

Fernate, Barbados, Oct. 6. 1858.

My dear Sir

I beg leave to acknowledge the receipt of your letter of July last, sent me by Mr. Darwin, & informing me of the steps you had taken with reference to a paper I had communicated to that gentleman. Allow me in the first place sincerely to thank yourself & Sir Charles Lyell for your kind offices on this occasion, & to assure you of the gratification afforded me both by the course you have pursued & the favourable opinions of my essay which you have so kindly expressed. I cannot but consider myself a favoured party in this matter, because it has hitherto been too much the practice in cases of this sort to impute all the merit to the

The first page of a letter from A.R. Wallace to J.D. Hooker (continued on p2 and transcribed on p3).

Editorial

This issue of *The Linnean* includes the talk given by Richard Dawkins when he unveiled a plaque in the Royal Academy, commemorating the reading of the Darwin-Wallace papers on July 1st 1858. Professor Dawkins noted how both Darwin and Wallace had distinguished themselves by the generosity and humanity with which they had resolved the priority of their independent discovery of evolution by natural selection.

Darwin's account is given in his Autobiography where he points out that it was at the request of Lyell and Hooker that he allowed an abstract from his M.S., together with a letter to Asa Gray, to be published at the same time as Wallace's essay in the *Journal of the Proceedings of the Linnean Society*, 1858, p45. He also indicates that at first he was

first discovered of a new fact or a new theory, & held a course to any other party in any way, quite independently, has arrived at the same result a few years or a few hours later?

I also look upon it as a most fortunate circumstance that I had a short time ago announced a correspondence, with Mr.

Darwin on the subject of "Varieties", since it has led to the earlier publication

of a portion of his researches & has secured to him a claim to priority which an independent publication either by myself or some other party might have injuriously effected;— for it is, indeed, that the time has now arrived when there is similar news ~~which~~ ^{with} to be investigated, & must be ~~very~~ ^{fully} ~~discussed~~ ^{discussed}.

It would have caused me much

pain & regret had Mr. Darwin's views of generosity led him to make public my paper unaccompanied by his own much earlier & I doubt not much more complete views on the same subject, & should you thank you for the course you have adopted, which will strictly just to both parties, is a favour to myself.

Being on the eve of a brief journey I can now add no more than to thank

you for your kind advice as to a return to England:— but I dare say you will know & feel, that to advise or substantiate & give his researches at this most interesting point requires some more explicit argument than the prospective has permitted. I remain
 My dear Sir

Yours very sincerely
 Alfred R. Wallace

Ternate, Moluccas, Oct .6. 1858

My dear Sir

I beg leave to acknowledge the receipt of your letter of July last, sent me by Mr Darwin, & informing me of the steps you had taken with reference to a paper I had communicated to that gentleman. Allow me in the first place sincerely to thank yourself & Sir Charles Lyell for your kind offices on this occasion, & to assure you of the gratification afforded me both by the course you pursued & the favourable opinions of my essay which you have so kindly expressed. I cannot but consider myself a favoured party in the matter, because it has hitherto been too much the practise in cases of the sort to impute all the merit to the first discoverer of a new fact or a new theory, & little or none to any other party who may, quite independently, have arrived at the same results a few years or a few hours later.

I also look upon it as a most fortunate circumstance that I had a short time ago commenced a correspondence with Mr Darwin on the subject of "Varieties", since it has led to the earlier publication of a portion of his researches & has secured to him a claim to priority which an independent publication either by myself or some other party might have injuriously affected;- for it is evident that the time has now arrived when these & similar views will be promulgated & must be fairly discussed.

It would have caused me much pain & regrets had Mr Darwins excess of generosity led him to make public my paper unaccompanied by his own much earlier & I doubt not much more complete views on the same subject, & I must again thank you for the course you have adopted, which while strictly just to both parties, is so favourable to myself.

Being on the eve of a fresh journey I can now add no more than to thank you for your kind advice as to a speedy return to England ; - but I dare say you well know & feel, that to induce a Naturalist to quit his researches at the most interesting point requires some more cogent argument than the prospective loss of health.

I remain

My dear Sir

Yours very sincerely

Alfred R Wallace

J.D.Hooker M.D.

unwilling to consent since he thought Mr Wallace might consider his doing so unjustifiable:

“For I did not know how generous and noble was his disposition.”

Wallace's generosity is exemplified in a letter which he wrote from Ternate to Hooker on October 6th 1858 stating how pleased he had been with the way his paper had been presented, commenting that while strictly just to both parties it had been so favourable to himself.

B.G. GARDINER

Society News

Two Members of the Society have been elected to the Royal Society. Dr. Peter Raven FMLS, Director of the Missouri Botanic Garden, has been elected a Foreign Member of the Royal Society for his eminence in plant systematics and evolution. Dr. Andrew Smith, of the Department of Palaeontology, the Natural History Museum, has been elected a Fellow of the Royal Society as one of the UK's leading palaeontologists and the world leader in the study of echinoderms. We offer our congratulations to both these distinguished scientists.

Members will be sorry to note the death on 21st July 2002 of Professor Jeffrey Harborne FRS, Linnean Medal winner in 1985. He had been in indifferent health for some years. An obituary appeared in *The Times* on 26th August 2002. His book *Introduction to Ecological Biochemistry* must have livened up many an otherwise sterile recital on plant secondary metabolism. It was but one of his staggering published output; he authored or co-authored some 40 books and 270 other papers. The other Linnean Medal winner in 1985 was the redoubtable Arthur Cain FRS, who predeceased Jeffrey Harborne by three years. A former colleague of Professor Harborne at Reading, Professor Hugh Bunting CMG, also died recently. Both Professor Harborne and Professor Bunting began their careers as chemists, and both moved into agriculture via the Rothamsted Experimental Station. Professor Bunting's subsequent experience was mainly in what we would now recognise as the Third World. His obituary appeared in *The Independent* on 19th August. Their passing marks a tremendous loss to UK science.

Connoisseurs of the Society's Programme will have noted a chasm from 23rd January – 27th April 2003 in the 16-month card recently circulated. Attempts are being made to fill the gap and on **3rd April 2003** there will be an evening meeting (5.30 for 6pm), entitled **Can everyone understand? Exhibit development at the Eden Project and the public understanding of science**. The speaker will be **Sue Minter FLS**, who is responsible for Education at the Eden Project.

The Linnean Society and the Royal Irish Academy have organised a joint evening meeting on forensic science at Trinity College Dublin on Thursday, 31st October 2002 entitled *Over their dead bodies.....the secrets that dead bodies tell*. The meeting,

primarily intended for sixth-formers, will begin at 7pm.

On the subject of meetings, the Society has for some years contemplated a meeting on greenhouses – their design, construction and use. At various stages we have been thwarted by the disappearance of key players or institutions, e.g. the Glasshouse Crops Research Station. Any ideas on who to involve would be welcome. We are probably looking at a day (or longer) meeting in the fall of 2003.

The Society acknowledges with gratitude a further donation of £2000 from the Golden Bottle Trust to add to the £2500 received in February this year, and likewise is deeply grateful for £3327.24p under the will of Robert Barton Park FLS, who was elected in 1989 and died in 1996.

Professor Charles Howard Stirton is the Founding Director of the first botanic garden to be built in the United Kingdom for two centuries, namely the National Botanic Garden of Wales. He is leaving the Garden to pursue his passion for sustainable preferred futures, a philosophy at the heart of the Garden. He is creating a consultancy and Nanobotanics company in Biotechnium, the Garden's revolutionary biosciences business incubator now nearing completion on the award winning garden site. Biotechnium is the first business incubator ever to be built in a botanic garden in the world and is in keeping with the innovative approach that has underpinned the building of the Garden. It is fitting that Prof. Stirton will establish one of the first of a new breed of innovative biotechnology companies in the Centre. The Society extends its good wishes to Charlie in his new role.

The Society also extends its good wishes to Ms. Gertrude M. Marsh (Madame Gertrude Looi FLS), on her recent book. *A Vivid Shaft of Northern Light* (Tapir Academic Press: Trondheim) is Madame Looi's first book and is the fruit of her passion for Norway, its flora and the work of Johan Ernst Gunnerus, Bishop of Trondheim (1758–1773). Beautifully illustrated, the book combines her own travels in Norway following in the footsteps of Bishop Gunnerus with her thorough knowledge of Norwegian botany. The Norwegian University of Science and Technology, Trondheim considers the book to be of great importance to its Gunnerus Library and also to the Norwegian tourist industry.

As was noted in the July issue, the **House of Commons Select Committee on Science and Technology** conducted an inquiry into **Government Funding of the Scientific Learned Societies**, which has been published (<http://www.parliament.uk/commons/selcom/s&thome.htm>). As far as Burlington House is concerned, its observations and recommendation are as follows:

Burlington House

75. The Royal Society of Chemistry, the Geological Society, the Linnean Society, the Royal Astronomical Society and the Society of Antiquaries all occupy accommodation in Burlington House. They benefit from an agreement made with the Government,

when they moved from Somerset House in the nineteenth century, that they would be housed rent-free.

The then Department for Transport, Local Government and the Regions (DTLR) valued these premises for us in 2002.

**Table 10: Estimated rental values of premises in Burlington House
Learned Society Estimated Rental Value £ 000**

Royal Society of Chemistry	441
Geological Society	315
Linnean Society	164
Royal Astronomical Society (including the British Astronomical Association)	176
Society of Antiquaries	221
Total	1,317

The Burlington House societies pay no rent but bear the running and refurbishment costs of their accommodation. The Royal Society of Chemistry estimate that they have spent £600 000 in the last three years on Burlington House, on the fabric of the building over and above running costs.

In oral evidence, Dr Giachardi (*RSC*) told us “I cannot answer the questions [as to] what the rental value would be but we have spent a lot of our own money restoring the fabric ... to the exacting standards of English Heritage”.

76. The Burlington House agreement is subject to a legal dispute between the societies and the Government. The Crown owns the freehold of Burlington House and until May 2002 DTLR was responsible as the holding Department. This responsibility has now passed to the Office of the Deputy Prime Minister. DTLR’s memorandum states that legal advice obtained by the learned societies suggests that they might have a freehold interest in Burlington House and/or be able to stay in the property on a rent-free basis. The Department does not accept this, based on its own legal advice. It is preparing its draft legal case for submission to the learned societies.
77. We were interested to note that several of the Burlington House societies told us that they were opposed to the idea of government funding on the grounds of preserving their independence. The Royal Society of Chemistry wrote in its memorandum “many bodies, including the RSC, act in an advisory capacity to government and view this as a core activity. It is essential that this advice is independent and seen to be so. Hence it is necessary that the bodies themselves, and any co-ordinating associations that act on their behalf should be financially independent of government”. We asked the RSC about this in oral evidence and Dr David Giachardi, Chief Executive, told us that they worried that their advice would be considered less reliable by the media if they were to receive government funds. He thought however that the “indirect” funding they received “has been around for so long that I do not think it does [compromise the RSC’s independence]”. **We would like to see all Burlington House**

societies acknowledge that subsidised accommodation constitutes a form of government funding.

78. We do not intend to comment on the Burlington House agreement, since it is subject to legal dispute. The Burlington House societies benefit from a historical agreement and it is by chance that this is with the Government and not some private organisation. Certainly withdrawing the arrangement would impact on the good work that the Burlington House societies are able to do. This would be a net loss for science.

The Society awards a number of grants each year; sometimes the applications deal with topics of wide contemporary interest. Under the title **Aids And Its Environmental Impact: The Coffin Dilemma**, Dr. Paul Kamau Mbugua, Senior Lecturer, Kenyatta University, writes: "The HIV/AIDs scourge that has engrossed the entire world affects every facet of human life. In the early 1990s, the approach to the AIDs scourge was one of panic, especially from the medical front. The battle has been very severe and yet so far no cure has been found. The nearest solution from the medical field is the vaccine currently under test at human level. In the meantime the death toll continues unabated. In Kenya alone there are approximately 700 deaths daily. The amount of timber wood used daily runs to probably about 60 mature indigenous tree species. The coffins also occupy about 0.5KM² within the cemetery or more commonly the farm land, leading to excision of very prime land, which, if considered from the environmental view point, is land no longer utilised for food production and is "lost". On the other hand all the body remains have to be disposed of in one way or another depending on the culture of the community in which the deceased lived. The majority of the Kenyan ethnic groups bury their dead in coffins, while a small fraction, especially the Moslems along the Kenyan coast, dispose of the dead by wrapping them in some clothing material, then bury them.

