

THE LEPIDOPTERA COLLECTIONS AT THE NATURAL HISTORY MUSEUM (BMNH), IN SOUTH KENSINGTON, LONDON

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There are perhaps four key works available to anyone interested in the history of the BMNH Lepidoptera collections. At the general level, William Stearn's *The Natural History Museum at South Kensington*, 1981, provides a comprehensive history of the Museum from 1753 to 1980. This is supplemented by C. O. Waterhouse's 'Insecta' section of *The History of the Collections contained in the Natural History Departments of the British Museum* (2 v., 1904-06) together with Norman Riley's account, *The Department of Entomology of the British Museum (Natural History) 1904-1964: A Brief Historical Sketch* (1964). And fourthly, obituaries contain a wealth of detail especially at the level of personalities, and Pamela Gilbert's *A Compendium of the Biographical Literature on Deceased Entomologists* (1977), unlocks this otherwise hopelessly scattered literature. In compiling the brief outline below, I have been largely reliant on these four works together with my own memory and those of many of my colleagues at South Kensington, especially David Carter, Gaden Robinson, Klaus Sattler, Kevin Tuck, and Dick Vane-Wright.

For anyone like myself for whom the butterflies are the only significant Lepidoptera, Norman Riley stands as a bridge between history and more recent times. I was in some strange way pleased to find that Riley wrote Arthur Gardiner Butler's obituary (*Entomologist* 58: 175-176), and that Dick Vane-Wright in turn contributed to Riley's (*Antenna* 3:130-134), in some sense completing a short chain from 1863, when Butler took up his appointment, until the present day. In my early years at the Museum, it was always a pleasure to listen to Norman Riley's accounts of earlier life in the Department, when senior staff were invariably "Sir" and any staff stepping outside the Museum without wearing a hat might anticipate a severe reprimand!

In undertaking the following review, I initially tried to cover, in chronological order, general aspects of the collection and many of the personalities involved with it. Ultimately, though, it proved more practical to separate aspects of the Collection as "Collections, Cabinets and Buildings" from "People." Otherwise, perhaps all that needs emphasizing is that dates in square brackets, thus [1948-63], indicate length of official appointments at the Museum on 'Lepidoptera', not extent of lifetimes.



Fig. 1. The Natural History Museum, London, at the Cromwell Road entrance (view shows about half of front of building) (© 1999 Natural History Museum).

COLLECTIONS, CABINETS & BUILDINGS

COLLECTIONS

An Act of Parliament that received Royal Assent on 7 June 1753 provided for the purchase of Sir Hans Sloane's collection, in which were the insects that formed the original basis of the entomological holdings of what is now The Natural History Museum, London. At the time of his death, Sloane's insect collection, which included among others those of James Petiver (1658-1716) and Leonard Plukenet (1642-1707), numbered some 5,500 specimens (this figure actually included some honorary insects — spiders, millipedes, scorpions etc), and a surprising amount of this material survived the notorious specimen bonfires of the early 19th century (see Fitton and Gilbert, 1994, in Macgregor, *Sir Hans Sloane, Collector, Scientist, Antiquary: Founding Father of the British Museum*).

While the acquisition of the Sloane collection is well documented, the early history of the study and curation of the entomological collections is otherwise obscure. Edward Doubleday's catalogue, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* Parts I, II (1844-47), and those of Walker (see

below), give some inkling of significant early benefactors who presented Lepidoptera: Thomas Hardwicke, Thomas Horsfield, W. W. Saunders, M. Becker, the Earl of Derby, Sir W. Norris, Mrs. J. P. G. Smith and the Rev. D. R. Morgan, the Entomological Club and the Honorable East India Company, and of museum appointees, Doubleday himself and J. G. Children. Later 19th Century benefactors of major significance included H. W. Bates, A. R. Wallace, H. T. Stainton, P. C. Zeller, W. C. Hewitson, J. H. Leech, F. D. Godman, O. Salvin, and J. H. Leech. And in the 20th Century the flood of material was to continue apace: the collections of Lord Walsingham (Thomas de Grey, Sixth Baron Walsingham), Edward Meyrick, Charles Oberthür, James Joicey, John Levick, Hans Fruhstorfer, and Lord Lionel Walter Rothschild, were all acquired in a period of 30 years, and substantial parts of these major collections still remain extant. Thus, the primary development of the Lepidoptera holdings has been through acquisition of major collections, often rich in type material, that enhance the already existing series.

For students of British Macrolepidoptera, the development of the Rothschild-Cockayne-Kettlewell collection has particular significance. Prior to 1939, H. D. B. Kettlewell and E. A. Cockayne, both medical men with an interest in genetics, decided that their shared interest in Lepidoptera would surely benefit through broad cooperation. In 1947, the resultant joint Kettlewell-Cockayne collection was presented to the BMNH, and Cockayne himself undertook its amalgamation with the Rothschild British material, to produce a collection that provides an unparalleled demonstration of geographic, seasonal and genetic variation within our national fauna. Development of the collection continues through the Cockayne Trust which finances the purchase of material, collecting, and expenses incurred by volunteer workers.

A recent estimate (*Life and Earth Sciences Collections. Curatorial Policies and Collections Management Procedures*. The Natural History Museum, 1998) suggests there are some 8,712,000 lepidopteran specimens (in 75,000 drawers) in the BMNH collections, a total that includes 125,000 types. This represents a spectacular rate of increase: Riley records 355,767 specimens in 1904; 2,234,628 in 1931; 7,119,245 in 1963. Although the Lepidoptera are not a specifically identified 'growth area' of the collections (that is, field collecting has not been a highly significant element in recent research), figures from recent Annual Reports indicate notable intakes: H. Inoue collection of Oriental moths (160,000 specimens, primarily Geometridae and Pyralidae), B. J. MacNulty collection (6,000 specimens), R. G. T. St.Leger collection (5,000 specimens, mostly West African), and the C. E. Wilson collection (4,500 specimens from Sudan). So, while there is now a necessity to be more selective than in the past regarding the intake of material, it does not inhibit the acceptance of acquisitions that significantly enhance the collection. As a generality, our Lepidoptera holdings perhaps are strongest for the Old World tropics, particularly where there has been a past British colonial presence, and weakest for the Nearctic and Eastern Palearctic (excluding Japan). Across the Lepidoptera as a whole we would claim up to 40% primary type representation, but this would certainly be higher in groups that have received specialist 'in house' attention.

Traditionally, card-indexes down to infra-subspecific level have facilitated taxon-level access to many of the 75,000 drawers that make up the Lepidoptera collection. Transferring to electronic recall necessitates a considerable commitment: to date we have addressed the problem of recall at generic level, with all such indexes scheduled for completion by the end of 1998. The challenging task of species-level/ infra-subspecific electronic indexing is now underway with a realistic end-date of 2003. People do wonder why we are not pushing ahead with specimen-level databasing, and here a few figures might be enlightening. Assuming 8 million Lepidoptera specimens in the collection, and a reasonable full-time data-input rate of 30,000

specimens per person-year, then some 260 person-years would be required to complete the task! So, unless those who believe they require the data can come up with the necessary funding and labour, it is never likely to happen as a routine task, even though special areas such as type-material, specimens of historical or commercial value, and specimens routinely handled during research, are being targeted.

CABINETS

Historically, 20-drawer 'Hill-style' cabinets have formed the basic storage units of the Moth collections. Certainly, such cabinets were commonplace for the entomological collections even when housed at Bloomsbury (see below) and they remained the standard (with various modifications to take slats or unit trays) until perhaps 1960, when a concerted programme was set in motion for re-housing moths into what have become known as 'accession' or 'moth-box' size drawers (based on the dimensions of the old Oberthür glass-topped cartons). New cabinets (somewhat unoriginally and colloquially called 'Blue' cabinets) were constructed to take them, and now house much of the Macromoth main series together with the Pyralidae and Hepialidae. Meanwhile, other micromoth groups are gradually being transferred to standard 'main collection'-size insect drawers as used throughout much of the rest of the Department.

The BMNH butterfly collections are held idiosyncratically in a drawer type not employed elsewhere in the Entomology Department. These drawers, glazed both top and bottom and 20 to a cabinet, allow for convenient cursory examination of both wing surfaces without handling the specimens themselves (see Plate 2). It appears that they were first introduced in 1902 as part of the agreement associated with the presentation of the H. J. Elwes collection. However, current costs of meeting the extremely tight specifications on the drawers are prohibitive: there has not been a new intake for some 20 years.

The drawers making up the Rothschild collection are comparable but of somewhat larger dimensions. Housed in two sizes of cabinet, they are arranged in units, a 40-drawer cabinet forming the base, with a 26-drawer cabinet placed above.

Much of this furniture is now of considerable vintage, and in the very dry collection environment (RH in the winter months is sometimes no higher than 20%), the structure of the cabinets has deteriorated considerably. At the same time, the use of pesticides in the collection has declined primarily because of health, safety and legal implications. This decline in pesticide use, the advent of 'new' pest species and deterioration in cabinet condition has co-incided with an increased awareness of museum pests. The Department harbours a unique and diverse dermestid fauna[!], specifically *Anthrenus sarnicus*, *Reesa vespulae*, *Attagenium smirnovi* and *Stegobium paniceum*. Throughout the Department a rolling programme of cabinet replacement is now under way. The new steel cabinets should not have the long-term problems of cracking and distortion inherent in the originals, and the doors have an effective pest-proof seal. To date (as of November, 1998), Lepidoptera have been in receipt of 450 such cabinets, 336 designed to take 5712 original Rothschild drawers and 114 that each house 20 accession-sized drawers. These Rothschild drawers are now held on a large compactor unit (installed 1992) to more economically use available space (see Plate 2). An earlier compactor unit, built in 1985, has space for more than 11,000 accession drawers in open racking — of these, some 10,000 contain Lepidoptera including much of the Charles Oberthür collection.

BUILDINGS

In the years immediately following his death, Sir Hans Sloane's collection continued to be held in Chelsea, but for its ultimate



Plate 1. *Above.* The BMNH Entomology Block — occupied now for nearly 50 years — it has few of the facilities that would be expected of a modern museum. *Below.* A selection of current BMNH Lepidopterists — staff, students and adherents: (from the left) Linda Pitkin, Angel Viloría, David Lees, Maia Vaswani, Luis Hernandez Triana, Paul Jenkins, Jim Reynolds, Gaden Robinson, Malcolm Scoble, George Beccaloni, John Tennent, Ian Kitching, Bella d'Abrera, Martin Honey, Dick Vane-Wright, Lucilla d'Abrera, George Else, Bernard d'Abrera, Phil Ackery, Kevin Tuck, and Campbell Smith.

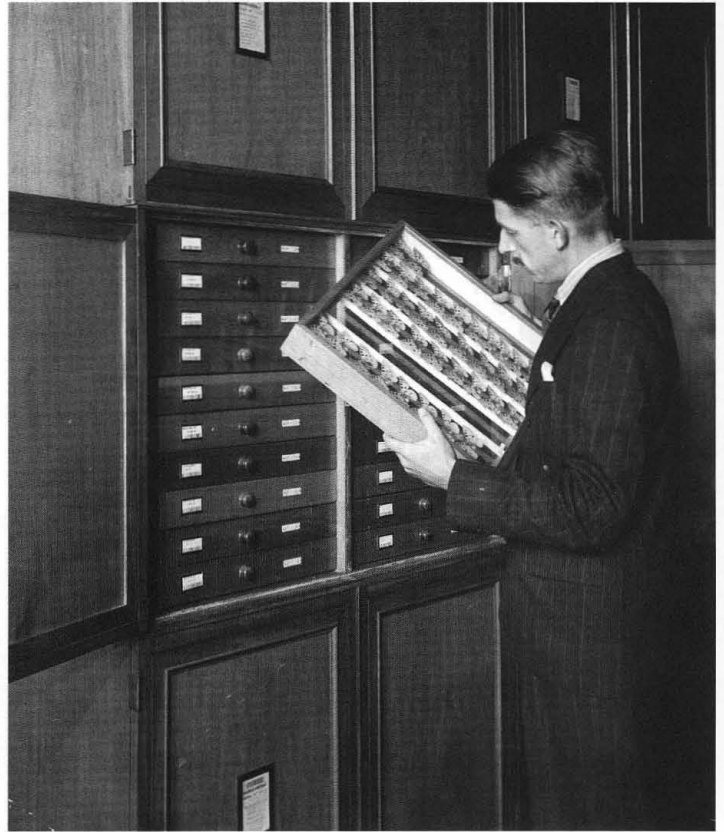


Plate 2. *Above, left.* The cathedralesque Main Entrance of Waterhouse's classical frontage to The Natural History Museum, facing Cromwell Road.

Above, right. BMNH Lepidopterists circa 1965, photographed on the roof of the Spirit Building with Imperial College Tower in the background: (from the left, standing) Mike Clifton, Ian Common (visitor), 'Berry' Nye, Graham Howarth, Brenda Carter (nee Spark), John Bradley, Kathy Smiles (nee Brooks), David Carter, Paul Seymour, Steve Fletcher; sitting, Paul Whalley, Allan Watson, 'Tiger' Tams, and Ted Wiltshire (visitor).

Below, left. Rothschild collection now housed in compactorised metal cabinets. Striving to look natural are Kim Goodger (on ladder), Geoff Martin (crouched, front), and from the left Mark Parsons, David Goodger, David Carter, and Jeremy Holloway.

Below, right. 1948: Graham Howarth examines the *Parnassius* Main Collection housed in standard 20-drawer butterfly cabinets.

accommodation, the Act of Parliament of 1753 formally set up the "British Museum" in Montagu House, Bloomsbury, which opened to the public in 1759. Here was to develop the 'Insect Room', a term that survived the collection's later transfer to South Kensington. The Insect Room was "a well-lighted apartment fifty feet by thirty feet, in which the cabinets were arranged along the walls or in rows intersecting the room, so as to divide it into several partitions, . . . the twenty-drawer cabinets, of which eight or ten were supplied each year, being piled on top of the old ones almost to the ceiling" (Günther, 1912, *The History of the Collections Contained in the Natural History Departments of the British Museum* Vol.II-Appendix). Although Montagu House continued to be developed, with its final transformation to the now familiar building by Sir Robert and Sydney Smirke, collection space to house the ever-increasing collections remained a problem. Ultimately, in 1862, the House of Commons approval of the purchase of 12 acres of land in South Kensington for the construction of a museum dedicated to the natural history collections was to lead eventually to Alfred Waterhouse's Romanesque building that, to this day, forms such a notable landmark on Cromwell Road (see Fig. 1).

By 1882-3, the equivalent of the old Insect Room at Bloomsbury had been set up at South Kensington to occupy four rooms in the south-west corner of the Waterhouse building basement. Riley notes the original open fires, the gas-lighting and speaking tubes, eventually replaced by some form of central heating, electric lighting and the apogee of sophistication, telephones! Basic equipment was just that — B. F. Cummings (under the pseudonym W. N. P. Barbellion, *Journal of a Disappointed Man*, 1919), on taking up his appointment, records being provided with "a pen, ink, paper, ruler, and an enormous instrument of steel which on enquiry I found to be a paper cutter. I asked for a microscope and microtome." By 1921, the floor area occupied by the entire entomological collection had increased 5 fold to take up all the space in the S.W. basement area. But even this led to unacceptable over-crowding. Temporary respite was provided by the short-term housing of entomological collections within the Spirit Building extension. Fortunately, the need for a designated entomological building was widely recognised. Construction of the present building (see Plate 1), started in 1934, passed through various phases and delays, and was only fully occupied in 1954 [!], although to the disappointment of many the Ornithology collections were included in the building, taking up the equivalent of 2.5 of the 6 floors available.

Perhaps for any growing collection, 'space' always becomes a problem every 25 years or so, and by 1965 the entomological collections were again threatening to overflow the accommodation at South Kensington, with the Ornithology collections housed in the Entomology building reaching a comparable crisis. The Lepidoptera were in a curious state. Much of the material included in the Rothschild Bequest remained at Lord Rothschild's Tring Museum (perhaps 2.5 million specimens) with the addition of other important holdings — the entire BM series of Lycaenidae and Riodinidae and the Rothschild-Cockayne-Kettlewell collection of British Lepidoptera were then also at Tring. The construction of a new Ornithology building on the Tring site was ultimately to bring to fruition Norman Riley's long-held ambition of having all the entomological collections housed within an integral Department — by early 1972, the birds had vacated the Entomology building and all the Tring Lepidoptera collections had been moved to South Kensington, to be followed finally by the re-housing within the Entomology Block of c.8000 drawers held in the peripheral Lepidoptera stores at South Kensington: the 'Oberthür Room' and storage space in the old Insect Gallery.

PEOPLE

19th CENTURY

Edward Doubleday [1842-49] was probably the first BM Lepidopterist in so far as he does not appear to have had responsibility for any other groups. Younger brother of fellow Lepidopterist, Henry Doubleday, he died prematurely in 1849, not yet 40 years old. He remains best known for his contribution to *The Genera of Diurnal Lepidoptera* (1846-52), and his pioneering catalogues of the Lepidoptera in the BMNH collections. The Hymenopterist Frederick Smith was Doubleday's direct successor and so G. R. Gray, primarily an Ornithologist, now assumed greater responsibility for the butterflies. Meanwhile, Francis Walker began his association with the general moth collection. Stearn encapsulates the essential essence of the man — "he was a bad, but extremely industrious, museum taxonomist, who described the same species more than once under different specific names and put it into different genera too often for the good of his reputation and the utility of his work". The 35-part series, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* (1854-66), bears dumb testament to his work on the Lepidoptera-Heterocera.

It was not until 1863 with the appointment of A. G. Butler [1863-1901], that the entire Lepidoptera again had the attention of a single specialist. Butler's first task was the re-organisation of the Lepidoptera collections. In a prolific career, he published more than 500 articles, many of them faunistic accounts of expeditions to far-flung areas of the British Empire.

Mention must also be made of W. F. Kirby [1879-1900], although he largely ceased working on Lepidoptera upon his appointment in 1879 as successor to Frederick Smith. While Assistant Naturalist at the then Museum of the Royal Dublin Society he compiled his irreplaceable *Synonymic Catalogue of Diurnal Lepidoptera* (1871) and its *Supplement* (1877), also undertaking the task of cataloguing the W. C. Hewitson collection, so rich in type material, that had been bequeathed to the BMNH. Despite his official post at the BMNH being with respect to various other insect Orders, work on the Lepidoptera continued through collaboration with Henley Grose-Smith (Grose-Smith and Kirby, *Rhopalocera Exotica* 5 v, 1887-97), and the incomplete catalogue *Lepidoptera Heterocera: Sphingides and Bombyces*, 1892).

INTO THE 20th CENTURY

By the end of 1904, the collection had been completely re-arranged by G. F. Hampson (Heterocera) and F. A. Heron (Rhopalocera) supported by E. Y. Watson (Hesperiidae), Richard South (British Lepidoptera) and Lionel Walter Rothschild (Sphingidae). Single-minded, dedicated and unaccommodating, Hampson [1895-1913] stood at his desk and ploughed ever onwards with his 16 volume work, *Catalogue of the Lepidoptera Phalaenae in the British Museum* (1898-1920). By contrast, F. A. Heron [1889-1910] who took charge of the butterflies on the retirement of A. G. Butler, was a kindly, shy and retiring personality. It is doubtful if their relationship could possibly have been anything other than rather distant. But in many ways, this seems quite characteristic of the times - in his published diary, B. F. Cummings (*loc. cit.*) hints at the isolation that existed, certainly between himself and other museum specialists, perhaps not surprising if he made obvious his scathing opinions regarding their Science — "the work was trivial and the methods used as primitive, slipshod and easy as those of Fabricius"!

The collection was to expand 20-fold in the next 60 years primarily through the acquisition of much material originally held in private hands. Initially, it seems efforts were made to amalgamate new acquisitions as a matter of routine: H. J. Elwes incorporated his



Plate 3. *Above.* 1927 — the BMNH Moth specialists: (from the left) H. Stringer, J. H. Durrant, T. Issiki (visitor), W. H. T. Tams, and R. J. West
Below. The 'Butterfly Section' 1981, photographed in the Basement of the Entomology Department: (from the left) Bob Smiles, Ramnik Arora, Phil Ackery, John Huxley, and Dick Vane-Wright.

own collection, Norman Riley [1911-55] (who succeeded Heron) was put to work on the Godman-Salvin collection of Neotropical Lepidoptera, while the Microlepidoptera holdings were developed by J. H. Durrant [1910-28] and H. Stringer [1910-36] to include the Walsingham Collection, which still forms the substantial basis of the BMNH Microlepidoptera collection.

By 1920, the core staff comprised Riley and A. G. Gabriel [1898-48] (formerly Heron's assistant), and R. J. West [1894-1939], Durrant, Stringer, and W. H. T. Tams [1920-57] (who succeeded Hampson and was to be a feature of the Entomology Department for some 60 years!) (see Plate 3). For much of the following 3 decades or more, they were supported by an extensive team of volunteers many of whom were acknowledged authorities on their specialist groups: H. T. G. Watkins (on Satyrinae and Pieridae), A. T. J. Janse (Pylalidae), A. Hall (Nymphalidae), W. H. Evans (Hesperiidae), G. Wheeler (*Melitaea*), F. Hemming (Palearctic butterflies), P. Graves (Palearctic butterflies), C. L. Collenette (Lymantriidae), L. B. Prout (Geometridae), A. E. Wileman (Japanese Lepidoptera) and C. J. Brooks (Oriental Lepidoptera). In addition, George Talbot, who had been curator of J. J. Joicey's private Hill Museum, was engaged on a part-time basis to recurate the Danainae and Pieridae.

The period immediately prior to the hiatus of the Second World War (1939-45), saw several new staff engaged: Stephen Corbet [1939-48], R. A. Washbourne [1936-46] and G. A. Bisset [1935, killed in action March 1943], including the key appointments of Steve Fletcher [1935-84], John Bradley [1938-64, and ultimately as the [then called] Commonwealth Institute of Entomology Lepidopterist, 1964-82, continuing in a consultancy capacity until 1986], and Graham Howarth [1936-76]. This heralded a new era, with perhaps 'Tiger' Tams' retirement in 1957 finally severing formal links with the early years of the century, although he remained a feature of the Department for a further 20 years, usually hidden behind impossibly stacked storeboxes seemingly arranged in total disarray. Lepidoptera systematics will probably never be better served than it was in the following three decades: Allan Watson [1953-88] assumed overall charge of the Lepidoptera, and along with Paul Whalley [1958-88], Klaus Sattler [1966-92, and currently as a Research Associate] and "Berry" Nye [1962-84] (see Plate 2), and the earlier appointees, they represented the broadest base of knowledge of the Lepidoptera ever assembled in one institution.

In the 1960s and '70s, 'Lepidoptera' still retained something of the club atmosphere that was perhaps more prevalent in earlier times. Amateurs would arrange to meet at the 'BM' or come in seemingly for no reason other than to pass the time of day! The afternoon preceding monthly meetings of The British (formerly South London) Entomological and Natural History Society provided a particular focus. A gathering of say Heath, Marcon, Harbottle, De Worms, MacNulty, Bretherton, Emmet, and Chalmers-Hunt could be expected. But the annual Verrall Supper provided the climax. It attracted Lepidopterists from far afield. The canyons between the cabinets would echo with such triumphant cries as "New record for Shropshire!", always in the well-modulated but irritatingly penetrating tones that seem to be the primary attribute of a British private education.

At South Kensington, Graham Howarth strove manfully to maintain the status quo on butterflies with the support of various more junior staff members (particularly M. P. Clifton [1962-68]), while at Tring the Lycaenidae were extensively re-worked by N. H. Bennett [1931-71], G. E. Tite [1938-67] and S. J. May [1967-72]. Also at Tring, D. K. Read [1958-70] and A. L. Goodson [1938-64] had responsibility for the development of the Rothschild-Cockayne-Kettlewell collection of British Lepidoptera. In 1968, Dick Vane-Wright [since 1967], was appointed as Head of a newly constituted 'Butterfly Section' — and Paul Whalley and Allan Watson assumed

similar roles for the Micromoths and Macromoths respectively. Bob Smiles [1969-84], Clive Huggins [1965-74], and Phil Ackery [since 1969] formed a team assembled with the main purpose of amalgamating all the disparate butterfly collections into a single series. But financial constraints on necessary investment in collection furniture soon led to a switch in emphasis to include a greater research component, centering particularly on the the Parnassiinae (Ackery), Heliconiinae (Ackery, Smiles, Vane-Wright), Danainae (Vane-Wright, Ackery), Charaxinae (Smiles) and Satyrinae (Smiles, Huggins, Vane-Wright), much of this work driven by Dick Vane-Wright's interests in mimicry and phylogenetics. Since 1968, although with many changes in personnel, there has always been a team of four or five people (see Plate 3) with either a research or curatorial focus on the butterflies. Any past or recent visitor would be familiar with all or some of the following: Ramnik Arora [1974-82], John Huxley [1973-83], Cindy North [1982-85], Campbell Smith [since 1984], Helen Taylor [1985-89], Jane Goode [1986-90, butterflies and moths], Jim Reynolds [since 1992], Julia Pope [1993-97] and Kim Goodger [since 1997, formerly a member of David Carter's curatorial team on Macromoths, 1991-97]. The collection has also benefited from the attention of several regular visitors, notably L. G. Higgins, A. H. B. Rydon, J. N. Eliot, S. C. Collins, C. G. Treadaway, M. J. Adams, C. F. Cowan, T. B. Larsen, A. F. E. Neild and B. d'Abraera.

Over the same period, under Allan Watson, work on the Macromoths continued apace with Watson himself specialising in Drepanidae and Arctiidae, Nye on Noctuidae and general cataloguing, and Fletcher on the Geometridae. These three formed the constant core of a group of six or seven people covering a broad range of the larger moths: the Sphingidae and Noctuidae (Alan Hayes [1966-85]), Noctuidae and pericopine Arctiidae (Paul Seymour [1955-72]), Zygaenidae (Gerry Tremewan [1957-91]), Geometridae and Saturniidae (Kathy Smiles nee Brooks [1965-77]), the Noctuidae (Brenda Carter nee Spark [1965-68]), the Arctiidae and Notodontidae (Maureen Lane nee Grogan [1968-77] and Tim Willett-Whittaker [1975-80]), the Arctiidae (David Goodger [since 1972]), British Heterocera (Mark Parsons [since 1997] and the Noctuidae (Martin Honey [since 1974]). Jeremy Holloway, specializing in south-east Asian moths, was employed by the International Institute of Entomology [1978-96], and now continues his work in the capacity of a BMNH Research Associate. As the Watson-Fletcher-Nye era drew to a close, the succession was ensured by the appointment of Malcolm Scoble [since 1985], who specialises in the Geometridae, and Ian Kitching [since 1982] (Noctuidae and Sphingidae). Again, the generosity and labour of so many regular visitors continues to enhance the collection: D. Agassiz, E. W. Classey, G. M. Haggett, R. Revell, R. M. Craske, B. Skinner, B. Fisher, A. Galsworthy, B. Hargreaves, and R. Revels.

From its inception under Paul Whalley, the Microlepidoptera Section also had a core of long-serving staff. Michael Shaffer [1958-96], working on the Pylalidae, was a constant feature, initially with David Carter [since 1962] who was eventually to focus specifically on all British Lepidopterans. Along with Klaus Sattler (Gelechiidae) and John Bradley (Tortricidae), and the later recruitment of a tineid specialist, Gaden Robinson [since 1974], this was the foundation of a team that has included Michael Kirby [1968-72], Brian Ridout [1971-73], Chris Moreby [1971-76], