

Editorial

On Saturday 15 April 2000 the Linnean Society took over the lease on the recently restored grave of Alfred Russel Wallace in Broadstone Cemetery, Dorset. The grave is marked by an unusual and striking monument – a 7 foot tall, fossilised conifer trunk from the Portland beds, mounted on a square base of Purbeck stone.

The A.R.Wallace Memorial Fund (see *The Linnean* 15(3):14) not only bore the cost of transferring the lease to the Linnean Society but also of arranging for continuing professional maintenance of both grave and memorial. Their actions ensure that the tomb has become an Historical Monument and, more importantly, prevents the resale of the plot for future burials.



The Broadstone Cemetery Meeting 15th April 2000.

Speakers standing in front of the newly restored grave of Alfred Russel Wallace.

From left: Prof. Brian Gardiner PPLS, Dick Wallace (grandson); Dick Vane-Wright FLS, Sir Ghillean Prance PLS, Dr George Beccaloni FLS, Dr John Wilson FLS, Dr Sandra Knapp FLS, Dr Peter Raby and John Wallace (grandson).

Cemeteries developed around London in the 1850s as the various church graveyards became filled. The earliest were privately owned but towards the end of the century there was a rapid development of municipal cemeteries. In private cemeteries the plots were purchased in perpetuity. Here, although some graves and tombstones continue to be maintained (viz: Karl Marx – Highgate Cemetery), others such as that of Robert Brown, in Kensal Green Cemetery, whose death precipitated the July 1st 1858 Special Meeting at which the Darwin-Wallace papers were read, are slowly subsiding and will eventually collapse. A similar fate will eventually befall the family tomb of our founder – Sir James Edward Smith in the churchyard at Lowestoft.

Following the handing over of the lease at the grave side, a short libation was held in which a glass of champagne was poured on the tomb and a toast drunk to Wallace's memory.



Robert Brown's grave (right) in Kensal Green Cemetery, together with that of W.J. Broderip who died in February 1859. (Photograph by David Pescod.)

Society News

Miss Marquita Baird left the Society on 31st March after ten years in the post of Meetings Officer and latterly Assistant Executive Secretary. This has included responsibility for the external bookings of the Society's rooms as well as the increasing number of Society meetings lasting a day or more, sometimes outside London. In this role she has made many friends both at home and overseas. We are most grateful for all that she has done in her career with us and wish her every success in the future.

The complexity and frequency of those external room bookings led the Council at its

March meeting to reconsider the Society's position. Significantly the Linnean Society is now the only one in the Burlington House Courtyard to host evening and weekend meetings. Evening meetings now make up some 25% of all bookings, whilst weekend bookings have increased tenfold over the past ten years. The Society has tried to maintain an open-all-hours policy, but given that the Society employs only 5 staff, this has placed an undue strain on those able to work at these times. The income from lettings barely covers the cost of staff time, wear and tear and general running costs. In future, it has been agreed that a limit should be placed on evening and weekend meetings and that priority be accorded to organisations with which the Society has some scientific affinity.

The Society's Council has accordingly agreed that the Society should move towards hosting no more than one evening meeting per week, at which no refreshments will be served, and no more than six weekend meetings in any year. Bookings for these times will only be accepted from scientific organisations. Existing bookings will be honoured. This does not affect bookings during working hours (0930 – 1700 Mondays to Fridays) which will remain on a first-come-first-served basis. It would be helpful if Members could draw the attention of scientific Societies to these changes which will, hopefully, encourage them to use our rooms, something which is part of our charitable purposes

And on our charitable purposes, the Charity Commissioners have agreed the changes in the use of three of the Society's funds, which were the subject of a lengthy item in the January issue. The Council had asked the Commissioners to agree to change the purposes of the Bonhote, Omer-Cooper and Westwood funds to that of the AG Side Fund. The combined fund, within which each fund is separately accounted for, is to be called the **Side, Bonhote, Omer-Cooper and Westwood Fund** and its purpose is to support research in systematic biology.

The Society has received a bequest of £20 000 under the will of Mr. J.H. Turner FLS, who died recently. He had been a Fellow since 1935. We have also received a further gift of £1000 from Mrs. Gertrude Looi FLS. £7000 more has been received from the estate of Mr. B.E. Smythies Hon FLS, bringing the total to £157,000. This year, two Jill Smythies Awards are being made to mark Mr. Smythies' passing, to Mr. Bo Mossberg, of Uppsala, and to Mrs. Jean Annette Paton, of Cornwall. In his last letter to the Society (he was a formidable correspondent) Mr. Smythies noted that the rubric for the Award mentioned drawings as well as paintings and asked what were we doing about that. Mrs. Paton's drawings, particularly of bryophytes, are of outstanding accuracy and value. A previous winner of the Award, Mrs. Celia Rosser, best known for her portrayal of Banksias, also illustrated bryophytes. Given a sample to reproduce, she was chipped by the donor, a botanist, about the accuracy of the figures. Modestly, she suggested that it was unlikely that she had made a mistake and they should perhaps look at the original sample. They did and found that Celia had painted a new species, which the donor had failed to notice in the sample!

An illustrated book by Robert Williams Wood has come our way called *How to tell the Birds from the Flowers: A Manual of Flornithology for Beginners*. The book was published in the USA by Paul Elder and Company in 1909. Within its 28 pages are sometimes charmingly naïve onomatopoeia reminiscent of McGonagall:

The Parrot and the Carrot we may easily confound,
They're very much alike in looks and similar in sound,
We recognise the Parrot by his clear articulation,
For carrots are unable to engage in conversation.

The author publishes an apology for using little more than common sense to identify things and it has to be said that the line drawings seem unlikely to qualify him for a posthumous Jill Smythies Award. The study of flornithology is, mercifully, not a discipline within biology which has caught on (wait for it....), but the book is No. 23 of something called a Nature Series. Does anyone know anything about Mr. Wood, or what the other 22 books are about?



The Red and Yellow Macaw
by Edward Lear, 1832.

On the subject of articulate parrots, a book called *The Alex Studies* by Irene Maxine Pepperberg (2000: Harvard University Press) has been published recently. It is the story of a single subject research programme dedicated to establishing whether Alex, an African Grey parrot, can count and recognise colours and shapes. He can, but in order to establish his scholasticism, he had first to be made to talk (African Greys also live a long time). It seems that the way to expedite this is to have, at intervals, someone rush into the room where the English lesson is taking place and distract the trainer. This disconcerts the parrot, which feels a need to refocus the trainer's attention on himself.

Assuming that Ms. Pepperberg is the very attractive trainer featured with Alex on the dust jacket, one can see that an adult male parrot might well take interruptions amiss and, being intelligent, find an effective way of dealing with them. Human beings are just too polite.

Mr. E.R.A. de Zylva FLS writes: "Leading British evolutionary biologist, William Donald Hamilton PhD FRS, died in London on 7th March 2000 in University College Hospital, London. He had been ill for about a month after returning from a research trip to Africa (*He died of malaria – Ed.*). The Oxford University professor, 63, was born of New Zealand parents on 1st Aug 1936 in Cairo, Egypt. His parents were Archibald M. Hamilton, educated at Waitaki Boys High School and Canterbury College, Christchurch University, who became an internationally recognised bridge engineer, and Bettina M. (Collier) Hamilton, born in Dunedin who was a medical graduate of the University of Otago.

He married Christine A. Friess in 1967, and they had three daughters. Educated at Tonbridge School and London University 1964–77, Prof. Hamilton was based in Britain for most of his life. In 1994 he was hailed by *Time Magazine* as "one of the great scientific minds of our era". He came to New Zealand for the first time in 1995 as a Rutherford Scholar.

He left London to be Professor of Evolutionary Biology, Museum of Zoology and Division of Biological Science, University of Michigan 1978–84, and returned to Britain as Royal Society Research Professor, Department of Zoology and Fellow, New College Oxford 1984–00. He was a Foreign Member of the American Academy of Arts and Sciences, a Member of the Royal Society of Uppsala, of the Brazilian Academy of Science and the Academy of Finland. He received the Darwin Medal of the Royal Society 1988, Linnean Medal for Zoology 1989, Frink Medal, Zoological Society 1991, Wander Prize 1992, Crafoord Prize 1993, Kyoto Prize 1993 and Fyssen Prize 1996. Publications: *Narrow Roads of Gene Land* (Vol 1) 1996, and articles in Scientific Journals."

The Framework 5 programme of the EU having indicated its preferences for two proposals in European systematics initiated by the Society and totalling some £3M, the necessary checks and balances have now been put in place to release money to Fauna Europaea and shortly, it is to be hoped, to the Euro+Med PlantBase project which the Flora Europaea Trust continues to support. Those co-ordinating the Fauna Europaea project met at the Society shortly after Easter and it was during that meeting that news of this bureaucratic triumph was revealed. A further meeting is planned in June in Padua, thanks to Professor Alessandro Minelli FLS, which will be attended by our new President, Sir David Smith, and the Zoological Secretary, Dr. Vaughan Southgate.

