Editorial

This issue contains a brief history of the English East India Company so that readers may appreciate more fully the contributions made to natural history by two of its employees – namely Wallich (July *Linnean*, **12** (2): 2) and Raffles (p. 14).

Most East India Companies (viz Dutch – founded 1602; French, 1604; Danish, 1612) realised that natural history, particularly the study of plants, was a necessary requirement for their senior employees so that they might distinguish the many vegetable products of the East Indies (arrowroot, bird-pepper, copal, ebony, galls, gum, indigo, myrrh, screw tree, tacamahaca etc.) from others of similar character of other countries. To this end the Dutch East India Company always employed a physician (well versed in Materia Medica) in each of its newly founded trading posts.

The Directors of our East India Company, on the other hand, were "renowned for their interest in profits and dividends" and it was not until the end of the eighteenth century and early nineteenth century that the Company began to seriously investigate the natural history of its territories (Southern India and Mysore, 1799; Ceylon, 1798; Eastern India, 1806). It also established botanic gardens (Calcutta, 1787; Saharanpur, restored 1818), menageries (Barrakpore, 1804) and museums (Company Museum, London, 1801; Asiatic Society's Museum, Calcutta, 1840). Meanwhile Paul Hermann (1646–1695) had visited Ceylon as medical officer to the Dutch East India Company in 1669 and his herbarium eventually passed to Linnaeus who published in 1747 *Flora Zeylandica sistens Plantas Indicas Zeylonae Insulae*. A number of Linnaeus' pupils had used the Swedish East India Company to collect in Africa and Asia (particularly Japan). One such pupil was Anders Sparrman (who had already travelled to China (1765) and made an extensive collection of plants) who was working in Cape Town when Captain Cook stopped there on his second voyage to pick up stores (October 1772) and the Forsters persuaded Cook to take him (Sparrman) along with them to Antarctica and Polynesia. Two years and 6,000 nautical miles later he landed again at the Cape where he continued where he had left off – working for the Swedish East India Company – tutoring the Resident's children and collecting plants and sending them back to Linnaeus. One such plant was the so-called African hemp with white-petalled flowers and a large boss of purple-tipped stamens, which if blown upon or touched, open like the unfolding tentacles of a hydroid. Linnaeus called the plant *Sparmannia africana* – the mis-spelling of his pupil's name was perpetrated by his son (Linnaeus fil) when the name was eventually published.

The Swedish East India Company also encouraged both their captains and naturalists to keep diaries of their travels. Anders Sparrman's diaries, especially those from the Cook voyage, give insights into the characters of both the Captain and crew as well as descriptions of the various island races that they encountered on their journeys.

Society News

The books advertised on the rear cover offer real bargains for Fellows, and it is to be hoped that advantage will be taken of them. The *Synopses of the British Fauna* advertised in *The Linnean* for July contained an unintentional error. Dr. Kermack,

longtime editor of the series, tells us that all the *Synopses* listed there were of the new series. We shall also try to avoid the funereal appearance of the advert in future. Details of these and other volumes can be found at *www.linnean.org.uk*, the Society's Web site.

The Society has lost a number of distinguished members latterly. These include Miss B.A. Blofield, D.J.O'D. Bourke Esq, F.H. Brightman Esq HonFLS, Dr. H-H. Heine, Prof. S. Horstadius FMLS, Dr. J. McArthur HonFLS, E.W.B.H. Milne-Redhead Esq ISO, T. O'Grady Esq HonFLS, Prof. Dr. J. Poelt FMLS, Dr. G. Trapp FRSE and Prof. H.W. Woolhouse. We note here many Fellows recognised for significant contributions to science and to the Society and our sympathy goes to all their relatives and friends.

Professors Dianne Edwards FLS and Phillip Vallentine Tobias FLS have been elected Fellows of the Royal Society.

Dr. Andrew Benjamin Smith FLS has been elected a Fellow of the Royal Society of Edinburgh. Dr. Smith was the Bicentenary Medallist in 1993.

Royal Society Research Fellowships have been awarded to Dr. W.J. Goodrich, Irene Manton Prizewinner 1993 and Dr. A.R. Hemsley FLS, former Secretary of the Palaeobotanical Specialist Group.

The Annual Regional Meeting in 1977 at Chester Zoo will be held in collaboration with the University of Liverpool, specifically the Dept. of Human Anatomy and Cell Biology. Dr. Gordon Reid FLS is being joined by Professor Bernard Wood FLS in compiling the programme of this meeting and the theme will revolve around hominid evolution.

Amongst other meetings we have noted are *Isolation and Identification of Fungi from Natural Habitats* Mrs S. Groundwater (IMI, Bakeham Lane, Egham, Surrey TW20 9TY) at IMI on 18–22nd November 1996; *Basic Mycological Techniques* (as previous meeting) on 3–4th December 1996; *Molecular Mechanisms of Evolution – Structure, Function, Expression and Regulation of Genes and Proteins* Keystone Symposia (Drawer 1630, Silverthorne, CO80498, USA) in Santa Fe, New Mexico on 16–21st February 1997; *13th Symposium, Morphology, Anatomy and Systematics* Dr. Louis Ronse De Craene FLS & Professor Erik Smets FLS (Symposium Secretariat, Laboratory of Plant Systematics, Botanical Institute, KU Leuven, Kardinaal Mercierlaan 92, B-3001 Leuven, Belgium) in Leuven on 6–11th April 1997; *Aquatic Life Cycle Strategies, Survival in a Variable Environment: An Interdisciplinary Conference* Professor Michael Whitfield (MBA of UK, The Laboratory, Citadel Hill, Plymouth PL1 2PB) in Plymouth on 14–17th April 1997; *All-Russian and International Bryozoan Conference*, Dr Valantina I. Gontar (Laboratory of Marine Research, Zoological Institute RAS, Universitetskaya Quay 1, Saint Petersburg 199034, Russia; e-mail: gvi@zisp.spb.su) in Saint Petersburg from 30th June to 8th July 1997. This conference will provide a forum for biologists and palaeontologists interested in the biology and fossil history of Bryozoa, and their roles in marine fouling and fossil reefs. Associated field excursions will visit bryozoan-rich localities in the Lower Palaeozoic near St Petersburg; *VIth Congress of the European Society for Evolutionary Biology* Jos van Damme (ESEB97, NIOO PO Box 40, 6666 ZG Heteren, The Netherlands) in Arnhem on 24–28th August 1997.

208th Anniversary Meeting of the Society held at Burlington House, Piccadilly, London W1V 0LQ on Friday, 24th May 1996.

The President took the Chair and welcomed some one hundred members and their guests to the meeting.

Apologies were received from **Dr. Bell, Professor Berry, Dr. Ferguson, Mr. Goodenough, Mr. McClintock** and other Fellows.

The following signed the Obligation in the Roll and Charter Book and were admitted Fellows: **Roland Bailey, Karl Samuel Kropf, Clive Dawes, Edwin Richard Nye, Catherine Mary Oliver and Kate Seddon.**

The Minutes of the Meeting held on 25th April 1996 were taken as read and signed.

The Executive Secretary read for the third time the Certificate of Recommendation for the election of one Fellow *Honoris causa*. The President appointed as scrutineers Messrs. **Ronald Cleevely, Tom Pain and Campbell Smith.**

The following was elected a Fellow *Honoris causa*: **John Gregory Hawkes.**

The following were elected to Council: **Andrew C. Campbell, Richard L. Feil, Robert Reid Mill, Robert W. Scotland and Vaughan R. Southgate.** Details of the new Council members have been circulated to Fellows and can be found below:

ANDREW C. CAMPBELL (FLS 1993) is a zoology graduate of St. Andrews (1967) and currently Senior Lecturer at Queen Mary & Westfield College, University of London. His doctorate was in echinoderm biology at Oxford, where he was additionally Senior Scholar at Christchurch and demonstrator in invertebrate zoology. He was appointed to his present college in 1973, and is a FZS. His main areas of research are echinoderms and intertidal and coral reef biology, on which he has published extensively.

RICHARD L. FEIL (FLS 1991) graduated from Westfield College in 1985 (Class 1) and obtained his Ph.D from Queen Mary & Westfield College four years later. His thesis title was *Condition, Resource and Activity of Juvenile Dover Sole*, the work being mainly carried out in the Thames Estuary. With Dr. M.W. Trett FLS, he worked on fine-tuning a meiofaunal-based impact assessment methodology, which proved widely useful industrially. Dr. Feil is an experienced environmental auditor and currently works for British Petroleum plc as a corporate environmental policy adviser with particular responsibility for environmental reporting.

ROBERT REID MILL (FLS 1980) also graduated from St. Andrews. Since 1976 he has worked at the Royal Botanic Garden, Edinburgh as a plant taxonomist. This has involved such major floristic projects as *Flora of Turkey*, *Flora of Bhutan* and *Flora of China*. Currently he is working with others on the flora of the Arabian Peninsula and Socotra. Other research interests include the systematics of Boraginaceae and Scrophulariaceae. He is an Associate Editor of *The Botanical Journal* of the Society and also serves on the editorial boards of *The Edinburgh Journal of Botany*, *Turkish Journal of Botany* and *Watsonia*. He is a keen photographer.

ROBERT W. SCOTLAND (FLS 1988) graduated in 1987 from King's College, London (Class 1), obtaining the Carter Gold Medal. His Ph.D was the result of work

on plant systematics at the Natural History Museum, for which he shared the Society's Irene Manton Prize in 1992. During his Ph.D he was also awarded the Royal Microscopical Society's Annual Prize for Research related to scanning electron microscopy of Acanthaceae pollen grains. Subsequently he was awarded the Claridge Druce Junior Research Fellowship in the Department of Plant Sciences, University of Oxford, where he is now a Lecturer in Plant Science, Plant Systematics and Biodiversity, holding a Royal Society University Research Fellowship. He serves on the Council of the Systematics Association, of which he is Botanical Secretary.

VAUGHAN R. SOUTHGATE (FLS 1988) is Head of the Biomedical Parasitology Division at the Natural History Museum and Director of the WHO Collaborating Centre for the identification and characterisation of schistosomes and their intermediate hosts. Graduating from the University of Wales at Aberystwyth in Zoology, his Ph.D was obtained at Christ's College and the Molteno Institute in Cambridge for work on Digenea. In the course of his work at the Natural History Museum he has travelled extensively throughout Africa, in addition to field missions in India, Mauritius and São Tomé. He has previously served as a Vice-President of the Society and of the Royal Society of Tropical Medicine and Hygiene. He has also served on the Council of the British Society of Parasitology.

The Fellows were elected as on the list displayed in the Society's rooms. The Officers elected were: President, **Prof. B.G. Gardiner**; President-elect, **Prof. Sir Ghillean Prance**, Treasurer, **Prof. G. Ll. Lucas**; Zoological Secretary, **Mr. B.J. Ford**; Botanical Secretary, **Prof. C.J. Humphries** and Editorial Secretary, **Dr. D.F. Cutler**.

Presenting the **Linnean Medal for Botany** to **Professor John Heslop-Harrison**, the President said: "Professor John Heslop-Harrison was born in Middlesborough in 1920, entering King's College, Newcastle in 1938 and graduating in 1941.

During the war he was involved with radiolocation and radar work in various localities and was demobilised in 1945. He was then appointed lecturer in agricultural botany at King's College and in 1946 moved to the Botany Department of Queen's University, Belfast, completing his PhD on the physiology of flowering in angiosperms in 1948. In 1949 he was invited by W.H. Pearsall to join his staff at University College London and to accept a lectureship in taxonomy. There he carried out research on various aspects of experimental taxonomy and the hormonal control of angiosperm sexuality, working with tissue and anther culture in the Regents Park laboratory with his wife Yolande.

In 1954, Jack was appointed to the Chair of Botany in Belfast, succeeding James Small. Here he and Yolande continued their joint research on photoperiodic and temperature effects on morphogenesis, using a small phylotron, later becoming involved with electron microscopy.

In 1959, he was invited to the Mason Chair of Botany at the University of Birmingham, where he was one of the chief organisers of the movement to establish the School of Biological Sciences (the first in the UK). Meanwhile, he acquired an excellent electron microscope, developing his research on the fine structure of chloroplasts, anther and pollen development and pollen wall morphogenesis.

Whilst at Birmingham, Jack Heslop-Harrison spent nine months as Visiting

Professor at the University of Wisconsin, Madison in 1965 and in 1966 accepted a permanent post there.

His main research at Madison continued to be related to flowering physiology, meiosis and gametophyte development, using newer and more powerful electron microscopes as they became available. In 1970, because of the intolerable student unrest on the Madison campus, Jack and Yolande returned to the UK. In the following year, 1971, he accepted the post of Director of the Royal Botanic Gardens, Kew.

The Kew post was almost entirely administrative, but he was later able to continue his research with a grant from MAFF, establishing electron microscope facilities in the cellars and servants' quarters of the Director's house.

1977 saw his retirement from Kew and a Visiting Professorship at Amherst at the University of Massachusetts. On his return to the UK, he took up a Royal Society Research Fellowship at the Welsh Plant Breeding Station at Aberystwyth. Here he directed his research attention to grass reproduction, expanding his interests to male gametophyte and embryo sac development. He also became interested in pollen-stigma interaction. Although he retired from the Royal Society Professorship in 1985, he and his wife continue to use the laboratories at the Breeding Station.

Many awards and honours have been bestowed on Jack Heslop-Harrison – honorary DSc's at Bath, Belfast and Edinburgh Universities, Fellowship of the Royal Society and awards from various acadamies in Belgium, Germany, India and the USA.

He received the Darwin Medal of the Royal Society, the Keith Medal of the Royal Society of Edinburgh, the Trail-Crisp Medal of the Linnean Society and many others.

Jack and Yolande have published between them over 300 research papers. This is a tribute to their dedication to botanical sciences. We are delighted to see Professor Heslop-Harrison here with his wife today to receive the Linnean Society's Medal for Botany."

Presenting the **Linnean Medal for Zoology** to **Professor Keith Vickerman**, the President said: "This year's Linnean Medal for Zoology goes to one of the world's most eminent protozoologists, Professor Keith Vickerman, Regius Professor of Zoology at the University of Glasgow. Keith Vickerman was born in Huddersfield in 1933 and was educated at the King James' Grammar School, Almonbury, where the seeds of his interest in natural history were encouraged and flourished. In 1952 he forsook his native Yorkshire to come to London to study at University College where he obtained a first class honours degree in Zoology in 1955. While in London he developed an interest in protozoology and, partly influenced by Professor Dorothy Mackinnon, previously Professor of Zoology at King's College, then a research associate at University College and one of the outstanding protozoologists of her day, he subsequently made his way to what was then an external college of the University of London, now Exeter University. There he began his PhD studies into the biology of the protozoan fauna of tipulids under Dr. Julian Hawes, a former student of Professor Mackinnon. In the peaceful environment of Exeter, he began to hone his teaching skills and he inspired and introduced a generation of undergraduates to the importance of the disciplines of cell biology and made lifetime friendships – with the exception of the groundsmen who objected to his habit of pouring noxious chemicals on the

lawns in order to make the tipulid larvae come to the surface!

Exeter, for all its merits, was not the place for a high-flying scientist and in 1958 he returned to University College, attracted by the offer of a lectureship in zoology from Peter Medawar. The Zoology Department at UCL was at that time an exciting and stimulating place in which to work and his colleagues included not only Medawar, but also John Maynard Smith, last year's Zoology Medallist, and David Newth, who later preceded Keith as Regius Professor in Glasgow. It was, however, in the Department of Anatomy that Keith first began to appreciate the potential of the emerging science of electron microscopy and quickly established himself as an expert in this field.

In the early 1960's, Keith began to look for more economically important protozoa on which to work. Here the close proximity of the London School of Hygiene and Tropical Medicine and contacts established earlier in his career proved to be a useful springboard. At that time, practically no work had been done on the electron microscopy of any of the parasitic protozoa of humans apart from the malarial parasites, and Keith decide to work on the trypanosomes that cause sleeping sickness in Africa. Here he found a fertile field which took him to major centres of trypanosome research in Uganda and Nigeria (where he found in both places other interesting protozoa to work on in his "spare" time). African trypanosomes have complex life cycles about which little was known and even less understood. From his studies with the electron microscope and his understanding of cell biology, Keith elucidated the nature of the cyclical changes that occur during the trypanosome life cycle and the biochemical basis of these changes, particularly the role of extrachromosomal DNA and the trypanosome mitochondrial system, discoveries that generated massive research efforts into applied fields such as chemotherapy as well as basic science. However, he had a bigger problem to solve. Trypanosome infections are characterised by undulating parasitaemias, the nature of which had fascinated protozoologists since the work of Ronald Ross in 1910. By the 1960's it was thought that these undulating parasitaemias must be brought about by antigenic variation but the mechanism of this was not known. From his detailed studies with the electron microscope, Keith identified the thick glycoprotein coat which covers the trypanosomes and predicted that it was the actual variant antigen, which indeed it was. These two related discoveries, the mechanisms underlying the cyclical changes that occur during the trypanosome life cycle and the mechanism of antigenic variation began what must be regarded as a growth industry involving not only parasitologists but also cell biologists, biochemists and molecular biologists all over the world. In 1968, he moved to Glasgow as Reader in Zoology and director of an embryonic protozoology unit to which he quickly attracted a number of promising young scientists and which, under his guidance, quickly grew to one of the most important centres in the UK. In the 1970's and 1980's he and his team became interested in the role of the tsetse fly in determining the course of the antigenic variation in the subsequent population of trypanosomes in the vertebrate host and made numerous contributions to our understanding of the nature and consequences of the processes involved. Today, it is rare not to see Keith Vickerman's name cited in papers on any aspect of trypanosome biology and his life-cycle diagrams, with few modifications, are continuously reproduced, shown at scientific meetings and even appear on the

covers of textbooks. Keith's interests in the fine structure of trypanosomes led him to discover new and interesting organelles in these important flagellates and led him to speculate on their origins and evolution in the tradition of Fellows of the Linnean Society. More recently, his attentions have turned to lesser known protozoa, heterotrophic flagellates (which are among the most important consumers of bacteria), parasitic flagellates of plants, and parasitic dinoflagellates which he identified as the cause of a devastating disease of the Norway Lobster.

Keith Vickerman's achievements have received considerable recognition, a personal chair in 1974, the conferment of the title of Regius Professor in 1979, election to Fellowships of the Royal Society of Edinburgh in 1971 and the Royal Society in 1984, honorary memberships of American and French protozoological societies and the British Society of Parasitology, and a Fellowship of University College. In 1994 he gave the Leeuwenhoek Lecture of the Royal Society and has been much sought after as a speaker at conferences all over the world.

Keith Vickerman's research achievements tend to overshadow his other qualities, for example his electron micrographs and biological drawings are among the best ever produced. He is a talented and devoted teacher and, as well as undergraduates, he has inspired several generations of postgraduates, postdoctoral workers and visitors from overseas who now continue to work along the lines that he so carefully laid down. He is an exceptionally good naturalist and has an encyclopaedic knowledge of plants and animals; among his other interests are the arts and music in the company of friends. Few biologists have spanned the subject from natural history to biochemistry so successfully as Professor Keith Vickerman, who is the most worthy recipient of the Linnean Society Medal for Zoology."

Presenting the **HH Bloomer Award for Zoology** to **Dr. John Crothers** for **John Henry Barrett**, the President said: "John Barrett, known to many simply as JB, has enriched many people's lives in his full and varied lifetime. Fellows of the Linnean Society probably link the name to the Field Studies Council and Dale Fort Field Centre and Skokholm Bird Observatory or to that epoch-making book *Collins Pocket Guide to the Seashore* (Barrett & Yonge, 1958). For others, the association will have been with the Pembrokeshire Countryside Unit, the Pembrokeshire Coast National Park, the Council for the Preservation of Rural Wales, the National Museum of Wales or the Welsh committee of The National Trust. For yet others, it is Dale Yacht Club and a GP 14 dinghy called Dingy Skipper.

JB was born in King's Lynn, Norfolk, on 21st July 1913 and educated at Repton and St John's College, Cambridge, where he read Economics and Geography. He graduated in 1935 with no particular career in mind – provided it did not involve economics. Visiting the University Appointments Board, he was asked if he had ever considered looking after elephants in the jungles of Upper Burma. He hadn't, but that is what he set off to do – working as an Assistant Forest Manager for the Bombay Burmah Trading Corporation under the aegis of "Elephant Bill" (J. H. Williams). He rapidly acquired a knowledge of elephants but, unfortunately, he also contracted cerebral malaria and was invalided home early in 1936.

The University Appointments Board next recommended him to apply for a regular

commission as a pilot in the Royal Air Force. ["There's a war coming and those who are properly trained will have a better chance of surviving it!"]. The RAF never asked him about the malaria, so he never told them! He became a bomber pilot and, by the time he was shot down over Schleswig Holstein in September 1941, he was a Squadron Leader. A promising service career was abruptly curtailed and he spent the rest of the War in a series of Prisoner of War camps – Oflag VIB (Warburg), Oflag XXI (Schubin), Stalag Luft III (Sagan) [where he was part of the support team for the 'Wooden Horse' escape] and, after the winter march across eastern Europe, Stalag IIIa (Luckenwalde).

It was whilst he was at Oflag VIB that his serious bird watching began. The chance of war had thrown him together with John Buxton, who knew the island of Skokholm well, George Waterston, who was later to revive ornithology on Fair Isle, and Peter Condor who would later direct the RSPB. These four recorded migration patterns and the minutiae of tree sparrow and chaffinch nesting behaviour. Birds gave a purpose to dreary days and, doubtless, JB's enthusiasm will have influenced others. Who else could have persuaded a German security guard to obtain for him all three volumes of Niethammer's *Deutsche Vogelkunde*? Wing Commander Barrett was eventually released by the Russians and repatriated but a career in the peace-time RAF no longer appealed. The dreadful shadow of the Air Ministry corridors loomed and JB determined to resign, once he could find an income to support family life.

JB's choice of a post-war career was a direct consequence of that POW experience. He knew full well how his (then) limited knowledge of natural history had lightened the wartime darkness and was determined to discharge the debt by helping others develop an interest in the world around them. He became, in 1947, the first Warden of Dale Fort Field Centre, overlooking Milford Haven at the extreme south-western tip of Wales; one of the four pioneering Field Centres established by the infant Council for the Promotion of Field Studies (later to become the Field Studies Council). JB wrote of the tribulations and triumphs that attended this task in the *Biological Journal*, **32**, (1987) 31–41. Almost single-handed, he had to convert an empty building amid the post-war shortages (this involved collecting drift-wood for nails and raiding abandoned military establishments for electrical wire), service the Bird Observatory on the nearby island of Skokholm, research his local environment and then devise and develop appropriate field teaching techniques to convey the hard-won information in an interesting and stimulating manner. Especially, he had to develop ways and means for identifying seashore animals and plants, for there were no books written for the layman. At the same time, he had to make the Field Centre pay its way. Money was in very short supply: university groups came in the Easter and Long Vacations, and amateur naturalists in summer but there were too many empty periods.

The financial crisis associated with the Korean War nearly sank the FSC. The 1952 season appeared a forlorn hope: the Wardens accepted a 50% cut in salary. It is a matter of historical fact that the determination of JB and his colleagues was rewarded. FSC Wardens developed courses appropriate for students taking A-level Biology or Geography, and appointed teaching staff to run them. Money came in. Dale Fort developed an international reputation for teaching marine biology and as a model for the way a Field Centre should be run whilst Skokholm became an important centre for research on the house mouse (Dr Sam Berry) and sea birds (in association with

the Edward Grey Institute of Field Ornithology at Oxford) as well as being a Mecca for amateur birdwatchers.

John Barrett was an inspiring teacher, full of anecdotes, and with a spectacular breadth of knowledge. Staff and visitors alike were encouraged to develop research projects in the local area, and publish them in the *FSC Annual Report* (and, later, in *Field Studies*, the journal established in 1959 to handle such papers) to ensure that the information became widely available. Lacking any formal scientific training himself, he was never constrained by the artificial divisions of Botany, Zoology, Geology, Geomorphology, Meteorology etc. etc. He claims never to have read an A-level syllabus, but developed his own to cover the essentials of the Pembrokeshire coast environment. There were a lot of very satisfied customers and his influence on the young Assistant Wardens and Field Assistants who worked for him, was profound.

In the end, it was probably the demands from schools for a more exam-oriented course (and its inevitably restricted view of the natural world) that caused JB to leave the Fort (but not Dale village) in 1968 to establish the Pembrokeshire Countryside Unit in Broad Haven from where he continued to run enormously popular guided walks along the coastal footpath, sharing his delight in the countryside with anyone and everyone who would join him. This work with a wider public was augmented by regular contributions on BBC radio and television. Perhaps best remembered are the listeners' questions sessions with Derek Jones in the Living World or Wildlife series. Less well-known was his disgust when the BBC refused to televise the mouth parts of a crab, because they would be too terrifying! Having had to teach himself seashore identification (with the oft-acknowledged assistance of experts visiting the Fort, especially Professor R. (Dick) D. Purchon and Mr Bassindale), he was exactly the right person to collaborate with Professor Maurice Yonge to produce the first "Field Guide" to invertebrate animals and non-flowering plants. *Collins Pocket Guide to the Seashore* has remained in print since 1958 and is only this year to be replaced by a new book. Meaningless jargon was ruthlessly eliminated but scientific precision maintained. Its influence would be hard to exaggerate, both on the people who used it (one boy was heard to remark "Sir, this animal is wrong !") and on a generation of authors/publishers who have sought to emulate it.

Very few non-biologists can possibly have had such a lasting impact on the training of biologists and in the development of their supporting literature. John Barrett is a very fitting recipient of the H. H. Bloomer award."

Presenting the **Bicentenary Medal for a Zoologist under 40** to **Dr. Paul Hugh Williams**, the President said: "Paul Hugh Williams is currently Senior Scientific Officer in the Biogeography & Conservation Laboratory at The Natural History Museum, London. Born 22nd May 1959, Paul is married, and now lives in Bromley, Kent. He attended Chislehurst and Sidcup Grammar School for Boys from 1970–1977, completed his BA in Natural Sciences at Trinity College Cambridge in 1981, where he also obtained his MA and PhD in 1985. His thesis *On the distribution of bumble bees (Hymenoptera, Apidae) with particular regard to patterns within the British Isles*, was completed under the supervision of Dr Sally Corbet. He has undertaken extensive fieldwork on Hymenoptera, including an undergraduate expedition to Kashmir and

Ladakh in 1980 to collect social wasps and bumble bees, and other trips to both the old and new world since. His postdoctoral research career has included two NERC Research Fellowships, the first awarded in 1985 to study mate-searching behaviour of male bumble bees, the second in 1992, to develop biodiversity measures and protocols for land site prioritisation for conservation. During 1993–94 he was a Fellow at the Institute for Advanced Study Berlin, to collaborate on a book on systematic methods for choosing priority areas for the conservation of biological diversity. A passionate man, with a wide variety of skills (including flute to grade VIII, as well as very considerable computer programming skills in C and BASIC languages), Dr Williams is already a leading and highly original figure in biodiversity research.

Paul Hugh Williams is a biologist with unusually broad interests who, from the beginning of his career, has brought together a range of disciplines, notably ecology, systematics and biogeography, to remarkable effect. Schooled at Cambridge, Paul quickly transformed a passion for bumble bees into a pursuit of general questions about pattern and process biology. While his research is characterised by great theoretical and analytical strengths, he has always been equally concerned for empirical content, and his field studies have involved trips to Canada, Costa Rica, Kashmir, Ladakh, China and Korea, as well as much work in the UK. For his investigations into the distribution of bumble bees, analysed at local, regional and global scales, he was awarded his doctorate in 1985. His thesis emphasised community ecology in endeavouring to understand determinants of diversity. This included detailed field work carried out at Dungeness in Kent, one of the largest shingle-ridge systems in Europe, and the most species-rich site in Britain for bumble bees—and, incidentally, the only locality for the rarest member of our fauna, *Bombus subterraneus*.

During his tenure of a NERC postdoctoral fellowship on bumble bee mate-searching behaviour, held at The Natural History Museum, he developed a deep understanding of bumble bee taxonomy, solving problems at species level (especially those posed by widespread polymorphism and polytypism) through his field-based knowledge, and at higher taxonomic levels by cladistic analysis. This work continues, and Paul will soon submit a synonymic annotated checklist and classification of bumble bees of the world. By 1989 he had also developed his *WORLDMAP* computer program, originally written to bring order and understanding to global patterns of bumble bee distribution, to the point where its potential for the wider exploration of diversity measurement was clear. Paul's skills and interests became apparent to his Museum colleagues, and he was asked if he could modify *WORLDMAP* to pursue new problems in biodiversity. Paul rose to the challenge and, by posing basic yet simple questions about biological diversity (what is it?, where is it?, and how do we measure it?), soon established himself in the growing debate about biodiversity measurement and conservation.

Paul Williams not only possesses a deep understanding of the interface between systematics, ecology and biogeography, but also has tenacity, remarkable programming and presentation skills, and an incredible appetite for sheer hard work. Highly motivated, an intense, deep and logical thinker prepared to challenge established views, Paul is also highly productive as a team member working with colleagues at the Natural History Museum and other institutes, or as an individual scientist. At the relatively

early age of 37, he has become a leading figure in the field of biodiversity assessment. His work on area selection methods stands alongside that of Australians Chris Margules and Robert Pressey, and the American 'gap analysis' group (with all of whom he regularly collaborates); his work on characters as currency for assessing biodiversity value stands favourable comparison with that of CSIRO applied mathematician Dan Faith and Harvard bio-economist Martin Weitzman; and his ideas on scales of surrogacy, from characters through species and higher taxa to whole ecosystems, place him alongside the many distinguished biologists who have struggled with biodiversity assessment in the face of incomplete and insufficient data on the existence and occurrence of species.

Right now, through his latest version of *WORLDMAP (WORLDMAP IV for 32-bit WINDOWS 95 and WINDOWS NT*, which will support greater data capacity, much faster calculations, and multiple maps on screen), Paul is exploring new approaches to biogeographic pattern analysis, based on such techniques as nestedness and turnover. Paul believes he is getting close to knowing sufficient about a variety of taxa and their distributions to be able to apply quantitative methods to disentangle influences of both ecology and history on diversity patterns observed at broader scales. His research is expected to lead to a deeper understanding of how global and regional patterns of diversity have evolved, and what must be done if we are to conserve as much of the Earth's biological diversity as possible. Now called upon regularly by IUCN, WWF, the Nature Conservancy, CSIRO Wildlife and Ecology, GAP, Darwin Initiative, British Trust for Ornithology and many other leading conservation organisations, Paul Williams will continue to grow as a world-leader in this vital application of systematics and ecology. The Linnean Society is proud to recognise his outstanding achievements to date, as well as his great potential, by awarding him the 1996 Bicentenary Medal."

THE TREASURER presented the Accounts for 1995. In a statement to the meeting, he said: "To look at the accounts for 1995, one could say that the Society is in a healthy state – in fact, I use these very words in the Annual Report. Our reserves are able to cope with our plans for the maintenance of our rooms and the replacement of our equipment. It also in 'bad times' could maintain the staff to ensure continuity of our activities.

However, our resources could be viewed as inadequate given the present circumstances. Last year you heard that HMG were reviewing the "tenancies" of the Learned Societies in Burlington House and you no doubt have seen the "sell off" activities that have been reported in the press with regard to other state-owned buildings.

If the Society has to face the purchase of Burlington House as part of a Learned Societies' consortium, and/or pay for the "buildings'" external maintenance and appropriate insurances, then immediately our reserves will be seen as totally inadequate for the long term sustainability of our rooms. A further factor must also be taken into account in that any major structural work or failure of services, etc. pertaining to our rooms was formerly dealt with by various agencies set up by HMG. This will also become the responsibility of the Society and so must be planned for.

I do not wish to depress or frighten Fellows as I am sure that we can plan for and develop appropriate funding to deal with these scenarios. However, it is important

that we are all well aware of this situation. We have already put in place a small advisory committee to look at the fund-raising aspects of the Society having to deal with any or all of these scenarios."

Mr Robert Huxley, a member of the Audit Review Committee then moved the acceptance of the 1995 Accounts, which was carried unanimously.

The Treasurer then moved that the firm of Knox Cropper, of 16 New Bridge Street, EC4V 6AX, be appointed in accordance with Bye-Law 13.5, which was accepted unanimously.

The Executive Secretary paid tribute to the work of the Society's staff during the 1995/96 year and asked the Meeting to approve the Society's banking arrangements as a private client of Lloyds Bank, which was agreed without dissent.

The President then gave his address: *The Piltdown hoax – Who Did It?* A motion of thanks was moved by **Dr. Goodhart**. The President, Professor Gardiner, drew Members' attention to forthcoming meetings of the Society before appointing as Vice-Presidents **Dr. Cohen, Dr. Cutler, Prof. Humphries and Dr. Thorpe**. He then declared the meeting closed.

JOHN MARSDEN
Executive Secretary.

The Irene Manton Prize

The Irene Manton Prize for a PhD in Botany was awarded to ***Dr. Dorothy A. Steane****, Rhodes Scholar and currently working in the University of Tasmania at the* Plants for Food and Medicine *meeting, held at Imperial College, SW7 on 4th July 1996. On that occasion the President said:* "The Irene Manton Prize was instituted in 1990 under a bequest of nearly £0.25M to the Linnean Society of London from the late Professor Manton. It consists of a work of art, to which the Society adds a purse. PhD theses examined in the UK during a single academic year (from September to August) are eligible. For 1994/95, six nominations of the highest standard were received by the Society, very similar to previous years, setting those charged with selecting the prizewinner an invidious task. In nominating Dr. Dorothy Steane for the Irene Manton Prize, Professor Leaver, of the University of Oxford, notes that her thesis represents a piece of research which is a tribute to her sheer hard-work, persistence and extraordinary ability to tackle such diverse areas as molecular biology and arduous fieldwork in Africa (not easy for a young woman – selected extracts of Dr. Steane's diary of this part of her research programme will be published in a future issue of the Society's newsletter, *The Linnean*, and make interesting, and occasionally hilarious, reading). She carried out her work with determination and style, making field collections, collecting and analysing two independent molecular data sets and showing unambiguously for the first time ever that *Clerodendrum* L. s.l. is polyphyletic – a great achievement within a three-year PhD.

The area of molecular systematics has blossomed in relatively recent times. Both nuclear and chloroplast genomes are providing new sources of data to compare with existing classifications and morphological data. *Clerodendrum* L. s.l. represents an

extremely large, morphologically diverse tropical and subtropical group of plants (ca. 400 species), whose classification has been controversial since Linnaeus. A main point of disagreement has concerned the monophyly of *Clerodendrum* L.

In her research, Dr. Steane chose to conduct both a restriction fragment length polymorphism study of the chloroplast genome as well as a sequencing study of the internal transcribed spacer region of the nuclear genome. These approaches were not straightforward and threw up problems of mapping the restriction sites and aligning the sequences. Dr. Steane tackled these difficulties with the same rigour as she did the rest of her work for her thesis. Both data sets were analysed separately and combined in the context of cladistic methodology. Both data sets resulted in trees which had a high degree of topological congruence. Both analyses showed most parsimonious cladograms, which included multiple putative outgroups, could not be rooted such that *Clerodendrum* was not polyphyletic. In addition, both analyses were topologically congruent in that the same four major clades within *Clerodendum* L. were discovered. Several publications have been prepared from this work.

The scientific strengths of Dr. Steane's thesis lay in the sheer volume of data produced given the time constraints of the project, the rigorous way these data were analysed and the well corroborated conclusions which dealt a death blow to *Clerodendrum* L. s.l.

Dr. Steane is a worthy recipient of the Irene Manton Prize for 1996.

The Jill Smythies Prize

The Jill Smythies Prize for published botanical art was awarded to ***Mr. Bent Johnsen*** *of Copenhagen at the* Annual Regional Meeting of the Society, *held at the Ulster Museum, Belfast on 27–30th August 1996. On that occasion the President said:* "The Jill Smythies Prize was first awarded in 1988, as a result of the generosity of Mr. B.E. Smythies FLS and in honour of his wife, the late Florence Mary ("Jill") Smythies, whose career as a botanical artist was cut short by an accident to her right hand. It consists of a silver medal and a purse and the works of prizewinners should aid in plant identification, emphasising botanical accuracy and the accurate portrayal of diagnostic characteristics.

Of Mr. Bent Johnsen, Prof. Arne Strid FLS of the University of Copenhagen, writes: As a botanical artist, Bent Johnsen combines meticulous attention to detail with unusual feeling for aesthetic quality. Whilst scrupulously correct, his illustrations are at the same time works of art reminiscent of some of the great masters of the early 19th Century. He makes full use of the stereomicroscope and has a skilful command of many techniques, including Indian ink and watercolours.

For more than 30 years, Bent Johnsen has produced botanical drawings and paintings for teaching purposes and for scientific publications. He provided most of the drawings for Dahlgren's profusely illustrated textbook on angiosperm taxonomy (4 volumes, 1979–81) and for the well known *Families of the Monocotyledons* by Dahlgren, Clifford and Yeo (Springer Verlag, 1985). Other major works illustrated by Bent Johnsen include *Mountain Flora of Greece* (Strid 1986, Strid & Kit Tan 1991). *Orchids of Scandinavia* (1994), with both text and illustrations by Bent Johnsen, includes exquisite

watercolours of almost all the Scandinavian species from live specimens. Preparatory work on this book required expeditions as far as Lapland on a 1952 motorbicycle, lovingly depicted in the introduction. For many years he was teaching a course in botanical illustration to Copenhagen students. Still as active as ever, he is now working on a book with coloured illustrations of the endemic flora of Greece, and produces drawings for the new Danish encyclopaedia.

As a young man, Bent Johnsen spent several years in Greenland as a jack-of-all-trades, including a stint as "sheriff" in remote settlements on the east coast. Not only a botanical artist but also a *Lebenkünstler* he now shares his time between a flat in Copenhagen (conveniently situated just opposite the Botanic Garden) and a summer house on the rocky Baltic island of Bornholm with rich opportunities for fishing and landscape painting. He is a worthy recipient of the 1995 Jill Smythies Prize.

Picture Quiz

The July Quiz (**12** (2):6) featured Thomas Stamford Bingley Raffles (1781–1826) the founder of Singapore and of the Zoological Society and its menagerie.

Born on the 5th July 1781 aboard his father's ship *Ann*, off the harbour of Port Morant, Jamaica he was educated up to the age of 14 at the Mansion House Boarding School in Hammersmith. He then entered the service of the East India Company in 1795 as an extra clerk in the Secretary's office in Leadenhall Street.

The Secretary, William Ramsay soon recognised Raffles' diligence in his work and by the age of 19 he was placed on the establishment as a junior clerk. In early 1805 he applied for a post in the Company's new Presidency and on March 8 (aged 23) was gazetted to Penang as Assistant-Secretary to the new Governor, Phillip Dundas on a salary of £1,500 a year. His initial rank was that of Junior Merchant in the East India Company's service.

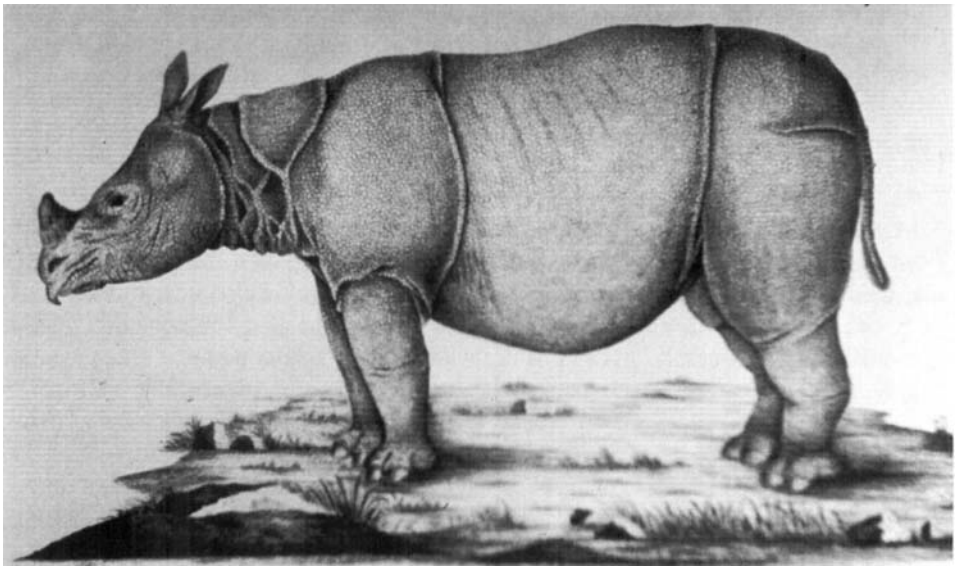
Raffles assiduously studied the Malay language and also visited the not too far distant E.I.C. station of Malacca – the ancient seat of Malay power and tradition. The Company had originally (1805) decided to abandon Malacca and remove the population (of some 20,000) to Penang and leave the settlement to Holland – from whom it had captured it in 1795. Following Raffles' visit there in 1808 and his subsequent report to the Company, in which he argued forcefully against their policy of abandonment, the decision was reversed.

In 1810 Raffles was appointed "Agent to the Governor-General with the Malay States" for the purpose of collecting information and otherwise preparing the way for a Military expedition. And in 1811 Malacca became Raffles' base of operations.

Raffles was a keen natural historian and wherever he was subsequently stationed organised the systematic collection of specimens. Thus while in Malacca he employed four collectors – one for plants, one for land invertebrates, one for marine animals and one for birds and mammals. He apparently kept barrels of arrack and brandy in which he killed the arthropods and snakes before putting them into bottles. He also employed a Chinese artist to paint flowers and fruit.

It was from Malacca on June 11, 1811 that the British invasion fleet left for Java (with some 11,000 troops). The Franco-Dutch forces finally surrendered on October 3, 1811 – although Raffles had already been named Lieutenant-Governor of Java by Lord Minto (The Governor-General of the E.I.C.) on 11 September 1811.

Raffles did his utmost to reform the Dutch colonial system in Java. He immediately introduced a law forbidding slavery (for which he was blamed for (1) taking this step on territory that was not definitely a possession of the Company and (2) if it were – for disposing prematurely of property that might belong to the Company!) and later introduced a land rent system.



Rhinoceros sondaicus – Javan rhinoceros, Horsfield collection.

Following the conquest of Java, Raffles organised, in conjunction with Thomas Horsfield (see July *Linnean*) a survey of the island's natural history. At Raffles' instigation Horsfield communicated with Banks and sent him a collection of 237 plants from Java in 1819. Horsfield studied the zoological collections himself[1] and published on them in 1824 (*Zoological Researches in Java and the neighbouring Islands*) while other of his botanical collections were passed to Robert Brown (*Plantae Javanisae Rariores* 1838–1852) who only described a mere 50 species out of the 2,196 alleged species placed in his hands (all of this plant material is now in the Natural History Museum).

All too soon Java and its dependencies were returned to the Dutch in 1816 in accordance with the Anglo-Dutch Convention of 1814. Nevertheless, Raffles in the six years of his Governorship had ruled the island for the betterment of its people and not with the sole purpose of swelling the profits of the East India Company.

1 See Horsfield, T., 1821. Systematic arrangement and descriptions of birds from the island of Java. *Trans. Linn. Soc.* 1821: 133-200.

Raffles returned to England to recover his health and started writing his monumental *History of Java* which was published in May 1817, the same month as he was knighted by the Prince Regent. Before he had left Java in March 1816, however, Raffles had already been appointed Lieutenant-Governor of Bencoolen (on the west coast of Sumatra, founded in 1682) and in November 1817, fully fit, he once more set sail for west Sumatra. Sumatra (and Bencoolen) was even less hospitable than Java and there was also a small body of African slaves numbering 209 who were likewise the property of the Company, and which he freed. Once more he set about reforming the Dutch colonial system, in particular the system of forced pepper cultivation.

In his short sojourn on Sumatra, Raffles began to investigate the natural history of the island making several journeys of exploration including one to the capital of the ancient Malayan Kingdom of Menangkabu. On one of these excursions, accompanied by the botanist Dr. Joseph Arnold (medical officer to the E.I.C.) he discovered a gigantic flower known to the natives as the Devil's betel-box, later called *Rafflesia arnoldi*. Raffles wrote the following description of it:

> "It is perhaps the largest and most magnificent flower in the world, and is so distinct from every other flower, that I know not to what I can compare it; its dimensions will astonish you. It measured across from the extremity of the petals rather more than a yard, the nectarium was nine inches wide, and as deep; estimated to contain a gallon and a half of water, and the weight of the whole flower fifteen pounds. This gigantic flower is parasite on the lower stems and roots of the Cissus Angustifolia of Bosc. It appears at first in the form of small round knob, which gradually increases in size. The flower bud is invested by numerous membranaceous sheaths, which surround it in successive layers, and expand as the bud enlarges, until at length they form a cup round its base ..... The inside of the cup is of an intense purple, and more or less densely yellow, with soft flexible spines of the same colour; towards the mouth it is marked with numerous depressed spots of the purest white, contrasting strongly with the purple of the surrounding substance, which is considerably elevated on the lower side. The petals are of a brickred, with numerous pustular spots of a lighter colour. The whole substance of the flower is not less than half an inch thick, and of a firm fleshy consistence."[2]

However, Raffles endeavours to establish British outposts on the islands off the west coast of Sumatra brought him more and more into conflict with his superiors in the E.I.C. back in London who were sick of Sumatra and wished to be relieved of its possession.

Accordingly in October 1818 Raffles left Bencoolen for Calcutta so that he might meet the Governor-General, Lord Hastings and make him (and the Company) aware of the strategic position of Sumatra and at the same time discuss the whole business of the Malay Archipelago. Hastings decided to concede Sumatra to the Dutch (eventually surrendering Bencoolen for Malacca in 1825) but entreated Raffles to secure "*the establishment of a station beyond Malacca, such as may command the southern entrance of those Straits*".

On the 29th January 1819 Raffles raised the Union flag on the island of Singapore,

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2 See Brown, R., 1821. An account of the new genus of plants named *Rafflesia*. *Trans. Linn. Soc.* 1821: 201-234, 6pls.

near to where his little squadron of four vessels had cast anchor on the previous day. On the 22 February he wrote from Penang to the Duchess of Somerset:

> "I have also to communicate to you a political event of great import, namely, the accomplishment of the great object which I have always had in view, by forming a permanent British establishment in the Malayan Archipelago, by which the progress of the Dutch supremacy may be checked, and our interests, political and commercial, secured. It has been my good fortune to establish this station in a position combining every possible advantage, geographical and local; and if I only meet with ordinary support from the higher powers, I shall effectually check the plans of the Dutch...".

Raffles had initially left Colonel William Farquhar of the Madras Engineers in charge of Singapore and by the time he returned in October 1822 the population had already passed 5,000 and the annual trade £2 million. Raffles' first act was to abolish slavery. Then he put down cock-fighting, closed the gaming houses, and declared Singapore a free port. Roads were built, swampland reclaimed, a post office founded, magistrates appointed (12) and a botanical garden opened. When Raffles left Singapore for the last time in June 1823 he had laid the foundations for what was to become the fourth largest port in the world.

Raffles had earlier made an extensive collection of Sumatran mammals and birds during his time in Bencoolen, including specimens of the Siamang ape[3]. These he took with him to Singapore and in March 1820 he sent a large consignment of them back to London for the attention of Sir Joseph Banks. He also sent a duplicate set (which included a dried Tapir for his friend – Prince Leopold) to the E.I.C.'s museum in Leadenhall Street.

> "As there was no chance of a direct opportunity, I have sent by the *London* duplicates, and even more complete sets of the quadrupeds and birds than those sent by the *Mary*, numbered, named and ticketed, so as to correspond with my catalogues. I am at this moment superintending a complete set of the drawings, to be forwarded by the present opportunity, *via* Calcutta. I fear there will hardly be time for completing the duplicates of the catalogue of birds. My writers are now engaged upon it, and I will do my best to send it by the present conveyance ... We are now busy in arranging the reptiles and crabs, of which we have a very large collection."

The East India Company was not impressed by this largesse and sent Raffles a coldly worded dispatch forbidding him to expend any more Company funds on such material and especially its dispatch.

This missive was to have disastrous repercussions for the advancement of Natural History, for instead of sending home in advance all of the Singapore material and the residue of the Sumatran collection he kept it all with him until his final departure from Singapore in 1823.

Raffles has gathered together his incomparable assortment of Malay manuscripts, a full set of official papers relating to Java, Sumatra and Singapore as well as his

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3 See Raffles, S. 1821. Descriptive catalogue of a zoological collection made on account of the Honourable East India Company in the Island of Sumatra and its vicinity etc. *Trans. Linn. Soc.* 1821-1822: 239-340; 277-340.

personal papers and natural history material.

> ("There were many thousands of specimens of animals whose carcasses had been taken out but stuffed like life. There were also two or three trunks full of birds in thousands and of various species, and all stuffed. There were also several hundred bottles of different sizes filled with snakes, scorpions and worms of different kinds. The bottles were filled with gin to prevent corruption. The animals were thus like life. There were also two boxes filled with coral of a thousand kinds; also shells, mussels and bivalves of different species. On all these articles stated above he placed a value greater than gold, and he was constantly coming in to see that nothing was hurt or broken.")

Unfortunately, after less than a day's sailing time out of Singapore, the ship caught fire ("by the shameless carelessness of the steward going with a naked light to draw off brandy from a cask which took fire"). The survivors eventually succeeded in making their way back to Bencoolen, but Raffles had lost by his own account:

> "— all my notes and observations, with memoirs and collections, sufficient for a full and ample history, not only of Sumatra, but of Borneo, and almost every other island of note in these seas; — my intended account of the establishment of Singapore; — the history of my own administration; — Eastern grammars, dictionaries, and vocabularies; — and last, not least, a grand map of Sumatra, on which I had been employed since my arrival here, and on which for the last six months, I had bestowed almost my whole undivided attention. This, however, was not all; — all my collections in natural history — all my splendid collection of drawings, upwards of *two thousand* in number — with all the valuable papers and notes of my friends Arnold and Jack[4]; and, to conclude, I will merely notice that there was scarce an unknown animal, bird, beast, or fish, or an interesting plant, which we had not on board; a living tapir, a new species of tiger, splendid pheasants etc., domesticated for the voyage; we were, in short; in this respect, a perfect Noah's Ark."

When he finally got back to England one of his first objectives was the foundation of the Zoological Society which he had originally contemplated in 1817. The prospectus was drawn up and issued on the 20 May 1825 with one of its original objectives being the establishment of a museum of prepared specimens. Accordingly the first material deposited in the Museum of the new Zoological Society included Raffles' Sumatran collection sent home in 1820 together with the material previously collected by Dr. Horsfield and deposited in the E.I.C.'s Museum at India House (all of which eventually finished up in the N.H.M. when the Museum closed a few years later).

Raffles was elected a fellow of the Linnean Society on February 5, 1825 and died on the 5 July 1826. Just before he died Raffles had become acquainted with our founder, James Edward Smith and they became sworn friends.

He was buried in Hendon Parish Church and there is a statue to him in both Westminster Abbey and Singapore.

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4 William Jack (1795-1822) Scottish Surgeon in the employ of E.I.C.: investigated the flora of Sumatra. etc. *Jackia.*

The East India Company

The English East India Company was founded during the reign of Elizabeth I who granted it its charter of incorporation on the 31 December 1600 under the title of "*The Governor and Company of Merchants of London, trading into the East Indies.*" This corporation is the origin of the English East India Company, and of the British Empire in India.

The charter conferred upon the Company the sole right of trading with all those countries lying beyond the Cape of Good Hope or the Straits of Magellan for a period of 15 years. The Company was founded specifically to break the Dutch monopoly of trade with the Spice Islands – the Dutch having raised the price of pepper against us from 3s lb to 6s and 8s lb. The capital, £72,000 was put up by just 215 shareholders.

The early voyages such as that of John Davis to Sumatra and Java which returned with full ladings of pepper in 1603 and by Keelings and Hawkins to India in 1607 are distinguished as "separate voyages" because the subscribers individually bore the cost of each voyage and reaped the whole profits. After 1612 the voyages were conducted on the joint stock system for the benefit of the Company as a whole.

Meanwhile the Dutch East India Company (Oostindische Vereenigde Maatshappij) was founded by a charter from the Netherlands States-General on the 20 March 1602 when some eight or more existing companies were united with the purpose of regulating and protecting the already considerable trade carried on by the Dutch in the Indian Ocean and Malay Archipelago and to help in prosecuting the war with Spain and Portugal. By contrast with the foundation of our own East India Company the Dutch one was authorised to maintain armed forces by sea and land, to erect forts and plant colonies, to make war and peace, to arrange treaties and coin money. Consequently the Dutch East India Company built factories and fortifications from the mouth of the Tigris along the coasts and islands of India as far as Japan.

Back at home the necessity of good ships for the East India trade had caused the E.I.C. to construct its own dockyard at Deptford in 1609. Soon these ships were being fitted out so that they might be prepared to fight not only Malay pirates but also the armed trading vessels of the Dutch and French E.I. Companies. These precautions clearly contravened the doctrine of unarmed traffic laid down by Sir Thomas Roe in 1616.

In 1616 the Dutch began to compete with the English at Surat while in 1611 Captain Hippon was driven from Pulicat by the Dutch settlers and finished further up the coast at Pettapoli where he founded the first English settlement in the Bay of Bengal (wiped out by fever in 1687). Hippon also landed at Masulipatam but from here the settlers were forced to retreat by the native chief — and finished up in Armagon where they built not only the first English fort on Indian soil but also their main factory.

By 1619 the Dutch East India Company had founded its capital in Batavia in Java and had almost entirely driven the East India Company from the Spice Islands and Malay Archipelago. It then expelled the Portuguese from Ceylon in 1638 and from Malacca in 1641 and the East India Company from Amboyna in 1623 (using torture and judicial murder). This latter event, coupled as it was with the rivalry of the French East India Company (founded 1604) caused the East India Company to leave the

Dutch with their monopoly of trade in the Far East and to confine their operations to mainland India. Furthermore it led the company to arm itself against the anarchy that prevailed in many of the provinces where it had built its factories and to take a more active part in the political intrigues of the numerous native chiefs. Nevertheless, despite their withdrawal from Amboyna (in 1623) the East India Company established a trading settlement on Sumatra at Bencoolen, protected by Fort Marlborough, where they cultivated pepper and made vast profits from gaming and cock-fighting farms. Not until their monopoly of the Indian trade was complete did the East India Company seriously return to the Far East (1786 see below).

East India House as rebuilt 1799, the group above the ionic columns represent George III defending the commerce of the East.

In 1626, however, the Dutch and English companies joined to attack Bombay and though they failed, Charles II eventually received Bombay from Portugal as part of the infanta Catherine's dowry in 1661.

In 1657 Cromwell (whom the Company lent £50,000) renewed the charter of 1609 (given by James I) providing that the Indian trade should be in the hands of a single joint stock company, while Charles II granted it a further five important charters. From a simple trading company the E.I.C. had now become a great chartered company.

At about this time (1679), following trouble in Bengal with the Mogul empire, the Court of Directors of the E.I.C. resolved (on 4 January 1679) "*to have recourse to arms*" – accordingly they sent an expedition to India consisting of six companies of infantry and ten ships! The company, like its Dutch counterpart, had at last established its right to acquire territory, coin money, command fortresses and troops, form alliances, and exercise both civil and criminal jurisdiction. Thus in 1698 it was

permitted to purchase the zeminderyship of the towns of Sootanutty, Calcutta and Govindpore with their districts, to which was afterwards added a district extending 10 miles from Calcutta on each side of the Hooghly river containing 37 towns.

Continuing rivalry with the French East India Company caused the E.I.C. to found a Military Seminary at Addiscombe and to take an ever increasing part in the political intrigues of the numerous native chiefs, and so slowly step by step this one time simple body of traders was transformed into a recognised branch of the British Government – exercising supreme authority over the whole of India from the Indus River to the Malay Peninsula.

Porta de Santiago, gateway to the fortress of Malacca, built 1670.

Meanwhile, back in Europe, the war of 1745 between the French and the British had commenced and despite the fact that the F.E.I.C. had existed side by side with us for some 70 years, hostilities now began in India. After a struggle of some 15 years the French were finally defeated at Wandiwash in 1760. In the words of Orme "*that day terminated the long hostilities between the two rival European powers in Coromandel, and left not a single ensign of the French nation avowed by the authority of its Government in any part of India*".

Over the next 50 years or so, that is from 1700, the E.I.C. carried on a long hazardous struggle with both Mogul governors and the invading Marhatta armies. This struggle

culminating in 1756 in the great outrage known as the Black Hole of Calcutta in which 146 British prisoners were thrown into a room 18′ x 14′ 10′ in size, with only two small windows. When the door of the prison was opened next morning only 23 had survived the ordeal. Clive returned from Madras with all the troops he could muster, recovered Calcutta with little fighting and then marched against the Mahommedan army whom he defeated in a short but decisive battle at Plassey on 23 June 1757. Clive was enrolled among the nobility of the Mogul empire while the E.I.C. now received the zamindari[5] rights over an area of 882 sq. miles round Calcutta.

In 1758 Clive was appointed by the Court of Directors of the E.I.C. to be Governor of all the Company's settlements in Bengal. In succession Clive overcame the Emperor Shah Alam who granted him the dewany of Bengal, the French in the south by capturing Masulipatam (see above) and then finally the Dutch whom he defeated on both land and water. By 1765 the E.I.C. with Clive in charge had become the real sovereign and ruler of some 30 million people (by 1857 that number had reached 220 million). Before Clive's term of office had come to an end, Parliament made an attempt to inquire into the affairs of the E.I.C. which were generally believed to be in a very bad condition. Eventually (1772) a select committee voted to send out supervisors qualified to bring some degree of order into the Company – which at that time was worth –£6,397,299.10s.6d. but with debts said to be of £2,032,306! The supervisors reported that the Company really was mismanaging in India, thus when the privileges of the Company expired on 25 March 1780[6] Parliament passed an act in 1781 regulating the dividend as well as other financial matters. Lord Clive was eventually replaced in 1772 by another tried servant of the E.I.C. – Warren Hastings who was Governor of Bengal from 1772 to 1774, when he was nominated as the first titular Governor-General of India by a regulating Act of Parliament. Hastings who with the aid of the E.I.C.'s Bengal army (3,500 foot, 15,000 horse, 50 canon) was successful against both the Mahratta and the Mysore Cavalry is said to have organized the empire which Clive had founded. Hastings was succeeded by Lord Cornwallis as Governor-General of India.

At about this point in time 1786, the East India Company acquired, courtesy of one of its naval officers, Captain Francis Light, the island of Penang (or Prince of Wales Island) off the Malayan coast and in 1800 the Company also bought a strip on the mainland known as Province Wellesley,

Meanwhile (1794) the French occupied Holland and the Dutch East India Company's possessions in the Far East came under French control (Holland having become one of the republics dependent on France). The British, alert to the dangers of the French interfering with the E.I.C.'s commerce in that area captured Malacca in 1795. At the same time (1795) the E.I.C. sent a force (its Bengal army) against the Dutch possessions in Ceylon, and also seized the Cape of Good Hope. On the conclusion of peace — the Cape was restored to Holland while the Treaty of Amiens (1796) assigned Ceylon to England when it was put under the care of the E.I.C. In 1802 Ceylon reverted to

5 Zemindar - a collector of the revenue from land held by a number of cultivators.

6 The Company lent the Government, in 1743, £1 million pounds at 3% so that their Charter might be renewed in 1780.

the crown. However, just as we were about to restore Malacca to Holland, war again broke out in Europe and the E.I.C. retained both the trading post and the massive old fort that went with it. The conquest of Holland by the French revolutionary armies, the fall of the government and the establishment of the Batavian Republic sounded the death knell of the D.E.I.C. and it was dissolved (bankrupt) in 1798.

In 1805 the E.I.C. raised Penang into a regular Presidency with a Governor and Council equal with that at Bombay, Madras and Calcutta[7]. Then in April 1810 Admiral Drury captured the Spice Islands (the Molaccas) but since Drury was not an employee of the Company, the E.I.C. refused to accept responsibility of administering them. Eventually, however, the E.I.C. placed Raffles in charge (Raffles being officially connected both with the Royal Navy as well as the Company) of a provisional administration.

The E.I.C. then set about capturing the French naval bases at Bourbon (Réunion) and Mauritius, both of which fell in 1810 whereupon Raffles was appointed Agent-General to the Governor-General with the Malay States. Raffles' first ambition was to capture Java, this he did by first detaching the Indonesian and Malay rulers (Javanese princes) from their alliances with the Dutch and French. Then in August 1811 he sent in an expeditionary force (of some 11,000 troops) which rapidly overcame the local opposition and he was made Lieutenant Governor of Java.

