on every other page—is both representative and aesthetically pleasing. If one ever wondered why Polar bears are popular, Margery Fee provides the answer.

Herman Reichenbach FLS

Fellows Elected Oct 2020–April 2021

Mr Daniel Ahern
Dr Nabeel Ahmad
Prof. Lucky Attri
Dr Kirti Bardhan
Mr Ranit Bhuyan
Dr Terry Biddington
Dr Alex Bond
Dr Gavin Broad
Prof. Brycchan Carey
Dr Caspar Chater
Dr Nitin Chitranshi
Ms Carolyn Collins
Mr John Courteney-Smith
Dr Minoo Divakaran
Dr Alison Evans
Dr Mohammad Faisal
Ms Isobel Girvan
Dr Neil Gostling
Dr Michael Harrison
Mr Philip Hay
Dr Nigel Haywood
Dr Jason Head
Mr Samuel Henderson
Mr Denis Jackson
Mr Rudolf Jenny
Dr Carina Kern
Dr Upendra Kumar
Ms Deborah Lambkin
Ms Cheryl Lynne
Dr Mallana Gowdra Mallikarjuna
Mr Ashley Matthews
Mr Neil Matthews
Mr Sean McClafferty
Dr Jayant Meshram
Dr Giuseppe Micali
Dr Prasenjit Mitra
Miss Ella Moseley
Dr Sanjeeva Nayaka
Dr Howard Nelson
Dr Nicola Nicolson
Dr Pablo Orozco-terWengel
Mr Precious Owuamalam
Dr Bhanu Prakash
Prof. Andy Purvis
Mr Thomas Raven
Prof. Sandra Rehan
Dr Edwin Rose
Prof. Stella Sandford
Dr Lorenzo Santorelli
Prof. Amritesh Shukla
Prof. Krishna Pal Singh
Mr Andrew Steven
Mrs Gillian Steven
Dr Kancherla Suresh
Dr Surendra Suthar
Dr Andrey Sytin
Dr Phatik Tamuli
Dr Amarjit Singh Tanda
Mr Brodie Taylor
Prof. Peter Taylor
Ms Margaret Tebbs
Dr Eric Tepe
Mr Jaime Thissen
Mr Edward Tompkins
Dr Nicola Underwood
Mr Dean Warren
Ms Pauline Weeks
Mr David Wickham
Dr Jason Wiles
Dr Alexandra Wilson
Prof. James Wilson
Dr David Woodruff
Mr Michal Zrust

Associates

Mr Lee Bilson
Ms Denise Crampton
Ms Elizabeth Eves
Mr Lee Hale
Dr Mervi Hjelmroos-Koski
Mr Dean Hodge
Ms Jane Jelley
Dr Ali Budhi Kusuma
Ms Edmée-Marie Melchiors
Mr Mark Wagstaff

Mr Adhityo Wicaksono

Mr Michael Williams

Students

Ms Anoushka Alexander

Ms Jocelyn Bosse

Miss Octavia Brayley

Mr Rajdeep Chakraborty

Ms Maria Dance

Ms Sarekha Dhanda

Mr Thomas Fieldsend

Mr Stephen Garrett

Mr Joshua Jones

Ms Phoebe Jones

Mr Robert Kresslein

Mr Jonathan Marius-Sheridan

Mr William Marsh

Ms Priscila Mezzomo

Ms Elizabeth Natola

Mr Hector Manuel Osorio Gonzalez Filho

Ms Summer Porter

Ms Pamela Roberts

Ms Chloe Syme

Mr Chawatat Thanoosing

Mr Bashir Bolaji Tiamiyu

Ms India-May Williams

Ms Christina Wood

Ms Kamila Zajac

Deaths Reported to Council

Prof. Jennifer Clack

Prof. Jeffrey Davies

Dr Peter Day

Prof. John Hillman

Mr Keith Hyatt

Mr Desmond Meikle

Dr David Noakes

Mr John Phillips

Mrs Janet Pope

Mr Olav Skulberg

Prof. Lyle Boyce Thrower

Mr Christopher Vyle

Mr Richard Wahlgren

Honoris Causa

Prof. Brian G. Gardiner

Lord John Selborne

The Linnean Society of London : Programme of Events

May–June 2021

5 May
12.30–13.00

What Were Mesozoic Mammals Eating?

Dr Melisa Morales Garcia, *University of Bristol*

13 May
18.00–19.00

Herbaria: Collectively Saving Plant & Fungal Biodiversity

Dr Barbara Thiers, *The New York Botanical Garden*

24 May
From 16.00

Members' Event: Anniversary Meeting 2021

AGM & Celebration of Medal & Award Winners

28 May *
09.30–18.30
DAY MEETING

Species & Ecological Processes: Taxonomy & Traits in the Workings of Nature

SPEAKERS INCLUDE: Prof. Mary Power, *University of California, Berkeley*, Prof. Florian Altermatt, *University of Zurich and Eawag*, Dr Jose Montoya, *CNRS: French National Centre for Scientific Research*, Dr Julia Reiss, *Roehampton University*, Dr Markus Weitere, *Helmholtz Centre of Environmental Research* & Dr Anje-Margriet Neutel, *British Antarctic Survey*

28 May *
14.00–15.00

Virtual Treasures Tour

Join our Collections team on a virtual tour of the Society

16 June
12.30–13.00

Corfu Butterfly Conservation

Dr Dan Danahar, *Biodiversity educationist*

17 June
18.00–19.00

The Global Heritage of British Natural History

Prof. Pratik Chakrabarti, *University of Manchester*

28–29 June *
13.00–17.00 /
19.00–21.00
TWO-DAY MEETING

Evolution 'On Purpose': Teleonomy in Living Systems

ORGANISERS: Prof. Peter Corning & Prof. Dick Vane-Wright
PROGRAMME COMMITTEE INCLUDES: Prof. Eva Jablonka, *Tel Aviv University*, Prof. Stuart Kauffman, *University of Pennsylvania*, Professor Dennis Noble CBE FRS, Prof. Samir Okasha, *University of Bristol*, Prof. James Shapiro, *Columbia University* & Prof. Dennis Walsh, *University of Toronto*

---

* Payment required • A Admission of Fellows

REGISTRATION REQUIRED FOR ALL EVENTS

All meetings are being held online via Zoom.

The LINNEAN SOCIETY of London

To register, and for other events, visit **www.linnean.org/events**

Charity reference no. 220509