The Institute of Biology (IOB) runs an affiliation scheme for other biological societies; until recently, the Society was so affiliated, with some 75 other societies. The Linnean Society's Officers, in that connection, responded in the summer of 1999 with a list of three priorities for biology to be put to Government by the IOB. These were, in essence, an enforceable global policy to prevent habitat destruction, teaching and training in field studies, including taxonomy, and a multidisciplinary approach to environmental problems to include the social sciences. These were, to all intents and purposes, ignored.

The Jamieson report of the IOB on the state of biology concluded *inter alia* that the pattern for biology outside the universities, i.e. in specialist societies, should follow that inside, aping the large faculties, schools or departments wherein all life sciences are concentrated. A begging bowl would be put around to explore how this merger of societies could best be achieved. The following letter may indicate why the Society's relationship with the IOB has changed. For the record, the Linnean Society's affiliation fee was to have been well over £600; Fellowship of the IOB now costs £99pa, one of the highest amongst the learned societies.

Prof Alan Malcolm CBiol FIBiol

Institute of Biology, 20-22 Queensberry Place, London SW7 2DZ.

17th March 2000.

Dear Alan,

The Society's Council was asked to consider the documents on Science Policy Priorities and the Jamieson Report at its meeting yesterday (16th March 2000). On the former paper, the point was made that it contained a lot of 'whinge' about the conditions of service of research staff, which probably says more about those who occupy offices in the affiliated Societies; what evidence is there, for example, that the situation outside academe is much different? Is this a peculiarly biological problem? Probably not. There was little on likely species' extinction, a matter of serious concern, nor much on biodiversity. Both are close to the Society's heart and sustainable development, though admirable, is not the same thing.

The Jamieson Report was felt to represent the views of mainly cellular and molecular biologists, who are the main beneficiaries of the pooling of universities' life sciences into mega-departments. This is an excellent reason for keeping small specialist societies, since many areas of organismal biology have been virtually extinguished in universities, e.g. mycology, cryptogamic botany, marine and freshwater biology to name but a few. These are not, be it said, topics of only marginal interest to the human inhabitants of the planet. Small specialist societies also encourage amateur interest, which is increasingly important in recording biodiversity of all kinds and they can increase public participation in science.

Without an adequate explanation of where the money is to come from for the grand design, the Report is frankly useless. If the IOB with its very substantial subscription cannot move the concept forward, there seems little merit in taking matters further.

The Council felt that it was likely to make more impact in responding to matters of the day that concern the Society and its Members than waiting for a composite comment from the Institute. Analogy with the chemists and physicists was not felt to be helpful; their evolution has been very different.

The Council then wondered whether affiliation to the Institute offered anything to the Society at all. It came to the conclusion, *nem. con.* that it did not and therefore I am writing to you to say that we shall not be remaining in affiliation with the Institute in future. I am sorry to be the bearer of these tidings.

With best wishes,

Yours sincerely,

DR. JOHN MARSDEN, Executive Secretary.

Picture Quiz

William Benjamin Carpenter

The April Quiz (16(2):11) featured William Carpenter (1813–1885), physician, physiologist, geologist, University Administrator and philanthropist. The fourth child and eldest son of Dr Lant Carpenter, a Unitarian minister, he was born at Exeter in 1813. He received his early education at a school established by his father at Bristol where he was taught both classics and the principles of physical science. Persuaded to take up medicine he was initially apprenticed to the family doctor – Mr Estlin. Shortly afterwards he was sent, as a companion to one of Mr Estlin's patients, to the West Indies where he witnessed at first hand the social conditions preceding the abolition of slavery.

On his return to the UK in 1833 he entered University College, London where he studied medicine. After passing the examinations of the College of Surgeons and the Apothecaries' Society (see *The Linnean* 16(1):9) he proceeded to Edinburgh and commenced his researches in physiology – graduating MD in 1839 with a thesis on "The Physiological Inferences to be deduced from the Structure of the Nervous System of Invertebrated Animals". In this thesis he put forward his views on the functioning of the ganglionated ventral nerve cord of arthropods. This came to the notice of Johannes Müller who inserted a translation of the entire thesis in his *Archive* paper of 1840.

Later in 1839 Carpenter published his Great Work, *Principles of General and Comparative Physiology intended as an introduction to the study of human physiology and as a guide to the Philosophical Pursuit of Natural History*. This was said to be the first English book to lay down the lines for a science of biology.

Prior to his graduation, Carpenter had gained the post of Lecturer on Medical Jurisprudence and also in Animal and Vegetable Physiology back in the Bristol Medical School. Returning to his home in Bristol he set up in medical practice and engaged in part time lecturing at the University. Here he remained for the next five years, marrying in 1840. However, he became so disenchanted with the medical profession that he resolved to give up his practice for a literary and scientific career. Accordingly, in 1844 he moved to London where, during the first year, he was appointed Fullerian Professor of Physiology at the Royal Institution, Lecturer in Physiology at the London Hospital and Professor of Forensic Medicine at University College. He was also elected a Fellow of the Royal Society. A little later he was appointed Swiney Lecturer in Geology at the British Museum and from 1847–1852 he edited the *British and Foreign Medico-Chirurgical Review*.

In 1851 he was made Principal of University Hall (the residence for students at University College) a post he held until 1859. Meanwhile, in 1856 he became a Fellow of the Linnean Society and was also appointed Registrar of the University of London (the examining University) and for the next twenty-three years administered the onerous duties of that office – contributing, it is said, in no small measure to the success of that University by ensuring the quality of its degrees and in so doing maintaining its foremost position in medicine and natural science. On his resignation in 1879 he was appointed Crown Member of the Senate which he continued to serve until his death on 19 November 1885, from severe burns inflicted by accidentally knocking over a

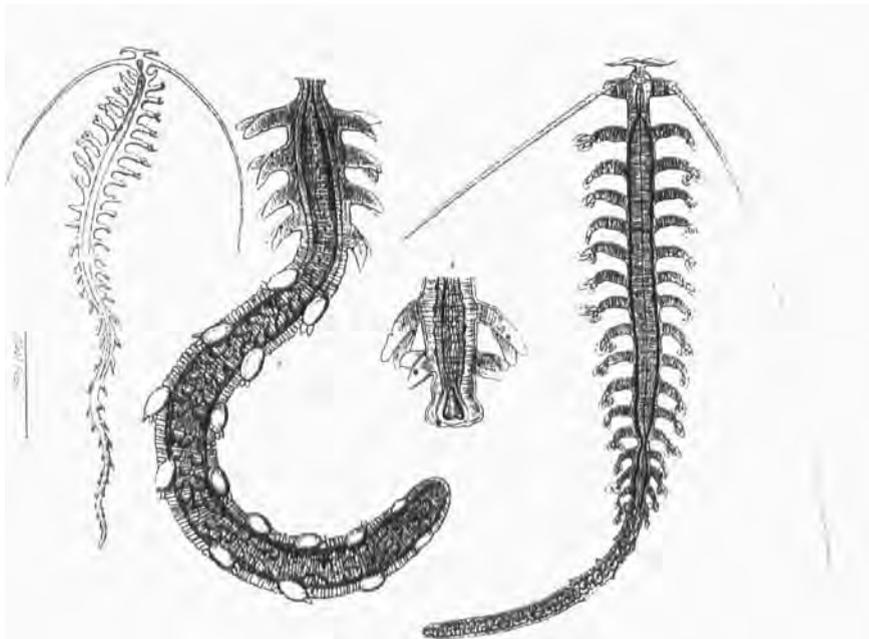
makeshift spirit lamp while taking a vapour bath.

Carpenter was also interested in the problems of palaeontology and, in a series of papers commencing with a Report to the British Association in 1843, he began a microscopic study of the molluscan shell. This resulted in his book *The Microscope and its Revelations* (1856) and later in four memoirs in the *Phil. Trans. Roy. Soc.* (1856 – 60) in which he investigated the structure and growth patterns of the Foraminifera.

In 1862, assisted by W. Parker and Rupert Jones, he published a Royal Society Monograph titled *Introduction to the Study of the Foraminifera*. He was also a competent marine biologist and made summer excursions to places such as Arran.

Here he studied feather-stars (“On the structure, physiology and development of *Antedon rosaceus*”, *Phil. Trans. Roy. Soc.*, 1866) and their distribution. In 1868 he went to Belfast, ostensibly to continue his investigations into crinoid distribution, but whilst there he met Wyville Thomson and together they started an investigation of the sea-bottom fauna between Ireland and the Faeroes (1869 & 1870). This led to further explorations of bottom fauna such as that of the Mediterranean in the *Shearwater* in 1871 and the Atlantic between the UK and Portugal. These explorations culminated in the *Challenger* expedition which, although unable to participate due to family ties, Carpenter helped Thomson provision. Later he used some of Thomson’s observations to support his theory (Carpenter’s) that there was a general oceanic circulation which resulted from changes in water temperature and evaporation.

Despite all of this work Carpenter will be best remembered for his contributions to human physiology, and in particular for *The Principles of Mental Physiology* (1874). It



Tomopteris onisciformis – from Carpenter’s paper, *Trans. Linn. Soc.* 22, 1859.

contains masterly discussions on such topics as instinct, somnambulism and unconscious cerebration, while his exposures of the quackery involved in phrenology, mesmerism and spiritualism, according to his biographer, did much to educate the Victorian populace. His views on the relationships between mind and brain were clearly in advance of his time.

At the time of his death, however, the obituary in the *Geological Society Proceedings* noted "Dr Carpenter's name will be long associated with the difficult yet fascinating controversy concerning *Eozoon canadense* discovered by Logan and Dawson in the Laurentian rocks of Canada". Carpenter maintained that it exhibited the distinctive structure of the Foraminifera (see *Origin of Species* 4th edition: 402; also 374). Material relating to *Eozoon* was placed by Carpenter's executors in the hands of Rupert Jones who undertook to prepare it for publication (see also *The Linnean* 16(1):fig 9).

Besides all his contributions to science, Carpenter played an active part in public life. Thus in 1849 he gained a prize for an essay "On the Use and Abuse of Alcoholic Liquors" while in 1853 he published a subsequent tract, "On the Physiology of Temperance and Total Abstinence". He organised the Gilchrist Trust (a scheme of popular science lectures) lecturing all over the country. Unlike Wallace, however, he was a zealous champion of vaccination. From 1861 – 65 he was one of the editors of *Natural History Review*. The last public movement in which he took an active part was the foundation of the Marine Biological Association and the establishment of its laboratory at Plymouth.

Throughout his life he was an active and orthodox member of the Unitarian Church and played the organ and conducted the psalmody at Hampstead for several years. This probably accounted for his incomplete acceptance of 'Darwinism', believing that natural selection left untouched the evidence of design in creation. The dominant conception of his life was said to be that of duty.

Darwin and Carpenter

The two books which exerted a great influence over Carpenter's mind in his student days were, according to his biography, John Herschel's *Introduction to the Study of Natural Philosophy* and Lyell's *Principles of Geology*. According to his own account, Carpenter to some degree modelled his *Principles of General and Comparative Physiology* (1839) on Lyell's *Principles of Geology*. More importantly, as far as Darwin was concerned, Carpenter discussed von Baer's theory in his book. However, it was not until he had moved to London in 1844 that Carpenter first wrote to Darwin offering help in the microscopic examination of his geological specimens from Chile and the Pampas Tufa. Following some correspondence on the matter during early 1845 Carpenter returned Darwin's material (after sectioning) via the Geological Society (then in Somerset House). Later (1846) Darwin enquired of him about artists who were capable of drawing under the microscope. Then in early 1847 he not only went to Carpenter's house but on his advice also purchased two microscopes (Smith & Beck) – a single lens dissecting microscope for use in dissecting cirripedes and a compound microscope.

Previously, in 1843, Carpenter suggested from an examination of shell structure that the Hipparitidae formed a connecting link between the oysters and barnacles, then in 1854, in the 4th edition of his *Principles of General and Comparative Physiology*,

Carpenter espoused the idea of a single progressive sequence of organisms from the more general to the more special. He also adopted in this publication Louis Agassiz's idea that, just like ontogenetic development, the history of fossil animals, in particular fish, progressed from general to special forms thereby suggesting that major 'evolutionary' changes were the result of modification of embryonic development. Darwin on a slip of paper attached to his copy of this work noted:

"p79 Highfish. NB I think on this subject there is much difference whether we look to fish alone or to other classes???"

Then on a separate slip:

"the differences between high and low fish, I think is whether other classes are considered besides fish."

In other words, Carpenter believed in a form of macroevolution. Then later that year in a letter to Hooker, Darwin wrote:

"I am extremely glad to hear that Carpenter appreciates your essay because it raises C. in my estimation, and he already stood high from the manner in which he has done his *Comparative Physiology*" (May 1855).

In another letter to Hooker, Darwin states that he is compiling information on hybridisation and notes that:

"the difficulty has wonderfully enhanced my respect for Carpenter *ed id genus omme*" (14 July 1855).

In *Principles* Carpenter had discussed hybridity, monsters and the origin of variation (pp 632–640) while another of Darwin's correspondents – Thomas Bell Salter – had discussed Carpenter's experiments on plant hybridisation in his letter of 25 June 1855. Later in 1855, in a referee's report on Carpenter's paper on Orbitolites Darwin commented:

"that very many of the figures used were given to illustrate intermediate forms as well as variation but that he seems rather to overrate the novelty of connection forms".

In January 1858 Darwin wrote to Carpenter asking him if he might help with some experiments on the fertilisation of kidney beans by planting them in the garden of his summerhouse on Holy Island. On July 1st, later that year, Carpenter was one of those present at the reading of the Darwin-Wallace papers on natural selection at the Linnean Society. That Carpenter was particularly impressed by Wallace's contribution can be deduced from his subsequent review of *The Origin of Species* in January 1860 (see below).

In November 1859 Darwin sent Carpenter an advance copy of *The Origin* for his perusal and Carpenter replied to the effect that he had found the last chapter very convincing. Darwin then asked him if he found his view in the main true, would he review the book?

"I am sure from the admiration which I have long felt and expressed for your *Comparative Physiology*, that your review will be excellently done & will do good service in the cause for which I think I am not selfishly, deeply interested." (Nov. 18, 1859)

Then in a letter to Hooker (20 Nov, 1859) Darwin commented:

“I have heard from Carpenter who I think is likely to be a convert”.

In early December Carpenter wrote again to Darwin telling him that he was going to review his book in the *National Review*:

“I have had letter from Carpenter this morning: he reviews me in National. He is convert, but does not go quite as far as I – but quite far enough; for he admits that all Birds from one progenitor; & probably all fishes & reptiles from another parent. But the last mouthful chokes him – he can hardly admit all Vertebrates from one parent. – He will surely come to this from Homology & Embryology. – I look at it as grand having brought round a great physiologist, for I think he certainly is in that line. – “ (letter to Lyell, 3 Dec., 1859)

Darwin then wrote to Asa Gray (24 Dec., 1859):

“Huxley, a first-rate zoologist & Carpenter a first-rate physiologist are converts, as is H.C. Watson.”

Carpenter’s review of *The Origin* was published in the *National Review* (January 1860). However, he also discussed Wallace’s contribution to the Darwin-Wallace papers as well as Baden Powell’s 1855 paper! In a letter to Carpenter congratulating him on his excellent article Darwin noted:

“It seems to me to give an excellently clear account of Mr Wallace’s and my views” (Jan. 10, 1859).

Carpenter’s review clearly touched Darwin’s conscience for he added Alfred Russel Wallace’s name to the concluding passage of the second edition of *The Origin*. The sentence reads:

“When the views advanced by me in this volume, and by Mr Wallace in the Linnean Journal, or when analogous view of the origin of species are generally admitted, we can dimly foresee that there will be a considerable revolution in natural history.”

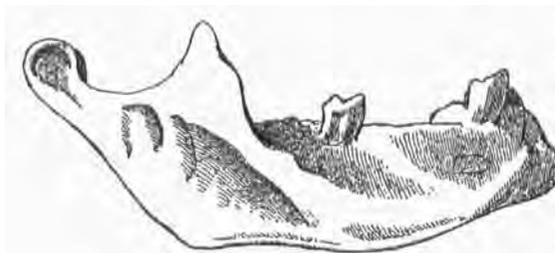
In April 1860 Carpenter’s review of *The Origin* was published in the *British and Foreign Medico-Chirurgical Review*, in which he also reviewed Hooker’s papers of 1853 and 1859. Darwin in a letter to Lyell commented:

“there is a long review by Carpenter very good and well balanced but not brilliant” (April 10, 1860).

Nevertheless, in his review Carpenter wrote that he was strongly convinced of the truth of natural selection, but that it seemed to him probably that each of the great types owed their origin to creative forces:

“so too there seems to us so much in the physical capacity of Man, however degraded to separate him from the nearest of ‘the Mammalian Class’, that we can far more easily believe him to have originated by a distinct creation than suppose him to have had a common ancestry with the chimpanzee and to have separated from it by a series of progressive modifications.”

As in his earlier review Carpenter allowed all of the birds to have arisen from one progenitor, although not from the same line as either reptiles or mammals. Instead, he advocated separate creations for each of the amniote groups as well as for Man.



Sketch of the Moulin-Quignon jaw made for Carpenter by Boucher de Perthes:
from Carpenter, Busk & Falconer, *Nat. Hist. Review*, 1863
(see also *The Linnean*, 15(2):11).

This latter view – that Man was a special creation – was later adopted by Wallace (1867) much to Darwin’s consternation, Wallace having previously introduced the idea of kin selection to account for Man’s rapid increase in brain size in his seminal paper on the evolution of man (1863) and which Darwin considered:

“the best paper that has ever appeared in the *Anthropological Review*”
(Darwin to Wallace, 1887).

This abrupt change in Wallace’s view was a consequence of his adoption of spiritualism. Interestingly, in the late 1860s, Wallace lived in St Mark’s Crescent, Regents Park, close to Carpenter whom he often visited. Carpenter tried in vain to convince Wallace of the organic nature of *Eozoon canadense*¹, while Wallace invited both Carpenter and Tyndall to seances at his house in St Mark’s Crescent where they apparently heard rapping sounds. Tyndall commented:

“We know all about these raps. Show us something else. I thought I should see something remarkable.” (Wallace, *My Life*)

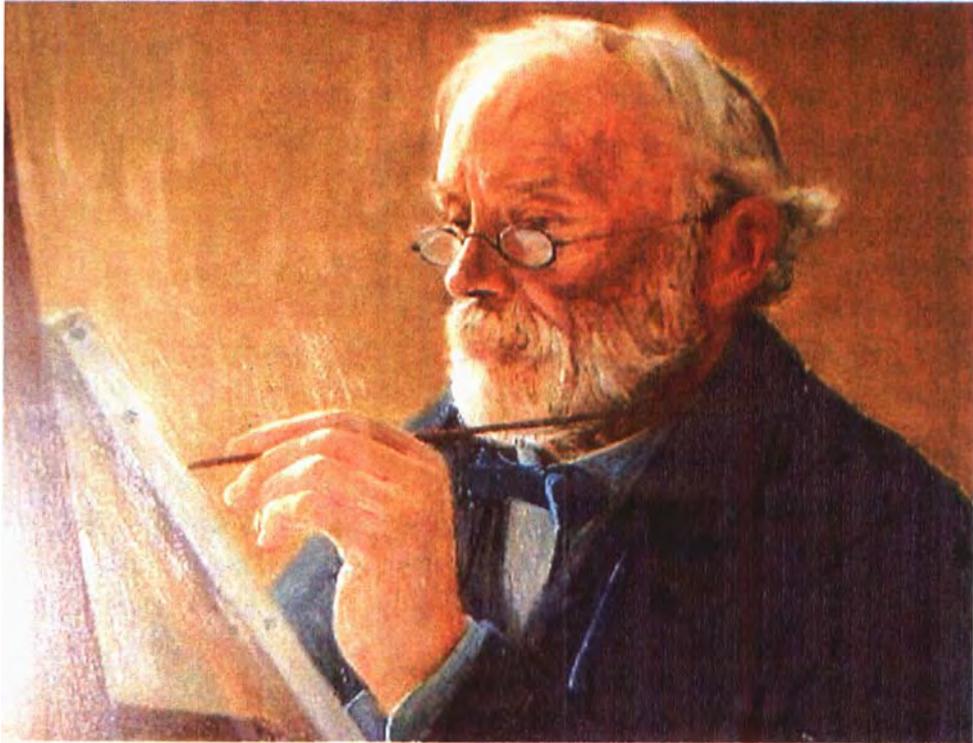
while Carpenter commented:

“people can only believe new and extraordinary facts if there is a place for them in their existing fabric of thought.”

Much later, when Wallace was President of the Biological Section of the British Association Meeting in Glasgow in 1876, it was announced that there was to be a paper on experiments in thought reading by W.F. Barrett. The reading of this was opposed by Carpenter – but since it had been accepted by the section it was read.

Later that same year, Ray Lankester while still a student gained international

¹ It has subsequently been shown that *E. canadense* is no more than a curiously layered mineral deposit formed by heat and pressure on the Laurentian limestones – deforming and altering them and in so doing producing intermittent layers of the green coloured mineral serpentine. (See also *The Linnean* 16(1):41, Fig. 9).



Clue: A quaker botanist, friend of Ruskin's.

attention when he prosecuted the famous American medium Henry Slade. Lankester and a friend attended a seance and ambushed Slade by snatching a slate from his hand in the darkened room. Darwin sent Lankester £10 towards the cost of prosecuting Slade "as a public benefit". Sadly, Wallace was one of the key witnesses for the defence. Slade was convicted but freed on a technicality (see Milner, 1999).

Reference

MILNER, R., 1999. Huxley's bulldog: the battles of E. Ray Lankester (1846–1929). *The Anatomical Record (New Anat.)* **257**:90-95.

The January 2000 Quiz produced a single winner: Steven Darwin, who will receive a reprint from the Society's Archives.

B.G. GARDINER

From the Archives

*In the footsteps of Richard Spruce:
A walk on the North York Moors*

Richard Spruce was an outstanding Victorian naturalist who devoted his life to the exploration of the Amazon and the Andes of South America. Born in 1817 his childhood was spent among the small Yorkshire villages scattered around Castle Howard. With little formal scientific training Spruce was a self-taught botanist who developed his skills for observation whilst exploring the Howardian Hills of his native Yorkshire.

From 1841 Spruce kept a record of his field trips in a notebook which is now in the library of the Linnean Society. One of the earliest entries in this 'List of Botanical Excursions' is a visit to the North York Moors. Later he wrote an account of the three days spent collecting with his friend Henry Ibbotson, which was published in *The Phytologist*¹. Spruce provided a detailed record of the plants they found as well as precise locations. I thought it would be interesting to retrace Spruce's footsteps and compare his records with a visit some one hundred and fifty years later.

My first task was to trace Spruce's route on a map with the help of the place names he provided. This was possible by using a combination of modern maps and the first edition of the Ordnance Survey for Helmsley². However it soon became apparent that what in 1841 were minor tracks had been transformed into major trunk routes. I therefore decided to walk along footpaths wherever possible and then use a car to avoid hours of tedious walking along major roads.

At 9 o'clock on the morning of Tuesday 29th June 1841 the two friends left Ganthorpe, walking west to the village of Terrington and then turned north through Coulton to Coulton Moor and Gilling. Here they probably left the road to take a steep path to Ampleforth Mill. In all likelihood this was a saw mill to the west of Ampleforth. They then continued on up to Wass Moor where they searched unsuccessfully for the alpine clubmoss. Up to this point Spruce had only recorded nine species. The foxglove and crowberry are very common while the longstalked cranesbill and mountain everlasting are today fairly rare in the national park³. What was moorland is now smothered in conifer plantation.

Having reached what is now the busy A170 the two botanists were caught in a tremendous thunderstorm and were soaked by the time they arrived at Hambleton Hotel, about two miles to the west. This is now a public house and no longer offers accommodation unless you are prepared to camp. After a rest Spruce set off for Whitestone Cliff for the final botanical foray of the day. The Cliff is a sheer face of about 20m of massive sandstone, beneath which are scree and boulder strewn slopes. The escarpment runs north-south and at about 320m above sea level provides stunning views over the Vale of York. Over the next two hours Spruce and Ibbotson explored the area and descended to Gormire Lake. In all they recorded 18 species, half of which were bryophytes and ferns. Much to my surprise, my own list of plants differed significantly from Spruce's. In about an hour I recorded 32 species, few of which had been noted by Spruce. In fact the only plant that we both listed was the bog bean down at the lake. Spruce found the pillwort, which is no longer recorded in the national park. Has the



Richard Spruce. Drawn by Elmer W. Smith from a photograph in the Gray Herbarium, Harvard University, taken before Spruce left for South America.

flora changed so dramatically over the last century and a half? Or was Spruce being very selective about the plants he recorded? I think the latter is probably unlikely as Spruce's list contains a mix of both very common as well as rare species. The area is now protected as the Garbutt Wood reserve of the Yorkshire Wildlife Trust, and is a place well worth visiting. The great crested grebes, which are summer visitors to Gormire, are an added bonus.

Rain, the next morning, kept Spruce and Ibbotson in their lodgings until 9am. They then walked the short distance to the village of Scawton where they found what is now the rare flattened meadow grass (*Poa compressa*) growing on an old wall. They then clambered into a deep valley called Bradley Howl where they collected ferns, mosses and liverworts. I should point out that early on I gave up attempting to compare Spruce's list of bryophytes with those found today. Though I found most of Spruce's species in Wilson's *Bryologia Britannica* (1855) taxonomic revisions have meant that only two of the ten names have been retained in modern floras⁴.

The next place where the two botanists stopped to collect was described as 'a boggy mead within a short distance of Rievaulx'. Here they found the now rare birdseye primrose. It is possible that they were collecting in or very near what is now the Yorkshire Wildlife Trust reserve of Ashberry Pasture. The geological complexity of the valley provides a variety of habitats in a small area with a corresponding diverse flora. The reserve still contains birdseye primroses though they had finished flowering when I visited. The area is particularly rich in orchids with the common spotted, fragrant and twayblade all in flower at the end of June.

In his account Spruce specifically noted that the small flowered cranesbill was found 'on the bridge which crosses the Rye'. The bridge is still there but sadly there were no *Geranium pusillum*.

After passing through the ruins of the Cistercian abbey at Rievaulx, Ibbotson and Spruce cut across country to the north until they reached Dark Gill. They followed this valley southwards until it becomes Etton Gill and Beck Dale. The latter extends to the edge of the town of Helmsley. Their list of plants contains some species now rare in the National Park: the green hellebore, baneberry, common wintergreen, herb paris, and the mountain melick. They also found the dwarf elder, which is extinct locally. I was unable to find any of these, nor the commoner species such as marsh hawksbeard or sweet cicely. The only species common to both our lists was the giant bellflower. They searched unsuccessfully for the lady's slipper orchid which is now only to be found in the one site in the Yorkshire Dales. Once again the area has probably changed much since Spruce's visit. There are now extensive conifer plantations with bracken much in evidence. At least I could appreciate the profusion of wild strawberries fruiting on the dry banks of the forestry tracks.

It was not until early evening that Spruce and Ibbotson reached Helmsley. Rested and fed they started again and reached Pickering, some twelve miles away, at 10pm. Their route followed the now busy A170 so I retraced my steps to the car. On their third day they took the railway, still in existence, up to Rain Dale. They then turned east across the 'barren moors' until they reached the Hole of Horcum. This is a natural depression, caused by extensive spring-sapping. Apart from the common plants such as crowberry and bilberry they discovered the lesser twayblade and fragrant orchid. They also collected the dwarf cornel, a relic of post-glacial arctic vegetation. These plants are one of only three populations in England. Whilst my walk finished here, Spruce and his friend had a nine mile hike back to Pickering along what is now the A169. The next day they returned to Ganthorpe travelling along minor roads or tracks.

Time and again I was unable to find the plants that Spruce recorded at specific locations. Although we both undertook our trips at the end of June it is possible that with variations in flowering times we had missed species seen by the other. However, what is clear is that there has been a change in land use over the intervening century and a half. Even national parks are not immune to change and in particular the spread of conifer plantations. Whilst no doubt Spruce would have bemoaned these changes he would still have appreciated the glories of his treasured landscape. These flat hills, dissected by small steep sided valleys, are so characteristic of the North York Moors and still provide a rich flora for all to enjoy¹.

MICHAEL PEARSON

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Correspondence

3.5.2000

17 King Edwards Grove,
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Dear Brian

The picture quiz in the April issue of *The Linnean* shows Benjamin Carpenter, Professor of Forensic Medicine at University College, who also lectured at the Ladies College in Bedford Square. He wrote books on comparative physiology, and was a friend of T.H. Huxley.

In the summer of 1868 he spent time with Charles Wyville Thomson aboard H.M.S. *Lightning* dredging the waters between Shetland and the Faeroes. In the next year they used H.M.S. *Porcupine* and discovered life at depths of 2000 fathoms, thus laying the foundations for the Challenger Voyages.

He died at the age of 72 from burns received after knocking over the heater of his vapour bath.

Best wishes

JIM GREEN

11.2.2000

25a Montague Road,
Richmond, Surrey TW10 6QW

Dear Sir,

Cedars of Lebanon in British Estates: and a request for historical information

Scattered across Great Britain and Ireland are great houses with stately trees in their grounds, including noble cedars of Lebanon. Even when the mansions have been demolished the cedars remain in the parkland, but their histories have been forgotten. Were these raised from seeds brought back by the landed gentry who either sponsored expeditions or went to Lebanon themselves? For example, at Kingston Lacey in Dorset it is recorded that the cedars were raised by William John Bankes' mother from seeds he sent back from his Syrian expedition in 1714 (Dorchester C.R.O.).

W.J. Bean in his *Trees and Shrubs Hardy in the British Isles* (Eighth edition Revised Vol. I: 560–561, 1970) includes a list of such sites where notable cedars had been measured prior to publication. It is said there that some of the planting dates are known. Alan Mitchell, *Conifers in the British Isles* (HMSO 1972, pp. 65–67) includes details of many others. I am in touch with the National Trust which is already involved in an enquiry about their own ancient trees in order to continue the wide gene base of the existing trees by propagation.

At the suggestion of Mrs Deborah Manley, such information would be used by the writer for a paper and lecture on 25 Feb. 2001 in Oxford to the recently formed Association for the Study of Travel in Egypt and the Near East (ASTENE).

Unfortunately, it is likely that such 200-year old cedars are now dead or dying and we are losing historic trees. There is no time to be lost in recording such cedars before they all disappear with changes of ownership and the records go missing. Any

information would be gratefully received by the writer. Please restrict it to Cedar of Lebanon (not Atlas or Deodar).

Yours sincerely
NIGEL HEPPER

11 May 2000

West Mains, London Road,
Ascot SL5 7DG

Dear Brian,

The Selous Sneeze

I see that Selous the big game hunter featured in *The Linnean* recently. He was an important customer/supplier of Rowland Ward, the London taxidermist. I recall a story about him published by Ward in his autobiography (*A Naturalists Life Study in the Art of Taxidermy*) a few weeks before he died in 1912. Few people will have read this tale as Ward's book was privately published and is exceedingly rare. So, as an addition to the Selous saga, here is the tale verbatim:

"A curious incident with regard to Selous is worth relating here. He was walking down Bond Street with me when he sneezed. I made a remark, "You have a bad cold". He replied, "I did not know it". When he reached my place in Piccadilly, a piece of wood (part of a branch of an ebony tree, hard African wood) came from his nose and passed out through his mouth. I was so struck with the size of the fragment, which was quite three-quarters of an inch long, and the circumstance that it had been stowed away seven or eight months without his being aware of its presence, that I mounted it in gold and presented it to Mr. Selous as a memento. I also took a cast and reproduced the fragment, and mounted it as a scarf-pin for his travelling companion, Mr. J.S. Jameson."

The circumstances which led up to this occurrence are related by Mr. Selous in one of his books. He was cantering after a bull eland, and thinking he might possibly have gone upstream, he turned in the saddle to look behind him, but without checking the horse. "Not seeing the eland, I brought my head round again," he says, "and got a fearful blow in the right eye from the point of the overhanging branch of a dead tree under which my horse had taken me. The blow half stunned me, and knocked me right out of the saddle on to my horse's quarters. At once checking him, I regained my seat, and putting my hand up to my eye, which was closed, found I was bleeding pretty freely. At the same time I felt very sick, but saw with my left eye the eland bull trotting away about two hundred yards off on the other side of the river, and still making straight for our camp. I at once got my horse down the bank, crossed the stream, and was soon once more close behind the eland. I felt very sick, but as our camp was now not more than two miles off I determined to try and get him in. He went steadily on till within five hundred yards, when I think he must have winded something, as he suddenly stopped and would not go a step further. Feeling that I should soon faint, I dismounted, and looking at the eland with my left eye, raised my rifle and sent a bullet through his lungs, and then remounted and galloped into camp, where there were several Europeans. Mr. Tainton set out with Kaffirs and got in the eland meat, and Mr. Roukesby and my old friend Mr. Thomas Ayres, the well-known South African ornithologist, looked after me. I must

have had concussion of the brain, as I became unconscious, and vomited up everything they gave me, even tea; so that they got frightened, and on the following morning sent boys to call Dr. Crook, who was hunting with Mr. J.S. Jameson at the distance of a day's journey to the north.

Dr. Crook doctored me secundum artem, and the hole in the corner of my eye healed up. It was, however, more than a month before I could see again with my right eye."

Yours sincerely,
P.A. MORRIS

7.9.99

3 Court View, Tennis Drive,
Nottingham NG7 1GP

Dear Professor Gardiner,

You encouraged me to think that a note about my recent excursion to Assam might interest members of the Society. Arunachal Pradesh has long been out of bounds to visitors. However, last November I was able to join the first group of tourists allowed into the area: groups are subject to many restrictions, a substantial per diem tax, a five-day limit, and cannot travel unescorted. Our group trekked in the Abor area, the focus being the memorial erected to the Political Officer Noel Williamson whose murder by Abor tribesmen in 1911 prompted a large scale punitive military expedition. A number of scientists – botanists, geographers, anthropologists and zoologists – were invited to accompany that expedition. One happy consequence was the finding of a number of Onychophora (Peripatidae) by Stanley Kemp, at that time Assistant Superintendent Indian Museum (Calcutta), near the base camp at Rotung. These were subsequently described by Kemp in *Zoological Results of the Abor Expedition 1911–1912, Records of the Indian Museum, Calcutta*. 8, 471–492. who named the species *Typhloperipatus williamsoni*, to commemorate the murdered man. The species is distinctive in lacking eyes.

The exigencies of group travel did not permit serious collecting along the trail to Komsing village, where Williamson was murdered, but it was clear from talking to locals that these animals are known in the vicinity. Again, time allowed only a brief photographic halt at Rotung, the type locality near the Dihang river. Unlike the Western Himalayas where I have also trekked, the whole area is still covered by impressive primary rainforest which is conservatively exploited by a relatively small population who live in traditional villages and follow a 'slash and burn' economy.

This episode intrigues me greatly, and I am currently trying to establish how many specimens were found in 1912, for Kemp used remarks such as 'a considerable number' but gave no final count, although males were found as well as females and juveniles. There are three females in London: Hilke Ruhberg tells me that Kemp deposited other specimens during a visit (when?) to Khartoum. If anyone can give me additional information it would be greatly appreciated. That specimens have been found recently is indicated by a recent article 'Acid mucopolysaccharides in the body cuticle of the peripatus, *Typhloperipatus weldoni* [sic] in relation to the cutaneous mode of sperm transfer' by researchers at the North-Eastern Hill University, Shillong,

in the Indian publication *Journal of Endocrinology and Reproduction*' (Raghurvarum, A., Dey, S. & Hermann, H.R., 1998, 1:80–85).

Yours sincerely,
VIRGINIA VAN DER LANDE

In pursuit of the Northern Vietnamese Blueberries

Ericads, both blueberries and rhododendrons, growing on limestone massifs – surely not. Experiments in blueberry culture conducted by Coville almost 100 years ago discounted, apparently forever, the notion that these plants could thrive in alkaline or calcareous soils. Consequently, whenever someone told me they had seen blueberries growing on limestone, I became a steadfast Missourian.

Yet here I was on the summit of Mt. Háchà, on a warm November afternoon in 1997, stumbling over and through cotoneasters and ericads, both *Rhododendron* and *Vaccinium*, growing happily on a limestone razor back ridge at 1900 m. A sight I had never expected to see, and indeed was almost denied from seeing, by functionaries who all along the line tried their level best to discourage us from these northern ridges of Vietnam.

My first hint of problems to come was the encounter with the visa officer at the Vietnam Embassy on Victoria Road. “Sorry sir, Hanoi sent your visa number to Ottawa.” “Why?” “You are a Canadian.” “No, I am a Frisian.” “But you have a Canadian Passport.” “Yes, but we all have problems, don’t we.” “Can you leave your Passport with us?” “Not really, I am leaving for the Azores tomorrow.” One could hear the little grey cells ticking over. “OK, you give me £50 and come back in two weeks.”

Two days before I was scheduled to leave for Hanoi, I returned to the Vietnamese Embassy and within 10 minutes a visa was imprinted on my passport. Little did I know that all this visa allowed was entry to Hanoi.

On 11 November I set out from Hanoi in an ancient Russian jeep, accompanied by Dr. Hiep, and his graduate student Dzu. (His real name is Du, but when he visited Kew, it was pronounced by all as “Du” which is your four letter friend getter in Vietnamese, so he stuck in a Z and said his name was pronounced “Zu”.... Not surprisingly, his current nickname in Hanoi is “Zu Zu”.) The badly maintained roads of North Vietnam were in retrospect the least of our worries, however much they rattled our innards, for intestinal fortitude was to be repeatedly tested by the “Party”.

Arriving in Hà Giang in mid-afternoon, our first stop was not a suitable guesthouse but rather the governor’s office. After a good hour, Dr. Hiep returned with marvellous news – we were permitted to stay in his province provided the chief of police agreed. Off to police headquarters and another hour or so spent in a small guard room drinking many small cups of green tea whilst Dr. Hiep was closeted in a distant office with his impressive document file. I must not have posed a serious threat, in as much as we were permitted to stay in the Province.

Next morning, we paid a visit to the Ministry of Forest Protection. Time passed and

these officials suggested the Ho Bang region which still had some reasonably intact primary forests. We headed northwards, bumping along rutted tracks, stopping at Quan Ba for consultation and tea (and, if we wished, a puff on the water pipe), arriving some 10 hours later at Party Headquarters of Dong Van where we were billeted. After supper, Dr. Hiep disappeared for several hours of "consultation" with local party dignitaries and officials including the police and military. At length, it was decided that we could visit a couple of peaks with intact and pristine primary forests provided we were willing to take along a "police" escort and guide. Absolutely no problem, anything to get out of this jeep and onto some of these blackened Massifs.

At dawn, on 13 November we set out with our minder to Pho Bang. Driving along in a jeep for an hour or so always calls for an inevitable "rest-stop" but now our minder reminded us that this province is divided into 23 military districts and our papers indicated that we only had permission to stop in two. Consequently, it would be better all round to hold it until we arrived in Pho Bang where we had permission to stop. After all we would not want to alert the Chinese to anything untoward would we? 'Motor on McDuff', we shouted in unison. We arrived in Pho Bang about 11 a.m., relieved ourselves, and were again billeted at Party Headquarters. After having had lunch with local party officials, the Vice President of the local committee offered himself as our guide for the afternoon. Finally, having travelled 380 km in two and a half days, we set out to collect plants on the summit of Mt. Háchà, in the presence of two minders.

This pattern of close consultation was to be repeated for each subsequent field trip, *mutatis mutandis*, especially the flavour and texture of the local fire water meted out in teacups after each successful sortie.

The full oddity of these excursions can be appreciated if we envision such a field trip to Yes Tor on Dartmoor. First we call on the Warden of Devon in Exeter, who agrees that we can stay in the county provided that the chief constable concurs. With their blessing, we motor to Okehampton thence to the local Socialist/Conservative Headquarters, where we are billeted. After meeting the local president and vice-president of the Horse Riding Association and in conjunction with the colonel of the Okehampton regiment, it is decided that we may search Yes Tor for *Vaccinium myrtillus* provided we take a constable and guide from the local Horse Riding Association. We set out with our minders for Yes Tor, collect our specimens and on our return to Okehampton are treated to pints of the local bitter at Socialist/Conservative Headquarters.

The oddity of blueberries growing on limestone outcroppings I cannot as yet explain. Nonetheless three observations stand out and must be accounted for in any proposed hypothesis. (1) These ericads only occur on bare limestone or limestone covered with mosses and organic debris at 1700 m and higher, never in local depressions where calcareous soils had developed. (2) Many of these ericads are also epiphytic where they are restricted to an organic habitat. (3) These Vietnamese limestone massifs are the result of uplift and metamorphosis of vast coral reefs and not from the cooking of clay sediments.

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The Rt. Hon. Sir George Grey, K.C.B. (1812–1898) Colonial Administrator, Naturalist, Botanist and Horticulturist

In mid-19th century London, when conversation at dinner parties flagged, there was no better way of stimulating discussion than to mention the name of Sir George Grey. People either admired him or detested him and, since his name was seldom out of the pages of *The Times*, all educated persons in Britain had heard of him. Today, one hundred years after his death, few people have heard of Grey apart from some anthropologists and botanists, although his name is still remembered in the countries where he governed – South Australia, New Zealand and South Africa.

George Grey had considerable intellect and many talents. He was courteous, charismatic and helpful to people of all races who worked under him. Political rivals found him egotistical, unscrupulous, arrogant and dangerously wilful. In his political thinking he was many decades ahead of his time and once remarked that as a governor he considered his actions by the consequences in a hundred years time. He was a visionary colonial reformer whose views have been described as a peculiar mix of liberalism and imperialism. He encouraged education for all races and opened multi-racial hospitals. He also promoted the building of roads and railways, port facilities, telegraphs and industries in far away colonies.

Grey's outside interests included exploration, rare book collecting, cultural anthropology and horticulture. He was also a good field naturalist, especially interested in botany, birds, mammals and fossils. He had connections with Kew and the Natural History Museum.

George Grey came from an English banking and military family and his mother was of Anglo-Irish stock. He was the only son of Lieutenant-Colonel George Grey who was killed shortly before his birth, whilst storming the fortress of Badajoz in the Peninsular War. Grey's mother subsequently married an Anglican clergyman who was an excellent stepfather. He arranged for George to be tutored privately by a liberal theologian, the Revd. Richard Whately, who later became Professor of Political Economy at Oxford and, finally, Anglican Archbishop of Dublin. Whately was a progressive educationalist who, in addition to classics, also taught mathematics, accountancy, history, English literature and geography. He was persuasive but not dogmatic; Grey's strong Anglican faith and liberal ideals stemmed largely from Whately.

Following this unusual education, George entered Sandhurst where he was later found to be gifted at mathematics. In 1830 he was commissioned ensign and sent with his regiment to Ireland. This was to colour his future career. He promptly allied himself with the impoverished peasantry and did not get on with his fellow officers. However, after an advanced course at Sandhurst, he was highly commended and promoted to Lieutenant in 1833.

After reading a book about exploration in Australia and also *Principles of Geology*, just published by Charles Lyell, Grey, anxious to get away from the army in Ireland, approached the Colonial Office to sponsor an expedition to north-west Australia. The ostensible objective was to look for land which Irish immigrants could colonise. This



The Rt. Hon. Sir George Grey, K.C.B. (1812–1898)

proved to be abortive. Instead, Grey was seconded by the War Office and sponsored by the Royal Geographical Society. He soon after met Charles Lyell and they became lifelong friends.

Meanwhile, he had to await the return of H.M.S. *Beagle*, bringing Charles Darwin back, in 1836, from his epic voyage. Grey was to sail on her next voyage. He met Darwin and Admiral Robert Fitzroy, the *Beagle*'s captain, at a reception of the Royal Geographical Society. Fitzroy was awarded a medal, for his marine survey work, which produced detailed charts of the South Atlantic that were still of use in the Falklands War of 1982. Darwin suggested to Grey that he should visit Robert Brown, the botanist at the

Natural History Museum, who had taught him microscopy. Darwin visited the *Beagle* once more after her refurbishment, and then in 1837, Grey and his small party set sail for Perth under a new captain.

Grey was now twenty-four years old, three years younger than Darwin, and completely inexperienced in exploration. In consequence, he arrived in north-west Australia in the middle of summer. The party charted an area of country and named a peak (Mount Lyell) but were then ambushed by hostile aboriginals. Grey was speared in the thigh, a wound which troubled him for the rest of his life. When they resumed their exploration north of Perth there were further disasters, culminating in the wrecking of their small boat with the loss of all their supplies. This necessitated an epic trek on foot of 300 miles to Perth, through arid country with little food or water. Grey went on ahead to Perth, sending a search party to pick up other members of his group. Only one man had died.

Grey's tenacity and leadership skills led to his promotion as Captain in 1839. He was sent as resident magistrate to King George's Sound, Western Australia, where he married Eliza, the daughter of the departing magistrate. Here he studied the friendly aboriginals and, fascinated by their culture and language, wrote a book on their vocabulary and dialects. Grey also started writing a major work in two volumes, entitled *Journal of Two Expeditions of Discovery in North-West and Western Australia during the years 1837, 38 and 39*; accompanied by his sketches, it was published in 1841.

Whilst a magistrate, Grey wrote a memorandum to the Colonial Office with suggestions for 'civilizing' the aboriginals by providing work and sending their children to Christian boarding schools. The idea was flawed but it so impressed Lord John Russell, the Liberal Colonial Secretary, that he sent copies to all colonial governors. It did not work because when children finished their schooling they drifted back to their homelands and families. This, Grey believed, was because they were not accepted as equals by the white community. He remarked in the *Journal*, "all experience has shown that the existence of two races, one of which from any local circumstances is considered inferior to the other, is one of the greatest evils under which a nation can labour". He was strongly against racism and was even sympathetic to mixed marriages. It is reputed that Queen Victoria and Prince Albert read the *Journal* with great interest.

Grey resigned his commission at the age of 26 to become Lieutenant Governor of South Australia in 1841. The colony was in a precarious financial state as the settlers had largely abandoned the countryside to live in Adelaide. It was under-producing and increasingly indebted to the British Exchequer. Grey set about pruning expenditure. His cuts included the smallest items such as not paying a boy to sharpen pencils at Government House. By punitive taxes he drove people back to the countryside. By a stroke of fortune, good harvests followed and copper was found, and so, by the time he left in 1845, South Australia's economy was in much better shape.

His only child, a son, was born in Adelaide but died five months later. Unfortunately, his wife could not have any more children so they adopted his late half-brother's young daughter.

Grey was subsequently appointed Governor of New Zealand in succession to

Admiral Fitzroy. Fitzroy did not enjoy a good rapport with the Maoris and, when Grey arrived, there was already a revolt in progress in the Bay of Islands, North Island. The subsequent Treaty of Waitangi of 1840 stated that all land belonged to the Maoris with a right to sell plots to settlers, while the Colony belonged to the British Crown. Grey's policy was to incarcerate rebellious chiefs, while maintaining personal contact with friendly groups. He favoured the sale of plots of land to settlers in the sparsely populated South Island but not in the North Island, except around Wellington. He had a lack of sympathy for pastoralism and its need for land on which to keep sheep on the Canterbury Plain. He cancelled pre-1840 land claims by missionaries. He governed the colony autocratically, but benevolently, treating Maoris and settlers alike.

His government secretary, Dr. A. Sinclair, was an able naturalist, especially interested in botany, who accompanied Grey on his travels to visit these groups, usually on horseback. Thus, he was introduced to the unique fauna and flora of New Zealand.

Darwin was asked to comment on Grey's *Journal*, by an author who was writing a book on Australia. He replied, "Poor Grey has made a very amusing book but what a catalogue of mishaps and mismanagements. The whole expedition was that of a set of schoolboys." It was sent to Grey in New Zealand by his publisher. He returned it brusquely to Darwin who was horrified and immediately wrote a most apologetic and contrite letter back to Grey, in which he said that he appreciated his work on the aboriginals. In another letter to his friend Fitzroy, who had not yet left New Zealand for England, Darwin described his embarrassment over what had happened and said that under the circumstances he hoped he would never see Grey again as he would feel so uncomfortable. Subsequently, Grey wrote a most understanding letter to Darwin, ending that if he needed any specimens of New Zealand plants and animals for his studies he would gladly provide them. In his response, Darwin said that he had a most pleasant recollection of their former acquaintance.

John Eyre, the Australian explorer, who had been acquainted with Grey in South Australia, was made Lieutenant Governor of New Zealand under him, based at Wellington, while Grey was at Auckland. Wellington did not become the capital until 1865. The two men had a tempestuous relationship because, although Grey considered Eyre a good explorer with an understanding of native races, he found him a poor administrator. This was important because Whitehall was always cutting costs and, querying the smallest expenditure. On one occasion Grey turned up unannounced to inspect the books and found Eyre away on an exploration trip. A rift developed between the two men. When Eyre's fiancée arrived at Auckland after a long voyage from England, the Greys entertained her lavishly at Government House. For some reason, Grey did not immediately inform Eyre of her arrival, which he found out by accident a week later. Eyre arrived in Auckland in high dudgeon, saying that Grey was now trying to spoil his intended marriage. The young lady became involved, protesting in favour of the Greys' consideration for her. It was only because of Grey's diplomacy with his unaccustomed profuse apologies that the wedding went ahead smoothly.

In 1854 Grey returned to England and was made a K.C.B. (Knight Commander of the Order of the Bath), before being transferred to South Africa as Governor of The Cape of Good Hope. Prior to leaving New Zealand, he sent his large collection of Maori artefacts to the British Museum. His natural history collection was sent to the Linnean

Society of London. Unfortunately this was sold in 1863, together with other miscellaneous collections – many societies sold their collections at that time.

While in London, Grey was invested by The Queen and met Prince Albert at Windsor. The Archbishop of Canterbury invited him to Lambeth Palace to discuss reform of the Anglican Church of New Zealand.

When Grey became Governor, there were legislative assemblies of one year's standing in Cape Colony and Natal. Basutoland was an independent African state and the two Boer republics of Transvaal and Orange Free State had been given their independence, which Grey considered a mistake. The Zulus had not yet recovered from their defeat by the voortrekkers at the Battle of Blood River.

Grey was seriously worried by the poor relations of the Boer republics with their African neighbours, and feared that the constant border fighting would spill over into the Cape. Xhosa chiefs who were considered friendly were given stipends. Unwisely he also appointed British magistrates, which greatly undermined their authority. Rebellious chiefs were incarcerated on Robben Island, off Cape Town.

As in New Zealand, Grey made long journeys from Cape Town into the hinterland to meet local chiefs. He also took the opportunity to collect specimens of rocks, fossils, animals and plants. Plants and animals were collected along the way and preserved. Large game animals shot by Grey were dispatched straight back to a taxidermist in Cape Town. On a visit to the Natural History Museum in London, Grey once surprised a group of school children by saying that he had shot the magnificent specimen displayed in front of them.

One of Grey's longest journeys took him from the Cape, through Natal to see the powerful chief, Moshoeshoe who later said that he only agreed to end the border dispute with the Orange Free State because of his respect for Grey. After visiting Bloemfontein to confer with the Boers, he took a more direct route back to Cape Town.

When Grey had to leave the Cape seriously under defended after sending military reinforcements to India following the Mutiny, his personal relationships with the chiefs stood him in good stead.

Grey was a keen horticulturist and exchanged seeds and cuttings with numerous enthusiasts all over the world. He was in correspondence with Kew on the supply of seeds, corms and bulbs from the rich Fynbos Heath flora of the Cape, which has some 7,300 flowering plant species, including Ericas and Proteas. Many colourful Cape cultivars well known to gardeners, such as the Arum family, Gladioli, Chinchinchee, Freesias, Watsonias and pelargoniums were derived from species sent by Grey to Kew. Like many Victorians, he introduced plants and animals from other lands to countries where he governed. Thus he brought to the Cape blue-flowered Jacaranda trees and Oleanders from other continents.

Prior to leaving for South Africa, Sir George met Sir William Hooker, the Director of Kew, who introduced him to William Harvey from Trinity College Dublin. Harvey was interested in studying the flora of the Cape, and Hooker considered him a good botanist to undertake the work for *Flora Capensis*. Both Hooker and Harvey visited Grey in South Africa. When *Flora Capensis* was published, it contained a dedication to Sir George Grey, its patron, and the plant genus *Greyia* was named after him.

Sir George was also keenly interested in rare books and collected 20,000 volumes and manuscripts, in addition to books on natural history, science, anthropology and literature. He amassed the largest private library in the southern hemisphere. There is a strong tradition among Captonians, going back to the 19th Century, that Sir George leased a Cape Dutch house, still known as *Zorgvliet*, situated to the north of Cape Town not far from the southern slopes of Table Mountain. The two enormous rooms there would have been ideal for housing his library, as well as for entertaining. The minor road passing outside this house has, therefore, been named Sir George Grey Street. At the end of his term as Governor, Sir George gave his library to the people of Cape Town, and it is now housed in a special hall at the South African National Library.

Grey was keenly interested in medical improvements and, in 1855, a hospital was opened in the Cape, later named Grey Hospital, managed by his astute medical superintendent Dr. J.P. Fitzgerald, an ophthalmologist. It took in patients of all races who were treated by the medical and surgical team on an equal basis. In-patients, both black and white, were accommodated in beds in the same wards. This hospital soon developed a good reputation throughout the Cape and Natal. However, Fitzgerald considered the nursing unsatisfactory and asked Grey to try and get Florence Nightingale to bring her nursing team there after the Crimean war. Sir George met Florence Nightingale when in London, but with so many demands on her nurses, it was many years before a school of nursing based on the Nightingale model could be opened in South Africa.

When Grey arrived in the Cape as Governor, there were several missionary schools but although he was a High Anglican, he often favoured the teaching methods of Methodist schools. He took a strong interest in the education of both black and white children in the Cape and in the Orange Free State, where Grey College still exists. His first venture was to open a school for children of native chiefs under Bishop Gray of Cape Town, financed by the philanthropist Angela Burdett-Coutts. Sir George also took a keen interest in South Africa College, forerunner of the University of Cape Town. He attended meetings of their administrative body, was always full of suggestions, and spoke at their annual prize-giving ceremonies. At his last address in 1859, Grey said that they hoped to found a medical school at Cape Town. However, after his recall to London, the impetus which he always provided in local affairs was missing and it took another fifty years before medicine was taught in the Cape.

Sir George was strongly in favour of uniting all the states and colonies of South Africa in a loose federation. Although the Orange Free State was slightly in favour, the Cape legislature was not, and the intransigent Transvaal was not asked. Federation was the last thing that the British Government wanted and so he was recalled in 1859.

Before Sir George reached England, however, the Conservative government in London had fallen and the new Liberal administration requested him to continue at the Cape with the proviso that federation was not to be contemplated. After a short stay in London, the Greys returned. During the voyage, Lady Grey had what was termed a foolish romantic indiscretion and returned to London. Sir George insisted on a separation but they never divorced and came together again in their final years, although not harmoniously.

When he reached Cape Town, Grey tidied up his affairs there but could not settle

without his wife and asked for transfer back to New Zealand. This the British Government was glad to agree to as there was now a state of open revolt among the Maoris, tying down a substantial British garrison. Before leaving Cape Town, he met Prince Alfred, Queen Victoria's younger son, who, as a Naval midshipman, came to open the new docks, now the Victoria and Alfred Waterfront. The important Xhosa Chief, Sandile, was most impressed that the son of so great a chief should do menial work scrubbing decks. Grey suggested jokingly that if only the Prince would marry Sandile's daughter, Emma, he would have the means of ending Kafir wars for ever.

Back in London prior to his return to New Zealand, Grey met family and friends. He liked to visit the Zoo at Regents Park, so he joined the Zoological Society of London and was asked to write a letter on the extinct Moa for their proceedings. He also joined what subsequently became the Royal Anthropological Institute, and wrote a paper for them on Hottentot quartzite tools. He was proposed by a military friend for membership of the Athenaeum to which his close friend, Thomas Carlyle belonged, as did Darwin and J.S. Mill.

Grey was invited to meetings of the Royal Society by Sir Charles Lyell and met there Sir Oliver Lodge, the physicist and a pioneer of electricity and wireless telegraphy. In a book he wrote on the subject, Lodge acknowledged useful suggestions made by Grey. Darwin had recently published his *Origin of Species* and now lived at Downe in Kent. Grey never visited Downe himself but, on one of his rare visits to London, Darwin introduced Grey to T.H. Huxley who invited Grey to give a lecture on Maori culture. Grey also spoke with Sir Richard Owen, the director of the Natural History Museum, with whom he had corresponded while in South Africa. He met up at Kew with his old friends, Sir William Hooker, and his son, J.D. Hooker, then assistant director of the Royal Botanic Gardens. Grey never joined the Linnean Society, although he knew several Linnean Fellows. He spent very little time in London, and the Linnean was then very much a London-orientated society.

When Grey arrived in Auckland for his second term as Governor, it was very different from the colony he had left seven years before. There was now an elected assembly and he could no longer act autocratically. The Maoris of North Island were in a state of war but hopes that the presence of Grey could calm the situation were soon dashed. Nevertheless, he resumed his policies of defeating insurgent chiefs and confiscating their lands. One powerful chief held a fortified settlement which the General in command considered unassailable without additional troops. Grey took over command and successfully stormed the position.

Grey acquired the picturesque small island of Kawau in the bay near Auckland. He refurbished the large house, still known as Mansion House, where his married adopted niece and her children lived. In the grounds, he planted many Mediterranean, Australian and South African plants. Less prudently he also introduced monkeys, zebras, antelopes and wallabies. One species of wallaby, now extinct in Australia, was reintroduced there from Kawau recently. Mansion House currently belongs to the Department of Conservation, in Hauraki Gulf Maritime Park and is reached from Auckland by a daily ferry service.

Early in his colonial career, Grey got on well with the first two Liberal colonial secretaries in London that he had to deal with, Lord John Russell and then Earl Grey,

but he never had the same amicable relationship with later Government ministers. London was now finding Grey more and more difficult because he regarded orders as mere guidelines. He was finally recalled and left for London in 1868.

Back in London, Grey was left in no doubt that his colonial days were over but he was refused a pension for another two years. He thought of entering parliament as a Liberal but he was out of favour with Gladstonian Liberals. He met Benjamin Disraeli at the Athenaeum who offered to provide Grey, whom he admired, with a safe seat at Westminster. However, although appreciating the offer, Grey demurred. In 1870 he returned to Kawau and in 1874 stood for the New Zealand legislature. He was not a natural politician and found it difficult to unite his colleagues, particularly after he became Prime Minister in 1877. However, he did push along social legislation, with the slogan "one man, one vote"; women got the vote just three years after his retirement. As a result of his impetus, New Zealand became the most socially evolved country of the world, at that time. Grey attended the legislature for some years in opposition after his premiership, but then retired in 1890 to his beloved Kawau. Sir Frederick Whitaker, the New Zealand politician, with whom Grey had often clashed, said on his retirement, "I have never seen such satisfactory government as we had with Sir George Grey during his first term as Governor".

Sir George's last public appearance was in 1891 when he represented New Zealand at the Commonwealth Convention of Australia. He was received with acclaim in Adelaide where he argued strenuously for a new free assembly of nations with a common English language.

Grey became more and more reclusive and melancholy. His niece returned to Auckland in 1888 for the children's education and Sir George, now infirm, chose to accompany her, so he sold Kawau. In 1894 he returned to England. Queen Victoria made him a privy councillor. Prior to leaving New Zealand, he gave his new library to the Auckland public library, which housed it in a special building.

Lady Grey rejoined her husband in his last years and died just two weeks before him, in September 1898. Sir George was buried in St. Paul's Cathedral.

Sir George Grey was one of the most interesting figures in British colonial history. While some of his grand schemes never got off the ground, he made major contributions in encouraging racial integration and in pushing forward social schemes. As a naturalist, Grey stimulated collection and identification of many new species in countries he governed and he increased the list of exotic flowering plants available to gardeners world-wide.

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R.I.C. SPEARMAN

Library

As usual the summer will see the Reading Room occupied by teams of students, colloquially known as the "slaves". They will be doing the usual shifting of books and journals and cleaning them in the process. This will require ladders, cleaning materials, and masses of dusters. Inevitably there will be noise and disruption but we still try and keep the Reading Room open for visitors. This operation will take place between 17th July and 25th August. We hope to be able to return some things to the Executive Secretary's Office and to space elsewhere in the building although things will get worse before they get better!

As usual we are most grateful for all those who have given copies of their books or books they feel may be useful to the Library. If your gift has not been acknowledged please contact me as sometimes books arrive with no known source. The following list acknowledges donations of books received from January to the end of April 2000.

Accessions list of Donations: January to April 2000

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| T. Anfält | Anfält, Tomas & Nilsson, Örjan, <i>Lilla blomboken</i> ...42 pp., col. illustr., Uppsala, Uppsala Universitets Bibliotek, 1999. |
| H.J. Beentje | Beentje, Henk J., <i>A monograph on Strophanthus DC. (Apocyanaceae)</i> : Thesis. 191 pp., illustr. maps, Wageningen, Wageningen Agricultural University, 1982.
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