The environmental impact of these practices has never been assessed – at least in a Kenyan situation. A number of issues have been studied in the past especially those of clinical relevance and a few areas dealing with economic and sociological impacts. This study proposes to look into a number of issues in connection with the direct and indirect impact of the AIDs scourge. The major issues include the critical issues of coffin choice after bereavement, the people involved and their choice criteria, the environment impact as more and more trees of indigenous species are cut. The cheaper timber and probably of more common tree species is ignored as not appropriate due to cultural considerations and social classes. The study aims at investigating the factors surrounding the coffins, i.e. what do people of Mt. Kenya and surrounding regions look for in order to purchase a coffin for different social classes such as the leaders, the poor, children, etc? Are financial considerations the only factors in view as they choose a coffin? Are there specific tree species that specific people within the community have to be buried in, e.g. chiefs, MPs? Who within the given ethnic group makes the final decision? What is the role of "Nchuri Njeke" among the Meru community in this sensitive social practice? Further studies will

include the readiness of the communities to change, e.g. are they willing to change and use cheaper coffins in the light of the economic considerations and the environmental impact of the construction of coffins. What is the future of the hardwood species in Mt. Kenya forest given the current situation and trend?

This concept paper proposed to find answers to these questions by involving plant taxonomists, economists, sociologists and religious study experts whose opinions will be utilized in arriving at solutions in this research. The stakeholders to be involved in various capacities will include: religious leaders; MPs/Councillors; benevolent co-operatives' leaders; terminally ill patients, widows and widowers; hospices, children's homes; elders within the communities; forest officers, NGOs working with HIV/AIDS and other incurable diseases, mortuaries and hospital administrators, carpenters specialising in coffin making, hearse operators, cemetery attendants, social workers, health workers and recently bereaved relatives."

In terms of the Dennis Stanfield Award, for which it was submitted, this application was not seen to fit the criterion of basic research in the areas of plant taxonomy and plant ecology. Other sources of support are being considered by the Society. Others may have useful ideas – we would be pleased to hear them.

From our own correspondent:

"I received in the post this morning an envelope. It contained a pamphlet entitled 'Reaching the Summit; Johannesburg, the UK and Sustainable Development' and it comes from DEFRA. In a quick read of its 20 pages I cannot find a single occurrence of the words 'biodiversity' or 'conservation' even though there are frequent references to the 1992 Rio Earth Summit. The pamphlet does have, however, a whole page devoted to the Birmingham Washable Nappy Partnership"

JOHN MARSDEN

Library

The Library was open for 92 days since the last report, during which 226 visitors were recorded, Fellows being 58% of the total. This represents a visitor use of 2.5 visitors/day, the same as for the previous period. Loans totalled 50. Users of manuscripts numbered 23, including visitors from Germany and the USA as well as the UK. The Library showcases were used at the Anniversary Meeting for a display of work by the Jill Smythies award winner, Mrs Jenny Brasier. Visiting groups have included a small party from the London College of Printing and visiting students from the USA. Other events included a reception for the wedding of Matty Pye and Nicholas Gardiner on 22 June.

The Librarian joined other benefactors of the late David McClintock at Bracken Hill at the end of May, to select books both for fulfilment of his bequest to the Society and also to purchase others before the remaining collection was sold through Mike Parks.

These will add substantially to the Society's holdings of local floras and other key works. The books acquired in this way are not listed here as they are still boxed awaiting cataloging.

Lynn Crothall joined the Society in July and has already made considerable headway in clearing the top of the Table case in the Annexe by inputting new accessions into the electronic catalogue. Meanwhile, the existing electronic records have been transferred and Cathy Broad has arranged the first trials of retrospective conversion of the older card records. Janet Ashdown continues to do conservation and binding work for the Society on a free-lance basis as does Matty Pye who has been building us a database (Limbo) on past Fellows of the Society.

The block of steel card catalogues was disassembled and moved gradually over the early summer to provide space for installation of the new computer catalogue. The Main Author catalogue is now in two cabinets in the Reading Room, the subject catalogue occupies 3 cabinets at the entrance to the Library Annexe and the remaining cabinets, containing the manuscript catalogue, provenance records and hand-written "reprint collection" catalogue, are behind the issue desk. This meant considerable shifting of furniture. The new computer equipment for the Library system was received in early July and is now operational.

Summer students working from mid-July to the penultimate week in August cleaned and reshelfed most of the entomological books. These needed additional space and by removing filing cabinets we have been able to accommodate a new low bookcase. Much other work was done in moving boxes and filing cabinets as well as the annual clean up. This year's team included Eric Anfalt, Mary Debelle, Max Douglas, Fabian Douglas, Jacqueline Gueye, Ralitz Ivanova, Yana Kambitova, Maya Palma, Marta Rubi, Esther Tolmos & Michelle Woodger (from, France, Spain, Sweden and the UK). By the end of August the Library was restored to order.

Donations

- | | |
|----------------------|--|
| Carlos Almaça | Almaça, Carlos, <i>A zoologia pré-lineana no Brasil</i> . 147 pp., illustr. Lisbon, Museu Bocage, 2002. |
| A.W. Armstrong | Armstrong, Alan W. ed., <i>Forget not mee & my garden, selected letters 1725–1768 of Peter Collinson</i> . (Memoirs American Philosophical Society, Vol. 241) 300 pp., illustr. some col., Philadelphia, American Philosophical Society, 2002. |
| A. Bertsch | Bertsch Andreas, ed., <i>Mémoire sur les Bourdons by Pierre Huber; translated and annotated</i> . 171 pp., illustr., (with CD-ROM of original manuscript) Berlin, Lehmanns, 2002. |
| V. Bharatan | Bharatan, Vilma, Humphries, C.J. & Barnett, John. <i>Plant names in homeopathy, an annotated check-list</i> . 126 pp., London, Natural History Museum, 2002. |
| Brooklyn Bot. Garden | New York, Brooklyn Botanic Garden, <i>Essential Tool</i> , ed. Karan Davis (<i>Handbook 170</i>) 111 pp., col. illustr., Brooklyn, New |

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- J. Cain
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 Gibbs, Lillain S., *A contribution to the forest and plant formations of Mount Kinabalu, ...introduction by John Beerman* (reprinted from *Linnean Society Botanical Journal*) 240 pp. illustr., maps, Kota Kinabalu, Natural History Publications, 2001.
 Stapf, O., *On the flora of Mt Kinabalu, N. Borneo* (reprinted from *Transactions, Linnean Society*, 263 pp., illustr., maps,

- Kota Kinabalu, Natural History Publications, 2001.
- C.J. Clegg Clegg, C.J., *Microbes in action*. 92 pp., illustr. some col., London, J. Murray, 2002.
- Lord Cranbrook Chazdon, Robin L. & Whitmore, T.C., *Foundations of tropical forest biology*. 861 pp., illustr., figs., Chicago, Univ. Chicago Press, 2002.
- Greater London Authority Greater London Authority, *Connecting with London's nature: the Mayor's biodiversity strategy*. 188 pp., col. illustr., map, London, Greater London Authority, 2002.
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- B.H. Harley Emmet, A.Maitland & Langmead, John R. eds., *The moths and butterflies of Britain and Ireland* Vol. 4, part 1, Oecophoridae-Cythrididae (excluding Gelechiidae) 326 pp., illustr. some col., Colchester, Harley Books, 2002.
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Kew, Royal Botanic Gardens, *Index Kewensis Suppl. XXI* 376 pp., Kew, Royal Botanic Gardens, 2002.
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GINA DOUGLAS

Picture Quiz

William Mitton (1819–1906)

William Mitton was elected an associate of the Linnean Society on January 19th 1847 and at the time of his death in July 1906 was the oldest on our list of Fellows and Associates. Born at Hurstpierpoint in Sussex on November 30th 1819 he trained as a pharmacist first with a local chemist in Lewes and later with the wholesale chemist chain of Yates in London. Whilst with the latter he contributed articles to the *Phytologist* (1: 203, 1842) first on the discovery of *Bupleurum tenuissimum* in Highgate, followed by the finding of *Carex montana* at Eridge and the rare fructification of the moss *Aulacomnion androgynum* in Abbey Wood.

His move back to Hurstpierpoint, the town of his birth late in 1842 proved propitious since it brought him into contact with William Borrer who resided in the neighbouring town of Henfield. Borrer not only allowed him the use of his microscope and library, but also introduced him to William Hooker. Mitton's first paper during this period was on the parasitism of *Thesium* and *Cuscuta* (*J. Bot.*, 1847). He also wrote for the Supplement to *English Botany* the description of *Gymnomitrium adustum* and *Lolium linicola*. Despite these distractions his attention was already especially directed to the study of the Musci and Hepaticae begun in 1843.



By this time he was so highly regarded as a bryologist that Hooker offered him the post of Curator of the Herbarium in place of J.E. Planchon; but for financial reasons Mitton declined, telling Hooker that he preferred to carry on his botanical studies in such limited time as could be spared from work in his pharmacy. Nevertheless, he continued with his publications in the *Kew Journal of Botany*, which included many descriptions of the Muscineae (1851) followed by numerous contributions to our *Journal of Botany*. In 1855 he described the Hepaticae for J. Hooker's *Flora Novae Zelandiae* and for his *Flora Tasmaniae* (1860).

In 1864 Richard Spruce (Bates and Wallace's friend) came home from Peru and went to live at Hurstpierpoint in order to be near Mitton who had already agreed to describe Spruce's South American collections. These were finally published in what has been described as Mitton's *magnum opus*: *The Musci Austro-Americani* (*J. Bot. Linn. Soc.*, **12**, 1869) which contains descriptions of 1,745 species belonging to 127 genera. During this period he was assisted in his shop by his daughter Flora, who had become a qualified pharmacist.

As a consequence of Spruce having moved down to Hurstpierpoint, Wallace frequently visited him there in the autumn of 1864 and the spring of 1865 and thus became intimate



Clue: Laird of Ballyshear: present at the reading of the Darwin/Wallace papers, 1st July 1858.

with both Mr Mitton and his family. Wallace found that he and Mitton had similar interests, in particular Alpine floras, gardening and glacial geology. In the spring of the following year Wallace married one of Mitton's younger daughters (then aged 18) and after their honeymoon, went to live in London, in Regent's Park.

Wallace's friendship and shared interests with his father-in-law soon found them planning and executing a succession of elaborate excursions together to North Wales, first to Snowdon and then to Cader Idris. Two years later (1870) saw them travelling to Beddgelert in search of rare mosses and visiting the Swallow Falls. That summer they also managed a short excursion to the Vale of Neath. In 1876 they visited the highlands of Scotland (Glen Cova). The following year they went to Belgium, then ten years later to Switzerland and examined the Rhone glacier. At this time Wallace was completing a series of papers on the Ice Age.

Meanwhile they visited, on day excursions, such places as Studland Heath, where Mitton found the crowberry (*Empetrum nigrum*). Mitton also carried out hybridising experiments in his back garden, producing first a hybrid pink between *Dianthus alpinus* and *D. gardnerianus* and then a *Campanula* with variegated foliage.

Sadly, Mitton's entire collection of mosses and Hepaticae was purchased by the New York Botanical Gardens having been offered to Mrs N. Britton, a keen American bryologist. The collection contains both Mitton's beautiful drawings as well as his original descriptions. As Wallace commented:

"I am inclined to think that they constitute the richest private collection, or nearly the richest private collection of these groups in existence, whilst it is doubtful if any public collection is much richer".