Unfortunately for Raffles (and the E.I.C.) who had hoped to extend British power to Borneo and usurp the Dutch influence in Japan — the Anglo-Dutch convention of 1814 returned Java and its dependencies to the Dutch in 1816. Eventually the E.I.C. gave Raffles the authority to found a commercial station at the southern entrance to the Straits of Malacca and on January 28, 1819 he raised the Company flag on the Island of Singapore. By the Treaty of London 1824 the Dutch formally recognised the British occupation of Singapore and agreed to exchange Malacca for the British settlements in West Sumatra.

Back in India Lord William Bentinck 1828–1833 succeeded Cornwallis as Governor-General and the country began to be ruled with an eye to the good of the inhabitants rather than the E.I.C. Then in 1813 Lord Liverpool passed the Bill which abolished the E.I.C.'s monopoly over Indian Trade — whilst leaving it with the monopoly of the valuable trade with China, chiefly tea. Finally under the Earl Grey Act of 1833 the Company lost this monopoly also.

The following year (1834) the Charter of the Company was renewed for a further 20 years but now *only* as a governing power, its trading monopoly abolished and with an edict to permit Europeans to settle freely in India. Henceforward the E.I.C. ceased to exist as a trading concern and the great cataclysm of the Indian Mutiny (1857) was followed by the Act for the Better Government of India (1858) when the entire Indian administration was transferred from the Company to the crown thereby ending the life of the E.I.C. on 2 August 1858. Much earlier (1823) the control of Singapore and

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7 The Dutch East India Company had had eight governments (or Presidencies) - Amboyna, Banda, Ternate, Macassa, Malacca, Ceylon, Cape of Good Hope and Java. It had also had other trading posts and factories in Bengal on the Coromandel coast at Surat, and at Gambroon in the Persian Gulf, and in Siam.

Clue: Associated with both Darwin and Gilbert White.

Bencoolen had passed from Raffles back to Lord Cornwallis (the Governor-General of India) in Bengal.

The influence of the various East India Companies on the development of natural history will be the subject of a future article. See also Wallich in the July *Linnean* and Raffles in this issue.

Poem

The July Poem (**12** (2):6) was written by Julian Huxley (Prof. of Zoology, King's, London) in 1923 whilst in Munich.

From the Archives

KAPPEL, AUGUST WILHELM

173. 1910 Dec 4. Not well so he is staying at home.
174. 1911 Jan 2. Michael, F.H. Kappel not well enough to return to work.
175. 1911 Jan 10. Michael, F.H. Kappel still not well enough to return to work.
176. 1911 Jan 10. Farley, Mrs. E. Telegram. Kappel himself will write.
177. 1911 Jan 29. Farley, Mrs. E. Can return to work in about ten days.

178. 1911 Feb 1. Murie, J. Did not see Kappel; his cousin, Mrs. Farley was not at home.
179. 1911 Feb 22. Feels very much better and hopes to return the following day.
180. 1913 Aug 26. Bourne, G. Agrees that Kappel should be suspended from his post pending naturalization. A possible alternative is to make Kappel a prisoner, with his consent, and keep him in the Society's premises.
181. 1914 Aug 27. LS to Kappel. Regrets that as he is not registered as "alien enemy" nor naturalized, the LS must suspend him from his post and as Fellow.
182. 1914 Aug 27. Monckton, H.W. Suggests Kappel should not be allowed in the LS offices until the President had been consulted. Perhaps a month's holiday?
183. 1914 Aug 28. Has police permission to stay in Bournemouth for short holiday. His naturalization papers ready for signature as soon as he returns.
184. 1914 Sep 1. Has seen Crisp who told him to hand in his naturalization papers at once.
185. 1914 Sep 1. Ashurst, Morris, Crisp. Dinner should be delayed. Agrees about Kappel.
186. 1914 Sep 2. Monckton, H.W. Most important that Kappel be excluded from LS rooms.
187. 1914 Sep 3. LS. Inventory of papers and books found in Kappel's locked desk.
188. – – – – LS. Detail of Kappel and dates.
189. 1914 Sep 5. To Crisp, Sir F. Has his naturalization papers; wishes to return to service with the LS.
190. 1914 Sep 8. Ashurst, Morris, Crisp & Co. Encloses letter from Kappel. Will not reply.
191. 1914 Sep 23. LS to police. Requests information about Kappel.
192. 1914 Sep 26. LS to Crisp, F. Seeks information about salary to which Kappel is entitled.
193. 1914 Sep 29. Ashurst, Morris, Crisp & Co. Payment to which Kappel is entitled.
194. 1914 Oct 4. Saunders, T.B. Wrote to Kappel about key to cash box; heard he had been arrested in Newhaven.
195. 1914 Oct 5. Police. Telegram. Kappel now at his home in East Ham; he states he had never been arrested and had never been to Newhaven.
196. 1914 Oct 10. Saunders, T.B. Encloses letter from Kappel which states he had never had key to the cash box.
197. – – – – LS. Draft of notice to Kappel.
198. 1914 Oct 15. LS. Gives Kappel three months' notice terminating his post as librarian.
199. 1914 Oct 16. Crisp, F. Has received cheque for Kappel; will send receipt in due course.
200. 1914 Nov 7. Returns books he had borrowed for reference.
201. 1914 Nov 16. Completed indexes had been cut up and inserted in envelopes.

CHARLES HUTT

August Kappel (1840-1915)

I would like to express my thanks to all those who have helped me in the preparation of this article, in particular my mother, Mrs K. Brett, for supplying information about the Kirby family; my cousin, Johanna Meyer, for information about the Kappel family; my son, Geoffrey Dommett, for his computer expertise; and Gina Douglas, librarian, for making available to me the archives of the Linnean Society.

August Wilhelm Kappel, co-author with his nephew W. E. Kirby of two popular entomological books[8], was a much-respected employee of the Linnean Society for over thirty years. Joining first in 1884 as an assistant in the library, he was promoted to the position of Librarian in 1897 – a post which he held until the outbreak of war in 1914. Today the books by Kappel and Kirby are collectors items, yet virtually nothing is known of the men who wrote them. This may in part be explained by the traumatic political situation in which they both found themselves as the twentieth century moved into its second decade. Respected employee though he had been, August Kappel had one great drawback at this time – he was a German national. Who was he? And how did he come to be working for the Linnean Society?

The sixth child of Wilhelm Kappel (a farmer) and Sibilla Gertraud Kirberg, August was born in the village of Hilden in Rhenish Prussia on 25 September 1840, and baptised in the Evangelischekirche on 15 November of that year[9]. We know little of his early life save that he was a younger brother of Johana Maria Kappel (1835–1893), wife of entomologist and linguist, W.F. Kirby (1844–1912). There were nine siblings in all in the Kappel family, Johanna Maria, or Hannchen as she was known to her family, being the second daughter[10]. When she married William Forsell Kirby in the Evangelischekirche in Hilden on 31 May 1866, he gave his place of abode as Leicester (his place of birth but he had not lived there for some years) and his age as 32 (he was 22). Why he should have added ten years to his age at this time is a mystery. Maybe it was in order to save face for Hannchen who, being 9 years older than him, was then 31: apparently there was no representative of the Kirby family present at the ceremony to challenge the statements made[11]. Later, when living in England, William reverted to his real age while Hannchen, admitted to being just a little older than her husband, dropping seven years from her age[12]. For whatever reason – employment or his relationship with his sister – August Kappel seems to have engaged in a similar deception when he lived in England, for when he married in West Ham on 10 October 1914, he gave his age as 62. He was, in fact, 74!

Nineteenth-century Hilden, where the Kappel family home was situated, was the

8 The two books are, *Beetles, Butterflies and Moths, and other Insects*. 1892, Cassel & Co.; and *British and European Butterflies and Moths* [1895].

9 Evangelischekirche, Hilden, Archives: Taufregister 1837-1848.

10 W. E. Kirby, Typescript, describes her as 'the second daughter' but does not give her date of birth.

11 Evangelischekirche, Hilden, Archives: Taufregister 1858-1896. Witnesses to the ceremony were Wilhelm Sussbaum and Friedrich Kerberg. No witnesses from the Kirby family signed the marriage certificate.

12 The inscription on the family grave in Chiswick Old Cemetery gives her age at the time of her death in 1893 as 51 instead of 58.

size of a large village or small town. It lay in the countryside a few miles south of Dusseldorf and within a three-mile walking distance of the river Rhine. The nearest railway station was at Benrath, two miles away. Alfred Kirby, architect, talented artist and the youngest brother of W.F. Kirby, describes the approach to Hilden from Benrath in July [1872].

> On getting out [at Benrath] we were met by friends and we transported ourselves and our luggage into a large and roomy pairhorse carriage to do the last stage of our journey in.....It took us nearly an hour to drive from the station to Hilden along a straight dusty road with tall solemn trees planted regularly each side and the monotony occasionally relieved by the road passing through a wood or by a house.....
>
> Hilden consists of one winding street nearly a mile long with houses of all sorts and sizes on either side. The street is partly paved, and about half way up it there is a small market place with the church at one end and houses all round and, after imagining a hundred or two more houses and cottages scattered indiscriminately about on the outskirts of the others bordering the street, you will pretty well get at what the place is like.[13]

On arriving at the Kappel home, where William's wife and small son, William Egmont, were already staying (they had probably gone over to Germany in time for the wedding of another Kappel brother, Ernst Wilhelm, the previous month) the Kirby brothers were 'most hospitably received'[14]. Later Alfred describes going on various outings with William and 'one of his wife's brothers'. Unfortunately he never names any of the brothers, but it may have been August who accompanied them on some of these expeditions for he was fairly close in age to William and shared his interest in entomology. On the first evening, for example, they went to an hotel, 'to try our hands [at] a game, similar to billiards minus the pockets, but W- and I not being very expert players we all adjourned to the more muscular game of ninepins'. Then there was a visit to a local silk factory where one of Hannchen's brothers was employed in the office. Was this August? William would almost certainly have had a professional interest in this factory for he had been researching the possibility of breeding silkworms for commercial use in Ireland, where he was then living and working. In 1868, the Royal Dublin Society had 'voted a small sum towards the introduction of Silk-worms into Ireland'

> Mr. W.F. Kirby, one of the Assistants in the Museum, undertook to try the experiment of rearing, in the open air, the Chinese Silk-worm, *Attacus cynthia*, the larva of which feeds on the *Ailanthus glandulosa*, a plant which is already acclimatised in Ireland. A large percentage of cocoons was obtained.... [15]

Other, more energetic entomological activities were also recorded by Alfred, although these were not always to his taste. One Friday morning he and William went

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13 Alfred Kirby, 'Memor(y)ial writings of a trip to Germany' [1872] pp.9-10. According to Grace Knoles, Alfred wrote this diary before he was married to Lydia Bradnee in 1879. He emigrated to the United States of America in 1882.

14 The small boy was William Egmont Kirby. He and August Kappel were later to be co-authors of the two entomological books mentioned earlier.

15 *The Proceedings of the Royal Dublin Society* **105** 1868-9, Appendix I, p.iv.

out before breakfast, the latter carrying his butterfly net.

> We went to a large wood where he knew insects were to be found, but I found a good many wild strawberries which I must confess I am a good deal more partial too [sic] than that exhilarating entertainment of catching things that fly.....[16]

August Kappel (1840 – 1915)

Nor did entomological pursuits cease on the Sabbath. The Kappel family were of the Lutheran persuasion and went to church, the following Sunday Alfred went with them out of curiosity.

> As far as I could make out the service was very much like the Independent Church Service in England except that when they pray they stand up, and when singing, sit down.[17]

But on their return home William found a friend waiting for him, 'whereupon they fell too [sic] and the principal staple of their conversation was upon "Schmetterling"[18].

16 Alfred Kirby, *op. cit.*, p.11

17 ibid., p.18. The Independent Church referred to here would probably have been Unitarian, since the Kirbys were of that persuasion.

18 Alfred Kirby, *op. cit.*, p.11.

Thus the general impression that Alfred gives of the Kappel household is that it was busy but allowed time for intellectual pursuits. It was not wealthy but neither was it poverty stricken. Young William Egmont Kirby, five years old at the time, was constantly being taken for long walks either by his father or his uncles. His mother,

William Egmont Kirby (1867 – 1925)

Hannchen, does not appear to have participated in these particular excursions although she did go on other outings. Maybe she was involved in domestic duties? For certain some of their neighbours appear to have been limited in the domestic help they employed. Alfred mentions visiting friends for tea where 'no servants ever put in an appearance, the lady doing all the honours of the table'.[19] In short, August Kappel grew up in a household which might be termed, 'middle class'.