The genus *Mittenia* Lindenberg 1864 was named in his honour (*Mittenia* of Gottsche 1864 = *Pallavicinus* Gray 1921).

BRIAN GARDINER

Correspondence

27 April 2003

17 Sunbury Avenue,
London NW7 3SL

Dear Brian

Your recent article on lampreys together with the excellent recipe from Philippe Janvier prompted me to examine my own recipe book (Favre, 1891) in which I found six additional and tempting ways of preparing them. The book also mentioned the excellence of the potted lampreys from your beloved Gloucester! However, putting these recipes into practice is difficult with the dearth of lampreys in the UK. All appears not to be lost, however, since the marine lamprey, *Petromyzon marinus*, seems to be thriving, aided by a bile acid acting as a potent sex pheromone (Li et al, 2002). It appears that when the male is ready to mate, it signals the good news by secreting 7 α , 12 α , 24-trihydroxy-5 α -cholan-3-one 24 sulphate through its gills in much higher amounts than other known vertebrate steroid pheromones. The pheromone acts over long distances and induces preference and searching behaviour in ovulated female lampreys.

Sincerely

PETER GAHAN

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LI, W. SCOTT, A.P., SIEFKES, M.J. YAN, H., LIU, Q., YUN, S-S. & GAGE, D.A. 2002. *Science*, 296: 138-141.

To the Executive Secretary
of the Linnean Society of London,

Kew, 26th May 2002

Dear John,

At the Annual Meeting of the Society last Friday the 24th of May we greatly enjoyed the proceedings relating to the awards to a number of fellows and non-fellows. We were, as we are sure were many other fellows, pleased to see these outstanding achievements awarded in the tradition of the society. For each of the recipients comprehensive citations were read, so that the fellows became well acquainted with the

high standards and value of their work. In this way, the Society rightly makes us participants in the proceedings, which is well reflected in the enthusiastic applause that each received.

It so happened, that this time we also had a more personal reason to attend, because we both were delighted to learn that Sir Anthony Galsworthy was to receive an award. We both have in the past had correspondence with him or met him in person. Therefore, we had hoped to meet him upstairs after the closure of the meeting to congratulate him and have a chat. When the meeting closed, the President invited us all upstairs for a drink, but asked the recipients of the awards to stay in the room for few minutes for the taking of their photographs. However, to our dismay, none of them appeared upstairs.

We think that it would have been appropriate and fair, not only to us but other fellows as well, if they had had a short time for a glass with us upstairs before they were wined and dined by the Officers of the Society. We recollect that at these occasions in previous years recipients did participate in the social gathering of the fellows present afterwards. We regret that this opportunity was not given us this time. We therefore ask you that on future occasions fellows be given a chance to meet the medal winners of the Society.

Yours sincerely,
ALJOS FARJON, FLS
ANTHONY WALKER, FLS

29th May 2002.

Dear Aljos and Anthony,

It was certainly my intention that the Award winners would spend at least an hour upstairs before going off for dinner, for which the latest sitting was 8pm. Clearly I got my timings wrong for three reasons. Firstly, we agreed to reduce the length of the citations of the Medal winners this year but, in the event, that did not happen to any significant extent. Secondly, all eight Award winners gave a short speech, which I am sure you will be aware has never happened before. Thirdly, there were eight Award winners (even then an Irene Manton Prize-winner was missing) – the number is more usually six.

You should be able to see Sir Anthony more regularly, since he indicated his wish to join the Society. You could, indeed, support him in this. He is working in the Entomology Dept. of the Natural History Museum.

With best wishes,
Yours sincerely,
JOHN MARSDEN

The Reading of the Darwin-Wallace papers commemorated – in the Royal Academy of Arts

*A speech given by Richard Dawkins FRS on 26th November 2001, unveiling the plaque in the Royal Academy commemorating the reading of the Darwin-Wallace papers at the Linnean Society on July 1st 1858 (see *The Linnean* 17(4) October 2001).*

Professor King, Sir David Smith, members of the Darwin and Wallace families, ladies and gentlemen.

It is in the nature of scientific truths that they are waiting to be discovered, by whoever has the ability to do so. If two different people independently discover something in science, it will be the same truth. Unlike works of art, scientific truths do not change their nature in response to the individual human beings who discover them. This is both a glory, and a limitation, of science. If Shakespeare had never lived, nobody else would have written Macbeth. If Darwin had never lived, somebody else would have discovered natural selection. In fact, somebody did – Alfred Russel Wallace. And that is why we are here today.

On July 1st 1858, in this very room, was launched upon the world the theory of evolution by natural selection, certainly one of the most powerful and far-reaching ideas ever to occur to a human mind. But it was not just one mind, but two. I shall elaborate on this when we adjourn to the other room. Here I just want to note that both Darwin and Wallace distinguished themselves not just for the discovery which they independently made, but for the generosity and humanity with which they resolved their priority in doing so.

Darwin and Wallace seem to me to symbolise not just exceptional brilliance in science but the spirit of amicable cooperation which science, at its best, fosters. It gives me very great pleasure to unveil this plaque, commemorating the reading of the joint Darwin/Wallace papers.

After the unveiling, the meeting adjourned to the lecture room of the Linnean Society, and I then resumed my remarks:-

The philosopher Daniel Dennett has written

“Let me lay my cards on the table. If I were to give an award for the single best idea anyone has ever had, I’d give it to Darwin, ahead of Newton and Einstein and everyone else”

I have said something similar, although I didn’t dare make the comparison with Newton and Einstein explicit.

The idea we were talking about is, of course, evolution by natural selection. Not only is it the all-but universally accepted explanation for all the complexity and elegance of life. It is also, I strongly suspect, the only explanation that in principle *could* provide that explanation. But Darwin was not the only person who thought of the idea. When

Professor Dennett and I made our remarks, we were – certainly in my case and I suspect that Dennett would agree – using the name Darwin to stand for “Darwin and Wallace”. This happens to Wallace quite often, I am afraid. He tends to get a poor deal at the hands of posterity, partly through his own generous nature. It was Wallace himself who coined the word ‘Darwinism’, he regularly referred to it as Darwin’s theory and he referred to himself as ‘more Darwinian than Darwin’. The reason we know Darwin’s name more than Wallace’s is that Darwin went on, a year later, to publish the *Origin of Species*. *The Origin* not only explained and advocated the Darwin/Wallace theory of natural selection as the mechanism of evolution. It also – and this had to be done at book length – set out the multifarious evidence for the *fact* of evolution itself.

The drama of how Wallace’s letter arrived at Down House on 17th June 1858, casting Darwin into an agony of indecision and worry, is too well known for me to retell it. In my view the whole episode is one of the more creditable and agreeable in the history of scientific priority disputes – precisely because it wasn’t a dispute – although it so very easily could have become one. It was resolved amicably, and with heart-warming generosity on both sides, especially on Wallace’s. As Darwin later wrote,

“Early in 1856 Lyell advised me to write out my views pretty fully, and I began at once to do so on a scale three or four times as extensive as that which was afterwards followed in my *Origin of Species*; yet it was only an abstract of the materials which I had collected, and I got through about half the work on this scale. But my plans were overthrown, for early in the summer of 1858 Mr Wallace, who was then in the Malay archipelago, sent me an essay *On the Tendency of Varieties to depart indefinitely from the Original Type*; and this essay contained exactly the same theory as mine. Mr Wallace expressed the wish that if I thought well of his essay, I should send it to Lyell for perusal.

The circumstances under which I consented at the request of Lyell and Hooker to allow of an extract from my MS., together with a letter to Asa Gray, dated September 5, 1857, to be published at the same time with Wallace’s Essay, are given in the *Journal of the Proceedings of the Linnean Society*, 1858, p. 45. I was at first very unwilling to consent, as I thought Mr Wallace might consider my doing so unjustifiable, for I did not then know how generous and noble was his disposition. The extract from my MS. and the letter to Asa Gray . . . had neither been intended for publication, and were badly written. Mr Wallace’s essay, on the other hand, was admirably expressed and quite clear. Nevertheless our joint productions excited very little attention, and the only published notice of them which I can remember was by Professor Haughton of Dublin, whose verdict was that all that was new in them was false, and what was true was old. This shows how necessary it is that any new view should be explained at considerable length in order to arouse public attention.”

Darwin was over-modest about his own two papers which were read in this room. Both are models of the explainer’s art. Wallace’s paper is also very clearly argued. His ideas were, indeed, remarkably similar to Darwin’s own, and there is no doubt that Wallace arrived at them independently. In my opinion the Wallace paper needs to be read in conjunction with his earlier paper, published in 1855, in the *Annals and Magazine of Natural History*. Darwin read this paper when it came out. Indeed, it led to Wallace

joining his large circle of correspondents, and to his engaging Wallace's services as a collector. But, oddly, Darwin did not see in the 1855 paper any warning that Wallace was by then a convinced evolutionist of a very Darwinian stamp. I mean as opposed to the Lamarckian view of evolution which saw modern species as all on a ladder, changing into one another as they moved up the ladder. By contrast Wallace, in 1855, had a clear view of evolution as a branching tree, exactly like Darwin's famous diagram which became the only illustration in *The Origin of Species*. I find it quite hard to understand how Darwin, after reading this paper, could still see Wallace as a creationist. The 1855 paper, however, makes no mention of natural selection or the struggle for existence.

That was left to Wallace's 1858 paper, the one which hit Darwin like a lightning bolt. Here, Wallace even used the phrase 'Struggle for Existence'. Wallace devotes considerable attention to the exponential increase in numbers (another key Darwinian point). Wallace wrote:

"The greater or less fecundity of an animal is often considered to be one of the chief causes of its abundance or scarcity; but a consideration of the facts will show us that it really has little or nothing to do with the matter. Even the least prolific of animals would increase rapidly if unchecked, whereas it is evident that the animal population of the globe must be stationary, or perhaps . . . decreasing."

Wallace deduced from this that—

"The numbers that die annually must be immense; and as the individual existence of each animal depends upon itself, those that die must be the weakest. . ."

Wallace's peroration could have been Darwin himself writing:

"The powerful retractile talons of the falcon- and the cat-tribes have not been produced or increased by the volition of those animals; but among the different varieties which occurred in the earlier and less highly organized forms of these groups, those always survived longest which had the greatest facilities for seizing their prey. Neither did the giraffe acquire its long neck by desiring to reach the foliage of the more lofty shrubs, and constantly stretching its neck for the purpose, but because any varieties which occurred among its antitypes with a longer neck than usual at once secured a fresh range of pasture over the same ground as their shorter-necked companions, and on the first scarcity of food were thereby enabled to outlive them. Even the peculiar colours of many animals, especially insects, so closely resembling the soil or the leaves or the trunks on which they habitually reside, are explained on the same principle; for though in the course of ages varieties of many tints may have occurred, yet those races having colours best adapted to concealment from their enemies would inevitably survive the longest. We have also here an acting cause to account for that balance so often observed in nature, — a deficiency in one set of organs always being compensated by an increased development of some others — powerful wings accompanying weak feet, or great velocity making up for the absence of defensive weapons; for it has been shown that all varieties in which an unbalanced deficiency occurred could not long continue their existence. The action of this principle is exactly like that of the centrifugal governor of the steam engine, which checks and corrects any irregularities almost before they become evident."

The image of the steam governor is a powerful one which, I can't help feeling, Darwin might have envied.

Historians of science have raised the suggestion that Wallace's version of natural selection was not quite so Darwinian as Darwin himself believed. Wallace persistently used the word 'variety' as the level of entity at which natural selection acts. You heard an example in the long passage I have just read out. And some have suggested that Wallace, unlike Darwin who clearly saw selection as choosing among *individuals*, was proposing what modern theorists rightly denigrate as 'group selection'. This would be true if, by 'varieties', Wallace meant geographically separated groups or races of individuals. At first I wondered about this myself. But I believe a careful reading of Wallace's paper rules it out. I think that by 'variety' Wallace meant what we would nowadays call 'genetic type', even what a modern writer might mean by a gene. I think that, to Wallace in this paper, variety meant not local race of eagles, for example, but 'that set of individual eagles whose talons were hereditarily sharper than usual.'