We next hear of him some twelve years later in London. In July 1879 his brother-in-law, W.F. Kirby had obtained a transfer from the Natural History Museum in Dublin to the British Museum in London. To begin with, the Kirbys took up residence in Tufnell Park – at 5, Union Road. Later, in 1884, they moved to Chiswick, living initially at 5, Burlington Gardens and finally at 'Hilden', 46, Sutton Court Road. The

19 *ibid.*, p.19.

move to London seems to have cemented further links between the Kappel and Kirby families. First, in 1879 or maybe a little later, William and Hannchen unofficially adopted a niece, Johanna Kappel, who was to be brought up as a sister to William Egmont.[20] At some point August Kappel arrived to join the household.

His decision to stay in England seems to have coincided with the move of the Kirby family to Chiswick in 1884. That was the year when he joined the Entomological Society of London, giving 5, Burlington Gardens as his home address. It was also in 1884 that he applied, successfully, to the Linnean Society for employment. Council Minutes record that, on 4 April 1884 he was being considered for the post of Assistant in the library.[21] He was taken on and must have proved good at his job because later that year, on 4 December, he was appointed Assistant Librarian at a salary of 30/- per week.

> The subject of Assistant in the Library was taken into consideration, and it agreed to that Mr. A.W. Kappel should be appointed and his salary raised to 30/- per week.
>
> It was also agreed that Mr. Cecil Duncan should be engaged as an extra assistant in the Library at a salary commencing at 10/- per week.[22]

August continued well and seven months later, on 9 July 1885, his post was made more secure.

> Pending consideration of the entire Staff it was resolved that Mr Kappel should be placed on the same footing as the Clerk to the Council, namely, entitled to three months notice instead of one as at present.[23]

Four months later still, on 12 November, his salary advanced from £78 to £100 per annum; and in 1888 and 1890 there were successive rises of £10.

1890 was the year when both W.F. Kirby and A.W. Kappel applied to be admitted as Fellows of the Linnean Society, the former in March and the latter in November. Each gave the same home address – 5, Burlington Gardens, Chiswick, W. – and described himself as 'a gentleman attached to the study of Natural Science, especially Entomology'. Both men were duly elected. The list of Fellows who signed August Kappel's Form of Recommendation is impressive. He had eight signatories in all, including William Carruthers (President, 1886–1890), and the two secretaries then in office – W. Percy Sladen and B. Daydon Jackson.[24]

During the years 1892 to 1895 his career took yet another upward turn for he and his nephew, William Egmont Kirby, published the two aforementioned books. The collaboration was a fortunate one, the works being written in a clear, succinct style and nicely presented. The first, and smaller of the two, *Beetles, Butterflies, Moths, And Other Insects* was designed to be an educational book for amateurs. The authors, in their preface, say:

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20 Family sources (oral) indicate that Johanna, 12 years younger than William Egmont, was 'adopted' as a small child. Photographs albums substantiate this.

21 Linnean Society Archives, Council Minutes 6. p.132.

22 *ibid.*, pp.155-156.

23 *ibid.*

24 August Kappel's form of recommendation was signed by William Carruthers, W. Percy Sladen, N. Daydon Jackson, J.E. Hartung, G. Martin Duncan, W.F. Kirby, A.R. Hammond, and J.C. Galton.

> It is intended as an introductory work, which may be useful to young people living in the country, or spending a holiday there, who, without wishing to go deeply into the subject, yet take an interest in the natural objects with which they are surrounded.

We do not know the nature of the collaboration, but it is tempting to suppose that William Egmont, with his medical training, wrote the opening section on the anatomical structure of insects.[25] August, with his recent experience of compiling the General Index to the *Journal of Zoology*,[26] probably did the two indices, which respectively listed the English and Latin names of insects. The second, much larger volume, *British and European Butterflies and Moths* [1895] also has an introduction which includes the 'Anatomy of Lepidoptera'. In both cases there are accompanying diagrams which are detailed and beautifully drawn. It is possible that William Egmont did these himself for he had inherited the Kirby talent for drawing and would have been quite capable of doing so. Two indices are included (as in the first book) and also a list of names of authors (with abbreviations in brackets). Regarding the main body of the text, it would be tempting to suppose that William Egmont made the British contribution and August, the European – but this would be facile speculation. The truth of the matter is that both men probably felt that a good book for *amateurs* was needed – one which included the English names of both British and European lepidoptera. W.F. Kirby, whose home they both occupied, had specialised in European lepidoptera and he was a professional writing for professionals. Their aim was to write an entomological book which was informative and yet would appeal to the general public. In their Preface the authors say:

> Though several books have appeared on the Macrolepidoptera of Europe, a new work with good illustrations and of reasonable price may still be useful. It is to fill this want that the Authors have decided upon placing the present volume before their readers.
>
> Space has not permitted them to include all the European species, but most of those inhabiting Central Europe have been dealt with, and nearly all those of the British Isles will be found described or figured. All the British species have English names assigned to them, a feature which has been neglected in many books of recent date.

In 1893 tragedy struck the family. Hannchen died and, it would seem, the inspiration for writing collaborative books died with her. After 1895 no more volumes emanated from the joint pens of Kappel and Kirby – a very great pity since they had been so successful. It may be that William Egmont was busy, although he later wrote entomological books on his own account.[27] He married in 1894, his first son was born in 1895, and in 1896 the whole family moved to a new house, purpose built for a medical GP, close by in Sutton Court Road. They named the new residence 'Hilden'

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25 W. Egmont Kirby later wrote forewords on anatomical structure for a number of books, including one by his father, W.F. Kirby, *Mammals of the World*, 1907.

26 Linnean Society Archives, Council Minutes 7 1891-1902, p.32. This index must have been a major undertaking because the Linnean Society paid him quite a lot of money for doing it. "It was ordered that the General Index to the Journal of Zoology compiled by Mr August Kappel, should be printed, and the Treasurer was authorised to pay Mr Kappel the sum of £75 for compiling the same."

27 His books include *Insects: foes and friends*, S. W. Partridge & Co., London, 1898: and *Butterflies and Moths of the United Kingdom*, George Routledge & Sons, London [1909].

– after the home town of the Kappel family.

It seems that August Kappel was also busy around this time, as indicated by the extra payments made to him by the Linnean Society for such varied tasks as compiling an Index to the *Journal of Zoology* (1891 and 1896); comparing duplicates of books (1894); inspecting the Insect Collections (1898); and cleaning their collection of Fishes (1899).[28] His salary was increasing towards £200 – 'the salary of the post'[29] – and in 1897 he represented the Linnean Society at an international Library Conference.[30] Clearly he was a highly-regarded employee and member of the Society. Further, in 1904, he was asked to act as Clerk to the Trustees of the newly-created Percy Sladen Memorial Fund.

> The President [of the Linnean Society] explained the desire of the Trustees of the Percy Sladen Memorial Fund (which had been before the Council on the 16 June) to hold their Meetings in the Linnean Society's Rooms possibly three or four times in each year; also that Mr. Kappel might in his private capacity act as Clerk to the Trustees; further that the address of the Trustees might be "Care of the Linnean Society." These proposals were sanctioned by the Council.[31]

Throughout this period, August Kappel continued living with the Kirby family in Chiswick.[32] By now William Egmont had two sons (the second being born in 1900) and August is reputed to have been 'very good to them' – taking them out for Sunday treats, for example. They, in their turn, liked to go out with him but were not averse to playing a practical joke on their unfortunate uncle if, for any reason, the 'treat' did not materialise.[33] But the years were beginning to take their toll. We will probably never know whether or not it was the boisterous nature of his two young nephews which caused August Kappel to move from the home he had shared with the Kirby family for over twenty years, but move he did – to Kilburn *ca.* 1907-8[34]. It was the proverbial 'beginning of the end'. The next three years were apparently uneventful but the effects of increasing age would soon overtake him and the political situation would take a turn for the worse. W.F. Kirby, ever alert, prophesied war between the two countries most dear to him and said that he hoped he would 'never live to see it'[35]. Fortunately for him, he never did; and he never saw the tragedy which was to overtake various members of his Anglo-German family – in particular his adopted daughter, Johanna Kappel and his brother-in-law, August.

In December 1910 August Kappel, now 70, was taken seriously ill. He was unable to work at the Linnean Society for the next four months so that 'the General Secretary's time was taken up largely with librarian's work'[36]. During this period August was

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28 Linnean Society Archives, Index of Council Minutes, 7, 1891-1902, p.88.
29 Linnean Society Archives, Index of Council Minutes.
30 Linnean Society Archives, Index of Council Minutes, 7, 1891-1902, p.88.
31 Linnean Society Archives, Index of Council Minutes, 8, 1902-10, p.88.
32 The Lists of the Linnean Society show him as living at the Kirby home in Chiswisk until ca. 1907.
33 Mrs K. Brett, only surviving granddaughter of W. F. Kirby, recalls Mary Brady (the old housekeeper who had been with the Kirby family for many years) telling her of these practical jokes.
34 List of the Linnean Society of London, 1907-8.
35 Information supplied by Mrs. K. Brett, youngest daughter of W. Egmont Kirby.
36 Linnean Society Archives, 188.

staying in Golders Green with another relation, his niece, Emma Farley (*nee* Kappel).[37] The exchange of brief letters between Emma and the Linnean Society indicates a general concern for the well being of August Kappel: he, for his part, was keen to return to work and finally did so in April 1911. He must have prolonged his stay with the Farley family, for the records show him living at their address in Golders Green until 1914[38]; and despite ill health, he seems to have enjoyed life. W.H.F. Tams, an Assistant at the Linnean Society for seven months, from May until December 1913, remembered him as a likeable man who liked to slip out of the office on occasion in order to go and have a 'flutter' on the horses[39]. But all this would soon change: war was about to break out and with its advent no German would be tolerated within the walls of London's learned societies – including the Linnean Society.

Despite the length of their stay in England, neither Johanna nor August Kappel had taken British nationality. This was to prove disastrous. Johanna, a piano teacher, was still unmarried at the age of 35. Even though she had lived her whole life in England, having been brought over here at a very young age, she was 'repatriated' to Germany where, unable to earn a living, she committed suicide. Her adoptive brother, William Egmont, tried to send her money but it arrived a week too late: he was informed by the Red Cross of her fate. For August Kappel, who chose to remain in England, the battle for survival was intensifying.

By August 1914, anti-German hysteria was gripping the nation. For the Linnean Society the problem was not easily solved. Their librarian, who had served them faithfully for 30 years seems to have been well-liked, *but* he was a German national. Gilbert Bourne sums up the dilemma in a letter to Daydon Jackson dated 26 August 1913:[40]

> The course that you propose with respect to Kappel seems to me, perfectly right. He should be suspended from his duties in the Linnean Society pending his obtaining naturalisation, and his case should come before Council at the first opportunity. I sh[oul]d think that he is all right, & prepared to be loyal to us, but we must be careful, & I fully agree that it would not do for him to be in the Society's rooms just now.
>
> But if you could see him and explain that the Society has no intention of behaving hardly and unjustly towards him, & that all being well, it is not intended that he should be a loser by this action – it w[oul]d be well.

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37 Emma Christine Sibilla Kappel (b. 1873) was the eldest daughter of the aforementioned Ernst Wilhelm Kappel and Julie Wahnemuller, who had married in 1872. Emma married a clergyman, Robert Paton Farley (b. 1875 in Armagh, Ireland). By 1910 they had three small children - Julie Margreta Kappel (b. 1904), Emma Wilhelmina Kappel (b. 1905) and Ernst August Paton (b. 1908). Information supplied by Frau Johanna Meyer, granddaughter of Ernst Wilhelm Kappel.

38 Lists of the Linnean Society of London, 1907-14. In 1907-8 Kappel moved from Chiswick to 11, Algernon Road, Kilburn. In 1910-11 he moved again, this time to take up residence at Creeveroe, Bigwood Road, Golders Green - the home of the Farley family. He remained there until 1913-14. It may be that he had gone to the Farley family for Christmas (he was taken ill around that time) and a long stay extended to permanent residence. According to Mrs K. Brett, who remembers being taken there as a very small child, the house was a large one. Emma and her husband Robert, a clergyman, by now had three small children.

39 This was related by Tams to the author's parents, both entomologists, who met Tams at a later date.

40 Linnean Society Archives, MSS (letters), 180.

In a postscript, Bourne suggests an interesting compromise:

> It would be a possible alternative to make Kappel a prisoner, with his own consent, in the Society's premises, where he w[oul]d be safe from molestation, & quite incapable of obtaining news to communicate to Germany – if he wished to.

Another letter to Daydon Jackson from Horace Monckton, dated 27 August 1914, expresses concern for the unfortunate Kappel:

> I do not think we should allow Kappel to be present in our rooms until the President has been consulted. Perhaps the best plan would be to give him a months holiday and that would give us time to consider the position.

Compromise, however, was not to be tolerated. If August Kappel was to retain his job, he would have to take British nationality. A letter from the General Secretary to this effect was despatched to him in Golders Green (he must have been staying with Emma Farley) on 27 August 1914.

> Sir,
> Having accidentally heard that you are now in this country, and having also ascertained that you are neither a registered "Alien enemy" nor a naturalised British subject, it is my unpleasant duty to inform you that you are suspended from your duties here as Librarian and as Fellow, from now until such time as you are furnished with papers of naturalisation.

Thereafter the sequence of events proceeded rapidly. Kappel set out to fulfil the condition and obtain British nationality. Letters dated 28 August and 1 September 1914 respectively inform us first that he was spending a short holiday in Bournemouth with police permission and that his naturalisation papers were ready for signature on his return; and second that Sir Frank Crisp had advised him to hand these papers in at once. Kappel appears to have trusted Sir Frank Crisp for, having followed his advice, he then appealed to him for reinstatement at the Linnean Society. On 5 September, in a letter written from 47 Burges Road, East Ham, where he was to spend the rest of his days, he wrote:

> Dear Sir Frank Crisp,
> Directly after seeing you I got my naturalisation papers signed by a Commissioner of Oaths, and brought them personally to the Home Office. I should be glad if you could do something to have the ban which the Linnean Society have put upon me removed, so that I can continue my work at Burlington House. I may say that I have from the police a permit to go there each day. It seems hard that after 30 years service there I should be treated as I have been.
>
> With many thanks for all your kindness to me.
>
> Very sincerely yours,
>
> A.W. Kappel

Sir Frank did not even bother to reply!

Meanwhile the attitude of the Society had been hardening against Kappel. The situation is summed up in another letter, dated 2 September, from H.W. Monckton to Daydon Jackson:

> I think it most important that Kappel should not be admitted to our rooms on any consideration whatever.....I do not think the fact of his naturalisation will make any difference in the matter. However I do not suppose there is much chance of that. He is more likely to be shut up if he is so unwise as to be seen in London.

If August Kappel had fulfilled the necessary conditions required for his employment, another excuse for his dismissal had to be found. Vicious rumours circulated, apparently in a deliberate attempt to assassinate his character. The Linnean Society wrote to the police requesting information about Kappel; and they wrote to Kappel himself about the missing key to a cash box. They heard he had been arrested in Newhaven.....Finally, on 5 October, the Council decided to dismiss him on the grounds that he kept certain drawers in his desk 'locked against the Society'.

> The General Secretary having reported the results of his examination of the Librarian's desk, and certain drawers kept locked against the Society by the Librarian, it was unanimously decided that A.W. Kappel be dismissed from this date, with his salary to date, and three months salary in addition in place of notice, in all amounting to £91. 13s. 4d., which Sir Frank Crisp undertook to pay over.[41]

There were the usual loose ends to be tied up – reference books to be returned and an additional payment to be made for Kappel's 'Index-slips for part of the current volume of the Society's zoological publications'[42]. He must have been devastated. In an age when propaganda had stirred up intense hatred of the German people, blind prejudice had overruled reason and even common courtesy.

August Kappel, however, must have the final say. He may have lost his fight for work but not his zest for life. In the middle of all the gloom and disaster he, a seventy-four-year-old bachelor, got married! In a ceremony solemnised at the Register Office in the District of Essex on 10 October 1914, the Englishman, August William Kappel, son of John William Kappel, married Florence Maud Lemon, a forty-three-year-old spinster. He gave his age as 62. Sadly they had only one year together, for he died at their home in East Ham the following year on Christmas Eve.[43]

URSULA KIRBY BRETT

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41 Linnean Society Archives, Council Minutes, 9, p.214.

42 ibid., p.234. This final payment of £8 was voted to A. W. Kappel on 3 December 1914.

43 The address given on his death certificate is 47 Burges Road, East Ham.

Was Linnaeus wrong? - Errors and mistakes in the first descripton of *Psammophis sibilans* (Linnaeus, 1758) (Colubridae)

Psammophis sibilans is known as the Hissing sand snake, in accordance with its scientific name (from the latin word *sibilo* – to hiss). It was originally described by Linnaeus in 1749 and given the name *"Coluber sibilans"* in 1758. The latter was assigned the type-species of the newly erected genus *Psammophis* (Sand snakes) by Boie in 1826. *Psammophis sibilans* (Linnaeus, 1758) is still the most well-known member of the sand snakes, a genus spread all over Africa and south-western Asia. Linnaeus supplied us with a full description of the species including a detailed summary of its colouration as well as exact scale counts. Nevertheless, two of the facts given in his description caused a lot of confusion among generations of herpetologists. First, why did he call the species *"sibilans"*? And second, why did he choose "Asia" as the type-locality?

To find the answers to these questions, it was necessary to have a look at the "type-specimen" itself. Thanks to the help of Dr. W. Boehme (Zoological Institute and Museum A. Koenig – Bonn (Germany)) I was able to examine the specimen from the Linnean Collection.

THE "TYPE-SPECIMEN"

According to Mayr (1969), the Linnean specimens can never be called "types", as Linnaeus himself never clearly defined a type-specimen. One cannot even be sure that all the original animals on which he based his descriptions were really deposited in the so-called "Linnean collection". This is the reason for setting the words "type-specimen" in quotation marks, when the animal from the Linnean collection is meant.

Upon rechecking the "type-specimen", its identity as a true *Psammophis sibilans* (Linnaeus,1758) could be reassured. The surprisingly well preserved specimen even allowed a check to be made of the colouration given by Linnaeus. In external morphology as well as in the scale counts, it shows in every detail similarities to Egyptian individuals of the species. As early as 1898 Anderson also concluded an Egyptian origin based on sketch drawings of the "type-specimen".

WHAT ABOUT HISSING IN THE HISSING SAND SNAKE?

With regard to the denomination of the snake as "sibilans", numerous authors have discussed the name in the light of the fact that no Hissing sand snake has been heard hissing so far. As early as 1922 Brehm commented on this strange misnaming, as did Sweeney (1971), Mertens (1973) and Perkins (1974), to name but a few of the more recent authors.

A closer look to the list of synonyms given by Linnaeus himself reveals a list of snakes pictured much earlier by Seba (1735). However, Duméril & Bibron (1854) pointed out that only one of the three Seba-references Linnaeus had given, namely the *"Serpens africana"*, was a true *Psammophis sibilans* But obviously, Linnaeus based the name on Seba's *"Serpens ceilonica sibilans"*, which he considered identical

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New observations on the experimental colony of the Scarlet Tiger Moth (Panaxia dominula) on the Wirral Way, West Kirby, Merseyside.

(*The Linnean*, 11(2): 14-19). 1996. Addendum No. 2

In the first Addendum (page 19 of the above paper) written on the 17th April 1996, we concluded: "So the colony is still in existence and we will report later on how the 1996 season proceeds".

By the 13th of May 1996 our young, sharp-eyed and adventurous assistant Sally Thompson had put on her gum boots and crossed the deepened, watery ditch and found that the comfrey on the far side had not been so greatly disturbed as we had originally thought, and she had found over about four weeks (sometimes with the help of Angela Urion), a total of 52 *dominula* caterpillars which we bred at home to form our random sample for 1996. During the searches Sally deliberately left behind a considerable number of caterpillars, though retrospectively we think that the number left were fewer than in earlier years. Our random sample of 1996 larvae produced 29 typical, 20 *medionigra* and one *bimacula* moths (one of the pupae was dead and one emerged but was very deformed and unscorable for form and sex). The proportion of the forms of the moth is similar to that in previous years, though in 1996 there was a considerable excess of females (19 typical females and ten males, 16 *medionigra* females and four males: the single *bimacula* was a male). Because we did not take all the caterpillars we expected to see some wild moths in June and July, but searching on most days for about half an hour from June 4th to July 17th we have not seen for certain any *dominula* moths flying or settled in the colony, and nor have any other of our acquaintances who walk in the colony regularly and know the moth. It is possible that we have missed some, in which case there have probably been matings and we shall get caterpillars again next spring, and if we do we probably ought to restrict the numbers in our random sample.

From our 1996 sample we did one mating between a *medionigra* female and a typical male. She produced several hundred eggs which have hatched, and so whatever is happening in the wild the colony is still in existence in "sheltered accommodation".

Small colonies have a habit of apparently disappearing and reappearing and we do not entirely despair. At the worst, this population, put down by Philip Sheppard in 1961, has survived for 35 years in an entirely new locality, where there were no other populations which could confuse the proportions of the forms by moving from one colony to another.

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Addendum

In a previous paper we reported the number of *Biston betularia* moths which we had caught over 35 years, between 1959 and 1993, on Caldy Common, Wirral, UK (Clarke, Grant, Clarke and Asami, *The Linnean*, **10** (2): 18-26, 1994).

The striking finding was the reduction in the proportion of carbonaria, from 93.3% in 1959 to 23% in 1993, with several hundred *betularia* being caught each year. The

generally accepted view is that the decrease in *carbonaria* is related to the Clean Air Acts, but there are some caveats.

This Addendum gives the findings for 1994 and 1995, using the same mercury vapour trap in the same place, and also the assembly trap. In 1996 we did not use the latter because we had no virgin females with which to assemble, but simply the mercury vapour trap. This was also the case in several other years, as will be seen in the paper already published (reference above).

Year	Traps	Total	*carbonaria*	*insularia*	typical	% *carbonaria*
1994	Both	348	65	14	269	18.7
	AT	65	14	2	49	21.5
	MV	283	51	12	220	18.0
1995	Both	261	46	6	209	17.6
	AT	73	12	1	60	16.4
	MV	188	34	5	149	18.1
1996	MV only	201	17	8	176	8.45

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Library

The editor has informed me that due to space constraints in this issue I must keep the Library entry to a minimum. As it is difficult to predict at the moment how much we will have done by the end of the summer I will just say that work on cleaning and reshelving the "faunas" is going on at the moment. A book sale is planned for the autumn: check the Meetings card and the list of events in this issue for the date. We prefer to receive books well ahead if possible so that any biological books can be checked against our holdings and used to fill gaps if necessary. All types of book are welcome and nothing is ever thrown away. Each sale usually adds around £200 to the book purchase budget.

Donations to July 1996

Apart from the individual donations listed below we have also received a large number of items from Dr E.C.Nelson which are gradually being catalogued. Thanks are extended as usual to all those who continue to present us with current or back issues of journals to keep our holdings up to date. Other accessions will have to await until there is room in a future issue.

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Book Review

A New Key to Wild Flowers by John Hayward publ. Cambridge University Press, Cambridge, UK., 1995 x + 278pp., illustr., p/b ISBN 0-521-48346-8, Price £12.95.

This is a revised edition of the book first published in 1987. The keys originated at the author's Field Studies Council courses and were modified after extensive testing by the AIDGAP project. In almost all cases they are straightforward to use and result in successful identifications. They include numerous helpful line drawings by Michael Hockey. The plastic multi-ring binding allows pages to remain open flat in the field and is relatively robust.

In the revised edition the plant names have been brought into line with those used in Stace's "New Flora of the British Isles". The useful ruler has been omitted from the back cover. There are a few errors in the revised names, but all textual miss-spellings are carried over from the previous edition.

The opportunity has not been taken to modify any of the keys: red blotched *Mimulus* is said to be *M. luteus*, with no mention of the commoner *M.* x *robertsii. Galium pumilum* makes an appearance, but *G. sterneri* is omitted, as are the increasing introductions *Lemna minuta* and *Crassula helmsii. Damasonium alisma* and other rarities are included, but some frequently encountered taxa are not: the genus *Solidago* is only represented by *S. virgaurea.*

Notwithstanding these criticisms, this remains a useful companion in the field.

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