If I am right, it is a similar misunderstanding to the one suffered by Darwin, whose use of the word 'race' in the subtitle of *The Origin of Species* is sometimes misread in support of racialism. That subtitle, or alternative title rather, is *The Preservation of Favoured Races in the Struggle for Life*. Once again, Darwin was using 'race' to mean 'that set of individuals who share a particular hereditary characteristic, such as sharp talons, *not* a geographically distinct race such as the Hoodie Crow. If he had meant that, Darwin too would have been guilty of the group selection heresy. I believe that neither Darwin nor Wallace were. And, by the same token, I do not believe that Wallace's conception of natural selection was different from Darwin's.

As for the calumny that Darwin plagiarised Wallace, that is rubbish. The evidence is very clear that Darwin did think of natural selection before Wallace, although he did not publish it. We have his abstract of 1842 and his longer essay of 1844, both of which establish his priority clearly, as did his letter to Asa Gray of 1857 which was read here on the day we are celebrating. Why he delayed so long before publishing is one of the great mysteries of the history of science. Some historians have suggested that he was afraid of the religious implications, others the political ones. Maybe he was just a perfectionist.

When Wallace's letter arrived, Darwin was more surprised than we moderns might think he had any right to be. He wrote to Lyell:

"I never saw a more striking coincidence; if Wallace had had my manuscript sketch, written out in 1842, he could not have made a better short abstract of it. Even his terms now stand as Heads of my Chapters"

The coincidence extended to both Darwin and Wallace being inspired by Malthus on Population. Darwin, by his own account, was immediately inspired by Malthus's emphasis on overpopulation and competition. He wrote in his autobiography:-

"In October, 1838, that is, fifteen months after I had begun my systematic inquiry, I happened

to read for amusement Malthus on population, and being well prepared to appreciate the struggle for existence which everywhere goes on from long continuous observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed. The result of this would be the formation of new species. Here, then, I had at last got a theory by which to work.”

Wallace’s epiphany was more delayed after his reading of Malthus, but was in a way more dramatic when it came . . . to his overheated brain in the midst of a malarial fever, on the island of Ternate in the Moluccas archipelago:

“I was suffering from a sharp attack of intermittent fever, and every day during the cold and succeeding hot fits had to lie down for several hours, during which time I had nothing to do but to think over any subjects then particularly interesting me . . .

One day something brought to my recollection Malthus’s ‘Principles of Population’. I thought of his clear exposition of ‘the positive checks to increase’ — disease, accidents, war, and famine — which keep down the population of savage races to so much lower an average than that of more civilized peoples. It then occurred to me . . .”

And Wallace proceeds to his own admirably clear exposition of natural selection.

There are other candidates for priority, apart from Darwin and Wallace. I’m not talking about the idea of evolution itself, of course, there are numerous precedents there, including Erasmus Darwin. But for natural selection there are two other Victorians who have been championed – with something like the same zeal as Baconians show when disputing the authorship of Shakespeare. The two are Patrick Matthew, and Edward Blyth; and Darwin himself mentions an even earlier one, W.C. Wells. Matthew complained that Darwin had overlooked him, and Darwin subsequently did mention him in later editions of the *Origin*. The following is from the Introduction to the Fifth Edition:–

“In 1831 Mr Patrick Matthew published his work on ‘Naval Timber and Arboriculture,’ in which he gives precisely the same view of the origin of species as that . . . propounded by Mr Wallace and myself in the ‘Linnean Journal’, and as that enlarged in the present volume. Unfortunately the view was given by Mr Matthew very briefly in scattered passages in an Appendix to a work on a different subject, so that it remained unnoticed until Mr Matthew himself drew attention to it in the ‘Gardener’s Chronicle’ . . .”

As in the case of Edward Blyth, championed by Loren Eiseley, I think it is by no means clear that Matthew really did understand the importance of natural selection. The evidence is compatible with the view that these alleged predecessors of Darwin and Wallace saw natural selection as a purely negative force, weeding out misfits rather than building up the whole evolution of life (this, indeed, is a misconception under which modern creationists can be found labouring). I can’t help feeling that, if you really understood that you were sitting on one of the greatest ideas ever to occur to a human mind, you would *not* bury it in scattered passages in an Appendix to a monograph on Naval Timber. Nor subsequently choose the Gardener’s Chronicle as the organ in

which to claim your priority. That Wallace understood the enormity of what he had discovered, there is no doubt.

Darwin and Wallace did not remain always in total agreement. In old age, Wallace dabbled in spiritualism (in spite of his venerable appearance, Darwin never reached extreme old age), and from earlier times Wallace doubted that natural selection could account for the special abilities of the human mind. But the more important conflict between them came over sexual selection, and it has ramifications to this day, as Helena Cronin has documented in her beautifully-written book, *The Ant and the Peacock*. Wallace once said of himself: "I am more Darwinian than Darwin himself". He saw natural selection as ruthlessly utilitarian and he couldn't stomach Darwin's sexual selection interpretation of bird of paradise tails and similar bright coloration. Darwin's own stomach was not invulnerable. He wrote:

"The sight of a feather in a peacock's tail, whenever I gaze at it, makes me sick."

Nevertheless, Darwin reconciled himself to sexual selection, and became positively enthusiastic for it. Aesthetic whim, by females choosing among males, was enough to account for the peacock's tale and similar extravagances. Wallace hated this. So did just about everybody at the time except Darwin, sometimes for frankly misogynistic reasons. To quote Helena Cronin:

"Several authorities went further, emphasising the notorious fickleness of females. According to Mivart, "Such is the instability of a vicious feminine caprice, that no constancy of coloration could be produced by its selective action." Geddes and Thomson were of the gloomily misogynistic opinion that permanence of female taste was "scarcely verifiable in human experience".

Not for misogynistic reasons, Wallace strongly felt that female whim was not a proper explanation for evolutionary change. And Cronin uses his name for an entire strand of thought which lasts to this day. 'Wallaceans' are biased towards utilitarian explanations of bright coloration while 'Darwinians' accept female whim as an explanation. Modern Wallaceans accept that peacocks' tails and similar bright organs are advertisements to females. But they want the males to be advertising genuine quality. A male with bright coloured tail feathers is showing that he is a high quality male. The Darwinian view of sexual selection, by contrast, is that the bright tail is valued by females for no additional qualities over and above the bright coloration itself. They like it because they like it because they like it. Females who choose attractive males have attractive sons who appeal to females of the next generation. Wallaceans more austere insist that coloration must mean something useful.

The late W.D. Hamilton, of Oxford University, was a prime example of a Wallacean in this sense. He believed that sexually selected ornaments were badges of good health, selected for their capacity to advertise the health of a male – bad health as well as good.

One way to express Hamilton's Wallacean idea is to say that selection favours females who become skilled veterinary diagnosticians. At the same time, selection favours males

who make it easy for them by, in effect, growing the equivalent of conspicuous thermometers and blood-pressure metres. The long tail of a Bird of Paradise, for Hamilton, is an adaptation to make it easy for females to diagnose the male's health, good or bad. An example of a good general diagnostic is a susceptibility to diarrhoea. A long dirty tail is a give-away of ill-health. A long clean tail is the opposite. The longer the tail, the more unmistakable the badge of health, whether good health or poor. Obviously this honesty benefits the particular male only when his health is good. But Hamilton and other neo-Wallaceans have ingenious arguments to the effect that, natural selection favours honest badges in general, even if, in particular cases, honesty has painful consequences. Neo-Wallaceans believe that natural selection favours long tails precisely because they are an effective badge of health; both good health and (more paradoxically but the theory really does seem to stand up) poor health.

Sexual selectionists of the Darwin school also have their modern champions. Taking their line through R.A. Fisher in the first half of the twentieth century, modern Darwinian sexual selectionists have developed mathematical models which show that, also paradoxically, sexual selection governed by arbitrary female whim can lead to a runaway process such that the tail – or other sexually selected character – moves far away from its utilitarian optimum. The key to this family of theories is what modern geneticists call 'linkage disequilibrium'. When females choose, say, long-tailed males by whim, offspring of both sexes inherit their mother's whim genes and also their father's tail genes. It doesn't matter how arbitrary is the whim, the joint selection on both sexes can lead (at least if you do the mathematical theory in a certain way) to runaway evolution of longer tails, and of preference for longer tails. So tails can become ludicrously long.

Cronin's elegant historical analysis shows that the Darwin/Wallace opposition, in the field of sexual selection, persisted long after the deaths of the original protagonists, right through the twentieth century to today. It is especially pleasing – and might have amused the two men – that both the Darwinian and the Wallacean strand of sexual selection theory, more particularly in their modern forms, have a strong element of paradox. Both are capable of predicting surprising, even zany, sexual advertisements. Which, indeed, we see in nature. The Peacock's fan is only the most famous example

I said the idea that occurred to Darwin and Wallace independently was one of the greatest, if not the greatest, ever to occur to a human mind. I want to end by giving this thought a universal spin. The opening words of my first book were:

"Intelligent life on a planet comes of age when it first works out the reason for its own existence. If superior creatures from space ever visit earth, the first question they will ask, in order to assess the level of our civilization, is: 'Have they discovered evolution yet?' Living organisms had existed on earth, without ever knowing why, for over three thousand million years before the truth finally dawned on one of them. His name was Charles Darwin."

It would have been fairer, though less dramatic, to have said "two of them" and to have coupled the name of Wallace with Darwin. But let me, in any case, pursue the universal perspective.

I believe the Darwin/Wallace theory of evolution by natural selection is the explanation not just of life on this planet, but of life in general. If life is ever found elsewhere in the universe, I make the strong prediction that, however different it may be in detail, there will be one important principle which it shares with our own form of life. It will have evolved, under the guidance of a mechanism broadly equivalent to the Darwin/Wallace mechanism of natural selection.

I am never quite sure how strongly to put this point. The weak version, of which I am completely confident, is that no workable theory other than natural selection has ever been proposed. The strong form would be that no other workable theory ever *could* be proposed. Today, I think I'll stick with the weak form. It still has startling implications.

The only other theory that a reasonable person could even *suspect* of being workable is the Lamarckian combination of Use and Disuse together with the Inheritance of Acquired Characteristics. It has often been suggested that Lamarck's would be a fine theory if only it didn't conflict with the facts. It is just unfortunate that acquired characteristics are not, as a matter of fact, inherited. I have gone much further than this. I have argued that, even if acquired characteristics were inherited – even if on some distant planet they are inherited – the Lamarckian theory is still, *in principle*, not a powerful enough theory to do the job of explaining the organized and adaptive complexity we call life (see, for example, *The Blind Watchmaker*). Other alleged alternatives, such as Orthogenesis and Mutationism, are so far from being adequate candidates that I find it amazing they have ever been seriously considered.

Natural selection not only explains everything we know about life. It does so with power, elegance, and economy. It is a theory which has evident *stature*, a stature which really measures up to the magnitude of the problem which it sets out to solve.

Darwin and Wallace may not have been the first to get an inkling of the idea. But they were the first to understand the full magnitude of the problem, and the corresponding magnitude of the solution which jointly, and independently, occurred to them. This is the measure of their stature as scientists. The mutual generosity with which they settled the question of priority is the measure of their stature as human beings. It has been a privilege for me to help celebrate their joint achievement today.

A temporary plaque was unveiled by Professor Dawkins in the Reynolds Room of the Royal Academy (RA) on this occasion which was attended by the President, Secretary and Architect of the RA and by some 80 Fellows and their guests. Currently, the Reynolds Room is used mainly for meetings in the RA, but the intention is to allow indoor passage along the whole first floor frontage of the RA to visitors, which will permit access to the Reynolds Room, for which a more permanent bronze plaque is being made in the RA Workshops.

Capt. Alexander Turbyne and the origins of the Marine Station at Millport

P.G. MOORE

University Marine Biological Station Millport,
Isle of Cumbrae, Scotland, KA28 0EG

The Marine Station at Millport (the oldest in Scotland) was established on the Isle of Cumbrae in the Firth of Clyde in the spring of 1885 when Sir John Murray brought the 'Ark' (a lighter converted into a floating laboratory) from the flooded quarry at Granton, near Edinburgh, through the Forth-Clyde canal to moorings at Port Loy, Millport Bay. The year 1896 saw the cutting of the first sod for the permanent building sited adjacent to the Devil's Dyke. The turn of the century (January 1901) saw the Marine Station under the auspices of the Marine Biological Association of the West of Scotland, the forerunner of what was later (1914) to become the Scottish Marine Biological Association (SMBA) (see Marshall, 1987, for a detailed history). For a variety of reasons, the SMBA moved out of the Millport laboratory in 1970 to modern purpose-built accommodation at Dunstaffnage, near Oban. The vacant facility at Millport was then taken over by the Universities of London and Glasgow jointly under the new title, the University Marine Biological Station Millport (UMBSM). In its present guise, UMBSM is a national facility offering teaching in an atmosphere of research to undergraduate and postgraduate students of these universities, but also playing host to 20–30 other UK and overseas institutions bringing students for intensive fieldwork training.

Captain Alexander Turbyne is an elusive figure in the early annals of the Marine Station at Millport. Through the kindness of an interested local man Mr Ian Duncan of Ashgrove, Marine Parade, I have been given access to copies of Turbyne family papers, press cuttings and previously unknown photographs from a century ago, that are now in his possession, relating to Capt. Turbyne and bearing on the early history of the Marine Station. The originals belonged to his erstwhile neighbour, Mr Michael Holten, and came to light following his recent, untimely death. Mr Holten was a great-grandson of Capt. Turbyne.

Since these documents include seamanly details that have not been available to historians hitherto, they are worthy of being set down for wider appreciation. They include a previously unknown holograph, presumed to be in Alexander Turbyne's hand, concerning the origins of the Marine Station. This is reproduced verbatim later.

Although the late Sheina Marshall F.R.S. in her history of the Marine Station (1987) referred to Alexander Turbyne perfunctorily as "an oyster fisherman", according to these documents he passed the local Marine Board examination for Master, Home Trade, on 25th February 1890 at Leith Nautical College. Later, in 1896, Captain Turbyne was recipient of a Challenger medal. These medals were struck by Dr (later Sir John) Murray and presented with his compliments to those who had assisted him in the completion of his epic task (the monumental Challenger expedition and associated Reports), as a

souvenir of the Challenger work (*Largs & Millport Weekly News*, 8th February 1896).

The medal is described as being of bronze, measuring about 3 inches in diameter and about 1/4 of an inch in thickness. On the one side Neptune is represented with his trident and holding in the other hand a dredge, while the other figures are represented holding a ribbon bearing the inscription, "Voyage of H.M.S. Challenger, 1872–76". On the other side is the Challenger, not in the form of a vessel, but a warrior throwing down his glove on the surface of the sea, challenging Neptune to reveal his secrets, encircled by a ribbon bearing the inscription "Report on the scientific results of the Challenger expedition, 1886–1895."

In the above report, and in a following article on the Loch Fyne herring, Alexander Turbyne was stated variously as having then (1896) "worked for over 13 years under Dr Murray's instructions (including 10 years consecutively)", conducting practical investigations "while matters strictly scientific were undertaken and prepared for press by men with a scientific training". He is referred to as "being in charge of the Marine Biological Station at Millport" and having been for many years "Captain of Dr Murray's steam yacht 'Medusa' ". In a report the previous year of a visit by the Paisley Naturalists' Society to the "Ark" (*Paisley & Renfrewshire Gazette*, 13 July 1895), Capt. Turbyne is described as "the genial and obliging caretaker" having the reputation of "being a most valuable guide and friend to students of this interesting science". According to the recently unearthed documents, he resided at 24 Glasgow St, Millport though Marshall (1987) says he lived on the "Ark" and the plan of the "Ark" in the 1901 *Handbook of the Marine Station* certainly includes the facility of a keeper's berth in cramped quarters aft. One of these documents suggests that he left Millport in 1899, to take up an appointment as Master of the South African Government Fisheries steamer "Pieter Faure". Marshall (1987), however, implies that he resigned in 1898 "to go to the Fisheries Department of Cape Colony". Capt. Turbyne died, as the result of a gun accident, in East London, South Africa on 15th July 1905.

Below is the text of a holograph manuscript on the history of the Marine Station at Millport, presumed to be have been written by Capt. Alexander Turbyne in the autumn of 1896 or the first half of 1897. Corrections, omissions, additions and modern scientific names, where they differ from those used for entities mentioned, are all given in square brackets and are mine. Sentence construction etc. remains as in the original.

* * * * *

The portable Marine Station at Millport known as the "Ark" was originally a horse barge on the Forth & Clyde canal and went by the name of "Elizabeth".

The surplus money [nearly £1,600] over from the Fishery Exhibition held in Edinburgh in the year 1882 was handed over to the Scottish Meteorological Society of Edinburgh to form a nucleus from which to start a Marine Station for carrying on Physical and Biological observations on the Scottish coasts.



Figure 1. The "Ark" drawn up onto the shore at Portloy, Gt Cumbræ Is. with Capt.A.Turbyne.



Figure 2. The inside of the laboratory workroom on the "Ark", with Capt. A.Turbyne.
[This is the only picture known to me of the inside of the "Ark"; PGM]

Dr John Murray of the Challenger Expedition was appointed Director of the Station, and in the Autumn of 1883 he purchased the lighter "Elizabeth" at Grangemouth and had her towed to Granton & taken up into the shipbuilding yard of Allen & Co, Caroline Park and a house built upon her to form a Workroom Laboratory etc.

A 30 ton steam yacht the "Medusa" was at the same time in course of construction in the yard of Mr MacAdam, Govan, from which she was launched and towed to the Dock of Messrs Henderson Brothers (by whom she was designed) and there fitted up with all the most modern appliances for the rapid working of all the gear on board, such as trawls, dredges, sounding lines with thermometers attached for taking temperatures etc. etc.

Dr. Murray having obtained a lease of the Granton Quarry from the Duke of Buccleugh at a minimal rent, the "Ark" was launched about the end of March and towed round to the quarry & moored in 6 fathoms of water. The "Medusa" was brought from the Clyde and took up her berth alongside the "Ark" a few days before the opening of the Station which took place about the middle of April 1884, the ceremony being performed by Dr Murray (in the absence of Professor Haeckle of Jenna [Haeckel of Jena]) before a large gathering of scientists & others.

The scientific staff appointed by Dr Murray to carry out the work at the Station were Messrs J.T. Cunningham, *Zoologist*, John Rattray, *Botanist* & Hugh Robert Mill, *Chemist* & *Physicist* [and subsequent biographer of Sir Ernest Shackleton?].

After conducting work for a year on the Firth of Forth and on the coast between Berwick & Dundee (this work consisted of dredging & trawling, shore collecting, taking temperatures & collecting samples of water at different depths for analysis), a Laboratory, tanks etc were erected on shore near the quarry and the "Ark" was removed to Millport on the Clyde (where she still remains) to form a Branch of the Granton Station, the "Medusa" doing the work of both Stations and thus a good knowledge & comparison of the West & East coast Fauna was obtained. Also the comparison of temperatures was thoroughly undertaken and worked out and the results published in the Transactions of the Royal Society of Edinburgh.

On the Firth of Forth 12 Stations were laid down on the Charts between Alloa & May Island, where temperature observations were observed at surface, bottom and intermediate depths, and water samples collected for analysis at stated intervals throughout the year. While on the West coast, over what is known as the Clyde Sea Area, this area includes all the sea and saltwater lochs inside an imaginary straight line drawn from the Mull of Cantyre [Kintyre] to Corsewall on the South, and another line drawn between Greenock & Helensburgh on the North. Over this area no less than 56 Stations were marked off for observing temperature & collecting water samples at all seasons of the year. The deepest water in the Forth is found a little above the Forth bridge, 40 fathoms, and to make observations at every 5 fathoms there did not occupy much time, while on the Clyde it was not an uncommon thing to spend over an hour at one of the deep sounding Stations. The deepest water in the Clyde Sea Area is to be



Figure 3. Sir John Murray's steam yacht 'Medusa' (from Chumley, 1918).

found in Lower Loch Fyne off Skate Island below Tarbert, 106 fathoms, this hole is situated in a deep trough which extends from off Brodick in Arran up Loch Fyne past Tarbert where the depth is from 80 to 100 fms along its entire length. At each Station when ready to sound the Water Bottle was rove on to the line and rested on a toggle (a short piece of wood) immediately above the lead, then the first thermometer was fixed on at one fathom from the lead, and if a deep sounding, 10 fms were run out then another thermometer fixed to the line, then another 10 fms & another put on, all having messengers or weights suspended from them for reversing the thermometers, the water bottle also being closed by a heavy messenger, then the line was run off the Drum of the Deck Engine till the lead struck the bottom when a few feet of the line was hauled in to prevent the water bottle touching the mud if any sea was on, and the thermometers left for 3 minutes to register the temperature, then a messenger was sent down the line from the deck to reverse the upper thermometer, which in turning over let free the suspended weight to reverse the next & so on. Temperatures were taken at every 10 fms at a deep Station from bottom to surface then intermediate ones if necessary when any sudden rise or fall was detected between any two consecutive readings.

The advantage of the Reversing Thermometer is that it does not change when coming through a colder or warmer layer but retains the temperature it registered at time of reversing.

The work of the "Medusa" was not confined to the Clyde Sea Area alone but extended to most of the Northern Lochs in the West of Scotland, where the numerous dredgings & trawlings proved of great interest. Many of the animals found in some of the Deep Lochs which are cut off from direct tidal communication by a shallow barrier running across the entrance, such as Loch Etive & others, were not supposed to inhabit the British Seas, or only to be found at a considerable distance from the land. Large collections were sent to the South Kensington Museum and lists prepared by the Naturalists there and sent to Dr Murray who intends publishing all the results shortly.

Several specimens of a rare mollusc [mollusc] *Neomenia carinata* were taken for the first time in British waters in Lochs Etive & Duich, while only a single specimen was taken in the Clyde district by the "Medusa" and is the only one recorded. Then a very common shell in many of the Clyde Lochs *Scrobicularia alba* [now *Abra alba*] is almost whol[l]y wanting in the Northern Lochs, while another shell only rarely found in Loch Fyne *Lucina spinifera* [now *Myrtea spinifera*] is the prevailing shell (especially single valves) in the Northern Lochs.

Again in the Firth of Lorne, at the mouth of Loch Hourn, Upper Loch Torridon & off Portree in depths of from 25 to 110 fathoms, large numbers of an alcyonarian, *Funiculina quadrangularis* were taken. In a single haul of the dredge in the Firth of Lorne between Oban & Lismore Lighthouse 98 specimens were captured some of them measuring 6 feet in length. These creatures stand upright at the bottom of the sea, waving like a field of corn having the smooth end rooted in the mud. Another alcyonarian, *Pennatula phosphorea*, grows to a much larger size in the North than in the Clyde district while not a single specimen of *Funiculina* has been taken to the South of Oban. Some crustaceans especially *Calocaris macandreae* [*macandreae*] and *Pasiphaea sivado* are only rarely met with in the Clyde district especially the latter while it is to be [met] with in great abundance at a depth of 80 fms in Loch Aber, and the former abundantly in Loch Carron.

Other instances could be given showing how that some animals may be very rare or wanting altogether in one loch yet very abundant in another, also how animals of the same species may differ in size etc from different localities yet only separated from each other by a few geographical miles.

A study of the surface organisms of the sea at all seasons also proves very interesting, during the winter months scarcely any eggs or larvae are to be met with but in the early spring and throughout the summer months, large numbers of eggs of invertebrates & fishes are to be found floating in the surface & subsurface waters along with myriads of larval forms.

During March, April & May immense masses of pelagic diatoms, which are algae with silicious [sic] tests appear at & near the surface, and on these the larvae feed. As summer advances the diatoms develop & gradually sink to the bottom where they also serve as food to the creatures living there.

The Clyde district has long been a favourite hunting ground of the Naturalist, teeming with its varied fauna, while in the landlocked lochs he may collect on the shore or trawl in 60 to 100 fathoms for more rare forms in weather when it would be impossible to work on an exposed coast.

The late Dr Robertson the Cumbrae Naturalist for years strongly advocated Millport as a centre for a permanent Marine Station for the study of Zoology & Botany, and in the Autumn of 1893 he and Mr George McCrie of Glasgow got a Committee formed [Dr Robertson, Profs Young, Bower & King, Messrs John Grieve, William Jolly, George McCrie (Chairman), James Rankin, William Martin & Dugald Bell as Secretary] who took the matter up and appealed to the Public for funds to enable them to erect a Station at Millport & having got £800 a commencement was made to build last August [eventual cost was around £1,000 plus £200 fittings] when Dr Robertson cut the first sod [17th Aug. 1896], the foundation stone was laid on 17th Oct. but Dr Robertson was unable to be present being confined to bed with a serious illness from which he died on Nov. 20th within 8 days of completing his 90th year. The Station is expected to be opened early in June [in fact it was opened on 15th May 1897 at one o'clock], the Building is of two stor[e]ys, and the Laboratory which can be converted into 10 separate workrooms if necessary, the top flat is, with the exception of a small private room, all Museum, which is lighted from the roof & one large arch window facing the South [It might be mentioned here for the interest of future generations that the foundation stone, whichever one that is, is hollow and contains a sealed time capsule].

Since the Spring of 1894 the Station Committee through the kindness of Dr Murray have had the "Ark" as a Station for the use of students & others desirous of doing research work & the number of workers during that season was 6, the season of 1895 brought 9 and last season 16, some coming from England but the majority from Scotland, some from Edinburgh [during 1896 alone, 5528 members of the public visited the "Ark", Dr Robertson apparently venturing to hint to singletons that precedent dictated they come in pairs (Stebbing, 1891)!]. For nearly 40 years the late Dr Robertson along with Mrs Robertson explored the basins of the Clyde district & gathered together a vast collection of its Fauna & flora. The Algae received also their special attention and the Herbarium of Mrs Robertson is considered one of the best in the country.

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In Memoriam William Thomas Stearn 1911–2001

On 23rd May 2002, the Society marked the passing of its late President, Professor William Thomas Stearn, with an appreciation of his life and work. Five people who knew William Stearn well spoke at the meeting in the Jodrell Laboratory Lecture Theatre under the chairmanship of Professor W.G. Chaloner FRS, also a Past-President of the Society. The Society is most grateful to the Director of the Royal Botanic Gardens, Kew, Professor P.R. Crane FRS for allowing it the use of the facilities of the Gardens for the occasion, which included a reception afterwards. The presentations are detailed below.

William Stearn – The Monographer
Brian Mathew

It is particularly appropriate that I am to address William Stearn's achievements in the field of monographs, as we at Kew have just completed the editing and preparation of his Botanical Magazine Monograph, *The genus Epimedium*, which he told me a few months before his death would be his 'botanical swansong'. In completing the revision, William went full circle, as this genus was the subject of his first major published work in 1938 and he retained a lifelong interest in the herbaceous Berberidaceae. It is sad that he did not see bound copies of the new work, but his spirit will live on with us as we read through its pages. It is destined to be a popular publication as the genus is now the subject of great interest among horticulturists, largely thanks to the activities of William in encouraging others to seek them in the wild and to cultivate them.

The 1938 monograph was an extraordinary achievement for a young man at the start of his career, a meticulous study of the species known at that time. The content and format he adopted for that work really set the scene for later works – that unmistakable blend of history, classical literature, early botanical illustration, herbalism and taxonomy that became a trademark of Stearn's work. Much of the information about the European and western Asiatic species of *Epimedium* could not be improved and has been repeated almost unchanged in the present work. However, many new discoveries have been made in China in recent decades and these gave him renewed enthusiasm. He studied and described them in detail, wherever possible from living material as he felt that he had a greater understanding of the species if he knew it as a living, growing organism.

William Stearn was always ready to show his gratitude for the help he received and accordingly dedicated the new volume to Robin and Sue White, who cultivated many of the plants for him, to Darrell Probst for his valuable introductions from China, and to Mikinori Ogisu who became a great friend through a mutual interest in the genus. Ogisu's extensive travels in China have resulted in the introduction of many *Epimedium* species and Stearn acknowledged his invaluable contribution by describing not one but two species after him, *E. mikinorii* and *E. ogisui*.

On the subject of epithets, one noteworthy feature of Stearn's work is the careful

attention to the etymology of plant names and of course he loved, and played with, specific epithets. One feels that some authors of *Epimedium* species were trying for the record of number of letters in an epithet and on one of our editorial sessions William and I were joking about *Epimedium trifoliolatabinatum* and *Epimedium borealiguizhouense*. I think that those of you who know his voice well can hear him saying "Oh, I say, that's a good one"!

Another genus which occupied William Stearn's interest over a long period was *Allium*. In fact he once said that he had chosen *Allium* to study because it was large and complex and would therefore provide enough material for a lifetime's study. He estimated the number of species at 750. Maybe only William knew just how complicated it was and that is the reason for the lack of a monograph. It is unfortunate for us that William did not combine his vast knowledge of the genus into a monograph, although we do have a considerable amount published in separate papers and several Flora accounts, and through his unstinting help to other students of the genus.

The Liliaceae *sens. lat.* provided a rich source of material for William Stearn and in particular we associate his name with *Lilium* through the standard work *Lilies of the World* by Woodcock and Stearn, published in 1949. This replaced an earlier, more gardening-based work, by Woodcock and Coutts. In spite of Stearn's name being absent from the authorship of the first book and subordinate in the second, he did make very considerable contributions to both. In fact, in the preface to *Lilies of the World*, Woodcock announced that "I was fortunate in enlisting the cooperation of Mr W.T. Stearn..... to whom practically the whole of the preparation of the present work must be ascribed".

Such was Stearn's generosity in aiding others, and one becomes aware of this over and over again. For example, in Elmer Applegate's excellent 1935 monograph of western American *Erythronium* there is an acknowledgment to him for assistance in matters of typification.

For his most valuable work *Botanical Latin* Stearn searched and extracted from a huge number of literature sources. This led Prof. Tomlinson to coin a play on words which I think could be applied equally to William Stearn's frequent input into other people's publications: 'he left no tome unstearned'.

Other genera in which William Stearn developed specialist taxonomic expertise were *Vinca*, *Symphytum*, *Anemone* and a host of others for the accounts in the *RHS Dictionary of Gardening*. His love of the genus *Paeonia* and of matters concerning Greece were brought together in 1984 with the completion of *The Genus Paeonia in Greece*, prepared in collaboration with his contemporary Peter Hadland Davis and illustrated by friend and colleague Niki Goulandris. This bore the unmistakable mark of a Stearn publication with sections on such topics as mythology, early images and herbalism as well as the more formal taxonomic treatment.

Finally I would like to comment on how helpful and generous William Stearn was with his time and knowledge, and a great encouragement to young botanists. It is fitting

that the Merlin Trust is mentioned in connection with this event – a Trust formed by an old friend of William's, Valerie Finnis (Lady Scott), to enable young plantsmen and women to pursue their interests.

On a personal note I would like to say that I did manage to resist his solicitations to work on a monograph of *Allium*, so that troublesome genus still awaits a new young botanist with the enthusiasm and persistence of William Stearn.

So, with a glimpse of his input into monographs I leave you with just another of the facets of this talented man. We must be grateful that he lived so long and provided us with much valuable literature and entertainment. Also of course to Ruth for the devoted support which enabled him to pursue his interests with so much tenacity.

W.T. Stearn: the Royal Horticultural Society Years (1930–1952)
Brent Elliott

William Thomas Stearn was born on 6 April 1911 in Cambridge. Growing up in the postwar years, he was unable to get grant aid to let him attend university. He therefore educated himself; he attended evening classes under A.C. Seward and Harry Godwin; his first paper, on a new disease of *Campanula pusilla* (*Peronospora corollae*), was published at the age of 18; and he attended the 5th International Botanical Congress, at Cambridge, 1930. Meanwhile, to support himself, he worked in Bowes and Bowes' bookshop in Cambridge, and there he was discovered by E.A. Bowles, the gardener and amateur botanist, and recommended by him to the Royal Horticultural Society as a successor to its librarian, H.R. Hutchinson, who was due to retire in 1934.

Stearn told the story many times of his arrival at the RHS. The Library had recently, in 1930, been rehoused in a new floor added at the top of the Vincent Square building, with a half-timbered pitched ceiling and bookcases projecting like spines into the reading room. He made his way to this third floor, found the Librarian, Mr Hutchinson, sitting at his desk, and announced his arrival. Mr Hutchinson asked him what he wanted. "I'm the new librarian." "Are you sure you've come to the right place?" Stearn assuring him that he had, Mr Hutchinson began to get flustered, declaring that no one had told him about this, and went off to find the Secretary. The Secretary at this time was Colonel Durham, who as his title indicates, had a rather military bearing and a curt way of dealing with underlings. He informed Hutchinson that it was quite right, Mr Stearn was his successor.

I have to say that internal communication within the RHS has improved in the last seventy years.

In fact, Stearn was officially employed as Assistant Librarian, because the role of Librarian had been downgraded. At the end of 1930, the Society, going through one of its periodic fits of reorganisation, created a new post, of Technical Adviser and Keeper of the Library, and to this appointed Frederick Chittenden, who had been, first, Keeper of the Wisley Laboratory for twelve years, and then Director of Wisley Garden for a

further twelve. Rumour holds that this was a way of kicking Chittenden upstairs, and wresting Wisley from his control. So Hutchinson had to report to Chittenden for his last years in the Library.

Chittenden retired from his library office in 1939. Stearn officially became Librarian, but the role of Keeper was not yet removed. Chittenden was replaced in that capacity by an active Council member, Edward Ashdown Bunyard, who may be remembered with pleasure or otherwise as the man who introduced the 'Golden Delicious' apple into this country. But Bunyard's term of office lasted less than a year, and in October he committed suicide. He was succeeded by Daniel Hall, until 1943; and after that the office of Keeper was deleted.

By then, Britain was at war, and Stearn saw service in the RAF in India and Burma, while his assistant, Miss Cardew, formerly a clerical assistant to Sir Aurel Stein who had helped to catalogue his Chinese collections, became Acting Librarian.

Stearn returned to the RHS after demobilisation, only to find an acute housing shortage in London. While waiting to find accommodation for his family, he lived in the Library, sleeping in the Committee Room, and spending his evenings working on the revision of *Lilies of the World*, and on his projected work on botanical illustration.

Collins planned to publish a work on botanical art in its New Naturalist series, and in a wonderful example of the left hand not knowing what the right hand was doing, different people at Collins approached Stearn and Wilfred Blunt separately to commission the work. When the confusion was discovered, it was decided that Blunt would write the book, and Stearn would edit and revise it. In 1950 *The Art of Botanical Illustration* was published in the Collins New Naturalist series, and long remained the standard history of the subject. Stearn's role was properly announced in 1994, when he revised it for a new edition. In his later years he wrote introductions or texts for a number of works on botanical art, present and past: *The Australian Flower Paintings of Ferdinand Bauer* (1976), *An English Florilegium* (1987), *Hooker's Finest Fruits* (1989), and *Flower Artists of Kew* (1990).

Now, what of Stearn's practice as Librarian during his years with the Society? The Library Committee minutes are mainly concerned with acquisitions only, so the principal record is the card catalogue. Hutchinson's entries are minimalist: author, title, and date, no publishers' names, no bibliographical information, frequently not even cross-references for multiple authors. Stearn's entries were made according to British Museum rules, but often went far beyond normal cataloguing to incorporate information about dates of publication of parts.

Within a few years of Stearn's appointment, the RHS Library had received its largest ever bequest of books, from Reginald Cory, and Stearn had faced the task of cataloguing the works. The Society for the Bibliography of Natural History had recently been established, with Stearn as a founder member; during his RHS years, he published sixteen articles for its *Journal* based on his cataloguing work, giving the publication dates of

thirty important botanical publications, ranging from Webb and Berthelot's *Histoire naturelle des Iles Canaries* to Ventenat's *Jardin de la Malmaison*. Of course, he continued this work after leaving the Society, and the evidence of the catalogue cards shows that raw material for several of his later articles was compiled in the Lindley Library.

The importance of this compilation of exact dates of publication was, of course, that under the international rules of nomenclature botanical names are determined by priority of publication. His taxonomic and nomenclatural concerns also found expression in the two major tasks the Society imposed on him during his last years in its employment.

The first of these was the completion of the *RHS Dictionary of Gardening*. This work had been commissioned before the War, with Chittenden as its Editor-in-Chief; Chittenden had ended up writing far more of the articles than originally planned, because the War took so many eligible writers into active service. Chittenden succumbed to cancer in 1950, and the work of completion fell to Stearn and Patrick Synge, the Editor of the Society's publications. As a result of this work, Stearn later said that he had become an expert on all plants from So to Z; he wrote the descriptions for some 500 species.

The Society had also become concerned about the continuing revision of the Code of Botanical Nomenclature, and had given notice that it wanted to raise the question of the nomenclature of garden varieties of plants. Stearn represented the RHS at the International Botanical Congress in Stockholm in 1952, with proposals for a Code of Nomenclature for Cultivated Plants. While the delegates were sightseeing in Stockholm on the last day, Stearn was hastily writing the first draft of the Code, ready to hand out to the botanists on their return to the hotel. The first edition of the Code was published in 1953, and introduced the terms "cultivar" (for a variety either raised or maintained in cultivation) and "grex" (for a group of hybrids of common parentage).

In 1952 Stearn left the RHS for the Botany Department of the Natural History Museum, where he worked for the next twenty-four years.

William T. Stearn: The Museum Years (1952–1976)
Chris Humphries

Today we are here to commemorate the life of William T. Stearn and it is my purpose to say a few words about the life he spent in the Natural History Museum, or the British Museum (Natural History: BMNH) as it was called in those days. William worked at the BMNH from 1952–1976, which was, in fact, one of the happier periods of the Museum's history. From the early 1950s until the mid 1970s there was a steady growth in the number of staff, new active programmes and exhibitions were being undertaken and various new scientific enterprises such as the introduction of palynology and culture techniques for algae were introduced. Coupled with this, was a gradual change from a rather Oxbridge Edwardian Public School image of scholarship to redbrick university in-your-face view of science. The post-war grammar school boys were coming of age.

Although I had met William on visits from Reading University as a PhD student it was not until I started at the Museum in 1972 that I got to know him. At that time the Museum was changing dramatically. On one hand the only word-processors available were sit-up-and-beg typewriters, pencils and fountain pens, whilst in the basement of the former Central Services department there was a state-of-the-art electron microscope. Characteristically, William fitted into the period really rather well because he bridged the traditional roles of the Museum with the new ideas of the time. He always used a fountain pen to write his papers and in fact his retirement present from the Museum was a Mont Blanc fountain pen that could carry almost a bottle of ink in one fill, but at the same time he was intrigued with the results one could obtain from the electron microscope. In fact, he had an active interest in various new techniques, such as numerical taxonomy, which he applied in his studies of *Oplonia* for example¹, but on the other hand he knew that various principles of priority of names and Linnaean scholarship were absolutely essential for systematics and taxonomy, and consequently just as important as any new scientific method. On the one hand he was the epitome of 19th century values, whilst on the other he took a great interest in new ideas.

Irreverent young curators, such as me, knew William as “Wumpty”, because he always signed his name as “Wm T. Stearn”. Despite the nickname we, nevertheless, always had the greatest respect for him and his thoughts and particularly on matters botanical, bibliographical and important collections in the Museum, such as the plants and artefacts from Cook’s various voyages². William’s contributions to the Museum are far too many to mention in a brief review as he published nearly 200 papers³, large and small, during his time at the BMNH. What I can say though, is that his contributions were wide-ranging: and included everything from new taxa, bibliographic notes, and descriptions of prints and drawings of materials held in the Museum right through to full-blooded monographs of critical groups. For me, his work fell into the three quite separate areas of endeavour: Linnaean scholarship and nomenclature, botanical bibliography and systematic research.

With regard to the Botanical Code and the use of Latin for botanical description, he was the major craftsman and through his scholarship he was the undisputed father of the department. As an idealistic student and a young curator at the BMNH, I considered that Latin descriptions were a ludicrous hang over from the *lingua franca* of the 18th century. In my view at that time we should have then, like the zoologists, embraced English as the 20th century equivalent. However, William convinced me that the Modern Botanical Code and the Linnaean Method (despite all of the corruptions that have had to be made to keep the method alive) was actually a necessity, if only to keep Botany away from the tyranny of commissions and legislative bodies.

He believed that the Botanical Code in the format that it had at that time, and that it has had since, allowed anyone on the globe to be in a position to validly name and describe new plant taxa. Thus, by using Latin, standardised descriptions and exacting terminology every botanist could communicate with any other throughout the world.

He was well aware that many botanists poorly or inadequately understood the practical side of Linnean taxonomy. In this regard two of his finest publications whilst on the staff of BMNH we should commemorate include the famous 176-page preface to the Ray Society Facsimile of *Species Plantarum*⁴ and his truly magnificent masterpiece, *Botanical Latin*⁵ that came out in 1966. William was very proud of both of these publications, and, never being a shy person, fondly told me that the lengthy preface took him only ten weeks to actually write. It is worth pointing out however, that his contributions to standardising nomenclature, description and terminology were a greater intellectual challenge, and so much so that *Botanical Latin* actually took 20 years of preparation to complete! With recent machinations of certain phylogenetic systematists attempting to introduce the Phylocode⁶ they would do well to rethink their ideas and consult carefully both *Botanical Latin* and the preface to the facsimile *Species Plantarum*.

In addition to being the voice of nomenclature for the BMNH and the botanical community at large, William was at pains to check the fine print of any manuscript that passed under his nose. He and Robert Ross, who was the keeper who employed me in the Museum, where both were important mentors in those days, introducing me to the many aspects and short-cuts that could be prised out of the Natural History Museum library. William knew the library and botanical literature backwards and expended much of his energy on making the library work and revealing the importance of critical botanical works. In addition to revealing the system and works of Linneaus he went on to provide critical notes on a wide range of publications from Magnol's *Flora Monspeliense*⁷ to the dates of publication of de Candolle's *Systema* and *Prodromus*⁸. These works are mere representatives of the mountain of literature that William analysed of critical importance during his career in the Museum. One of his favourite publications was *Cooks' Florilegium*², which I agree is a fine facsimile and became the inspiration to me to eventually publish all of the copper plate engravings from Captain Cook's first voyage⁹.

Pencil notes, or extracts from his numerous publications, or the fine print of key botanical literature added to the inside covers of rare and valuable books in the library made their use so much easier by revealing critical details of publication dates and the relevance of each individual tome. William's advice to anyone using the older literature was to always read the preface as so much was included there as a key to understanding the publication in hand. With respect to sorting out dates of various publications he was particularly proud of his painstaking efforts to seek out every one of the 106 fascicles of Webb and Berthelot's *Flora of the Canary Islands* a seminal work published over a period of 15 years (1835–1850), which contained many new descriptions and names of European and Macaronesian taxa. His efforts came to fruition in a critical land-mark paper for students of the Macaronesian Flora in 1937¹⁰. Although he published this well before his Museum career, he constantly referred to it and still gave reprints to me and others working on the Macaronesian flora during the early stages of our careers.

As another mark of his scholarship he used his considerable knowledge of Greek and Latin to great effect and on one memorable occasion saved me from derision. In

1976 I wished to publish a new genus of alpine daisies from the High Atlas Mountains of Morocco. Because they had yellow disk florets that changed from bright yellow to deep brown during the flowering season I decided on “Brunocephalus” as a generic monika. William laughed and said that the fusion of Greek and Latin was a terrible mistake and suggested instead “*Heliocauta*”, which the new genus eventually became¹¹.

William was a very good botanist and wrote monographs on a wide range of plants, especially from the West Indies, on groups such as *Oplonia* (Acanthaceae)¹, *Columnnea* and *Alloplectus* (Gesneriaceae)¹². William had an almost eidetic memory that was a great advantage for a taxonomist. He could rattle off facts and figures at the drop of a hat. His studies of John Lindley and other botanical giants attest to his memory skills. He was an extremely creative researcher and immense gatherer of interesting stories about the plants upon which he worked. One of my favourite stories revolves around a chapter of a book that he published in 1970¹³ on *The Cannabis plant: botanical characteristics*. William felt privileged that he could work on the famous set of *Cannabis* specimens collected and organised by the Canadian Botanist, Ernest Small. Small’s task was to sort out the many different varieties of *Cannabis sativa* and *C. indica*. Small concluded that a division into two species was unjustifiable as the many varieties from Indian hemp (used for rope and twine) through to the plants richest in 8-hydroxycannabinol (which made the best ganja) simply overlapped in any morphological characters. They could not be teased apart even using sophisticated discriminatory methods. Although I cannot confirm its veracity, William told me a great story that allegedly occurred during the cannabis debates in the USA, when Richard Schultes swore on oath that one should not be fined for smoking *Cannabis indica* because it was different from *C. sativa*. Only the latter ‘species’ occurred in the statute book. Another well-known botanist, the late Arthur Cronquist, said to Schultes that it was impossible to use hairs to separate the two species, to which Schultes is reported as saying “Why not Arthur – I have seen you split whole families apart on the presence or absence of hairs”.

The BMNH celebrated its centenary in 1981. On retirement in 1977 William was commissioned to write the official history of the Museum¹⁴ in celebration of the centenary year. In three years and in 414 published pages he documented the key events of the Museum from the autocratic rule of Richard Owen, the first director, through to the rather secretive directorship of Ron Hedley. Had he been given full rein the book would have been twice as long as it eventually turned out. William was quite critical of the way that the Museum was being run and had compiled a detailed account of the Trustees minutes over the century. To his chagrin the official party line was put into force. The then Librarian, Tony Harvey, and Museum Secretary, Ron Saunders, edited the book. They cut William’s manuscript to half its size and insisted that the chapter on Museum administration had to be written by them – which was duly inserted into the text. William was very worried about the decline (as he saw it) of scholarship within the Museum. Fortunately, there is still plenty of good work coming out of the Museum but these days life is more complex and much tougher for the researchers.

To end, I would just like to say that one of the most poignant moments in my life was whilst working as the curator in the European Herbarium. My little office at that time was a cubby hole in the Herbarium which when the door was shut was quite concealed. There was no ceiling on the cubby hole so everything that was said in the herbarium could plainly be heard. One day William and James Edgar Dandy, who was retired at the time, were in the Herbarium talking about nomenclature of *Flora Europaea*, when the conversation switched to what each might say about the other depending on who shuffled off their mortal coil first¹⁵. Neither of them knew I was in my cubby-hole and so I eavesdropped as any Nosy Parker might. William said that he would write about James' work on the Sloane Herbarium and his great insights on nomenclature, whilst James said he would write that William was one of the greatest scholars and compilers of botanical works. I think this is a fitting tribute to William and I leave you with that thought.

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The Linnean Scholar
Ray Desmond

When I was recently helping Charles Nelson to compile a definitive list of William Stearn's publications, it struck me how frequently Linnaeus's name cropped up. William contributed articles to both books and periodicals about Linnaeus's life, his system of classification, nomenclature, and his interest in tropical and economic botany. He even collaborated in a lengthy translation from the Swedish of Linnaeus's account of his official survey of two Baltic Islands. Wilfred Blunt consulted him when he was researching his life of Linnaeus and William wrote an appendix on linnean methodology for Blunt's work. Blunt dedicated his work to Ruth Stearn, a gracious tribute, much appreciated, I'm sure, by William.

Linnaeus's reform of plant terminology and description was discussed in William's *Botanical Latin*, published in 1966. By 1992 this book had reached an enlarged fourth edition and is widely regarded to be his *magnum opus*. If he had never written anything else he would still be remembered with admiration and gratitude as its author. So let me digress for a moment to write a few words about the genesis of this remarkable work.

During the early period of his war service in the Royal Air Force, William began amassing data for an etymological dictionary of botanical terms by scanning Floras borrowed from the Library of the Royal Horticultural Society. When he discovered some years later that such a dictionary had already been published in Holland before the war he decided to expand the material he had accumulated into what he called a " 'do-it-yourself' Latin kit" for taxonomists. In between other projects he continued to extract relevant words from standard botanical texts recording them on thousands of slips which Ruth and her son Roger helped him to sort into categories such as descriptive terminology, colour terms, geographical names and general vocabulary. These form the core of the book supported by a substantial section on grammar and syntax. And there is much else besides in this *vade-mecum* for plant taxonomists. Only a scholar with William's empathy with botany and botanists, particularly of the seventeenth and eighteenth centuries, could have compiled such an encyclopaedic manual.

William's apprenticeship in Linnaean studies probably began during his early twenties when he made the first of a number of visits to Sweden. He prepared himself for this trip

by acquiring a smattering of Swedish. With subsequent tuition from a Norwegian teacher he improved his fluency in the language. He was such an apt pupil that he even absorbed his teacher's accent with the result, so Ruth tells me, that at first some Swedes mistook him for a Norwegian!

When the Ray Society published a facsimile edition of the first volume of Linnaeus's *Species Plantarum* in 1957, followed by the second volume two years later. William now recognised as a Linnaean expert, contributed a substantial introduction to this reprint. His essay amounting to 176 printed pages demonstrates his formidable erudition, his consummate skill as a researcher (often unearthing new facts from obscure publications), his command of Latin, German and Swedish, and his ability to consolidate this wealth of information into a coherent narrative, meticulously annotated with pertinent bibliographical references, and all made easily accessible to the reader through the provision of a good index. This essay remains a model of its kind.

He also wrote introductions, albeit on a much more modest scale, to facsimiles of Linnaeus's *Genera plantarum* and his *Mantissa plantarum*. He identified Linnaean names based on plant descriptions by John Ray in his introduction to the reprint of Ray's *Synopsis Methodica*.

William's scholarship, ever lightly borne, was distinguished by a ready wit and a sense of fun. I still remember a lecture he gave to the Royal Society in which he mischievously called Linnaeus "a botanical Peeping Tom". That was a typical Stearn quip! He had at his command an impressive repertoire of anecdotes and enjoyed sharing with his audience some long-forgotten titbit of botanical gossip or scandal. This instinctive rapport with the past made him a memorable speaker.

On the occasion when William was selected for the Asa Gray Award in the year 2000, the American botanist Dr Hugh Iltis recalled one particular lecture that William gave to a class of students. In a spontaneous improvisation he demonstrated the hierarchy of families, genera, species and varieties by grabbing a nearby tray of cutlery and proceeded to arrange its contents into various sorts of knives, forks and spoons, and then further subdividing them by style and size. That, I'm sure was a lecture those students would never forget!

Throughout his career and during a long retirement he was prominent in the activities of the Linnean Society of London. As its Honorary Botanical Curator for about 26 years he dealt with many enquiries regarding Linnaeus's herbarium and library. Gina Douglas, the Society's Librarian tells me that she always looked forward to escorting him to the locked vault where these treasures are kept, knowing that she was going to be entertained as well as informed by his random remarks on Linnaeus and his contemporaries. The Linnean Society presented him with its Gold Medal for his services to botany in 1976, and three years later elected him President.

On the occasion of the Society's bicentenary in 1988, he revised A.T. Gage's *History of the Linnean Society*. A signal honour was the commissioning of his portrait by the



William Stern (seated) on the occasion of his 80th birthday.

Society as a mark of the high esteem and affection in which he was held by its Fellows.

The acclaim he enjoyed in Sweden must have given him particular pleasure. He was elected an honorary member of the Swedish Linnean Society. He received an honorary doctorate from Uppsala University where Linnaeus had studied medicine and later occupied the chair of medicine and botany. He was presented with the Linnaeus Medal of the Royal Swedish Academy of Sciences. But his most prestigious distinction was his being made a Commander of the Order of the Star of the North in May 1979, the very same Order to which Linnaeus had been admitted over two centuries earlier.

Linnaeus called his most talented and adventurous students his “Apostles”. I think that William deserves to be remembered as a latter-day Apostle who through his writings and lectures, enlightened so many of us about the life and times of the great Swedish naturalist.

W T Stearn – 20th Century Renaissance Man and Friend
James Moody

Previous presentations have provided diverse and interesting insights into Dr. Stearn's many interests and achievements as a Botanist, Taxonomist, Biographer, Bibliographer, and Historian. I would like to share some observations on Dr. Stearn as a Renaissance Man and friend.

I have chosen the term *Renaissance Man* to describe the remarkable range of Dr. Stearn's interests, involvements, and enthusiasms. His love of knowledge and also a love of the past achievements of humanity are among the very core values of the Renaissance ideal.

All of us present and many hundreds besides have enjoyed and appreciated the warm smile and caring attention Dr. Stearn shared so readily. Being a friend was important to him. To use an 18th century comment "he had a happy genius for friendship". His warm open friendship came in part from the fact his life had been blessed with friendships that were crucial, supportive, and opened important opportunities that proved key to his life's work and his many interests. He made frequent appreciative references to those who had befriended him early in his career. He readily extended this same supportive mentoring and friendship to those who sought him out.

The ideal of being a friend and the unique value of each fellow human were central to his open attitude toward others. For the most part he was unreserved in extending his enthusiasm and encouragement to all those who sought him out whether it was a student gardener at Kew, a millionaire patron of the Chicago Botanical Garden, a fellow botanist, or a university student seeking advice about research. All found that their questions triggered the most amazing outpouring of information relevant to their subjects of inquiry. It was obvious that he remembered everything he had ever read.

All of us can recall the immediate sense of empathy we felt as we first shook his hand, observed his welcoming smile, and noticed the direct gaze and twinkle of his eyes from beneath those remarkable fulsome eyebrows. We instinctively sensed it was the smile of a concerned and interested mentor and friend. There was no doubt about respect and seriousness with which Dr. Stearn treated all those coming to him for advice and assistance.

All who have shared time with him have come to admire his breadth of knowledge and the enthusiasm with which he shared it. We have also experienced his kindly straightforwardness as he would stop the discussion and make a correction in a firm helpful manner. This straightforwardness allowed all of us to feel secure in risking our ideas, questions, and speculations since we knew they would be evaluated, corrected, and encouraged with an honest appreciation of a trusted friend. His friendly mentoring was always accompanied by a ready sense of humour and an explosive laughter. As this humour occurred we will all recall how his face would change from pink to red and the laughter flowed freely.

Dr. Stearn's friendship included an almost universal interest in any topic in which friends were interested. A poem, a discussion of Ancient Greek geography, comments on prehistoric burial customs, or primitive medicinal practices found a ready ear and discerning mind. Consequently we all enjoyed Dr. Stearn as an interesting and exciting conversationalist. Talking was a means of both sharing and learning. While he could spend many endless hours in silent research and writing he nevertheless found great pleasure in conversing with friends and associates.

Perhaps I should add that his love of conversation was matched by a wonderful ability to be a careful listener – an increasingly rare quality in our busy lives. It was not uncommon that days or weeks after a conversation he would say, “I recall you said – or you asked about – such and such,” and then he would share information and insights.

I am sure all of his many friends and associates valued the fact that Dr. Stearn could not abide hurtful and cruel behaviours. The few times I saw flashes of his disapproval it was always related to events in which unnecessary or intentionally hurtful comments or actions had taken place. He was a compassionate man and a friend who felt deeply about the struggles and problems of his friends and his fellow humans everywhere. All dimensions of our human life were of interest to him. This is certainly evidenced in his giving and caring approach to his friends and associates. On almost every occasion we talked over a period of more than 35 years he always inquired about family, health, and other details of private life we had shared. Of course our conversations and letters mostly concentrated on topics of a more academic sort. Like all those privileged to have his friendship I always came away from a visit, conversation, or written communication with him feeling enlightened, enriched, and enlarged in knowledge, and encouraged in heart and spirit. I found his Christian Humanism wonderfully encouraging and contagious.

I will close with a piece of autobiography he shared during the summer of 1998. As you may recall, that summer the veterans of the Southeast Asia War, 1940 to 1945, were finally being recognized and honoured. I sat with him to watch the old veterans march down The Mall in their final review by the Queen. As we watched there were sad and tearful moments as he reflected on the cruelty of the Burma Campaign.

However at one point he shared a story about his role as a Royal Air Force health instructor during the closing phase of the war in Burma. Among those he was attempting to enlighten was a young cockney. After a week of instruction which included a brief history of Western Science this cockney lad began to inform his fellow airmen about science and scientific facts he had learned. He always began his comments by saying, “Harry Tottle says....” Stearn learned that he was, in fact, the Harry Tottle being quoted. Aristotle and W.T. Stearn had been combined as the source of new truth for this cockney lad. In the subsequent 60 years many hundreds friends and associates have been fortunate to have the same experience of friendly mentoring from Dr. Stearn. I would like to say for all of us who were privileged to have W.T. Stearn as a mentor and friend, “Well done Harry Tottle, Well done!”

Programme

2002

- 13-15th Nov. PLANT SPECIES-LEVEL SYSTEMATICS: PATTERNS
PROCESSES AND NEW APPLICATIONS
at the National Herbarium, Leiden, Holland
† Professor Pieter Baas FLS
- 20th Nov. 1.30 THE DIVERSITY OF POLLEN AND SPORES
– 5 pm Linnean Society Palynology Specialist Group
- 5th Dec. 6 pm LINNÉ'S HAMMARBY: A FLORAL AND CULTURAL HERITAGE
Dr Mariette Manktelow FLS
(also discussion of the forthcoming Tercentenary of Linnaeus 2007)
- 13th Dec. METALLOPHYTES: PLANTS THAT CONCENTRATE
HEAVY METALS
† Dr John Edmondson FLS
- 14th Dec. 2.30pm **Conversazione**

2003

- 23rd Jan.* 6 pm AROID TAXONOMY
Dr Simon Mayo
- 3rd April 6 pm CAN EVERYONE UNDERSTAND?
EXHIBIT DEVELOPMENT AT THE EDEN PROJECT AND
THE PUBLIC UNDERSTANDING OF SCIENCE.
Sue Minter FLS
- 27th-30th April International Polyploid Conference (with RBG Kew)
† Andrew Leitch FLS
at RBG Kew
- 24th May 2 pm **Anniversary Meeting**
- 18th-22nd Aug. Systematics Association 4th Biennial Meeting
† Prof. Chris Humphries FLS & Gordon Curry
- 25th Sept. 6 pm HUXLEY & THE RATTLESNAKE
Jordan Goodman
- 2nd Oct. ROBERT HOOKE (1635–1703) COMMEMORATION
† Paul Kent
with and at Christ Church, Oxford

Unless stated otherwise, all meetings are held in the Society's Rooms.
For further details please contact the Society office or consult the website
– address inside the front cover. *Election of Fellows †Organisers

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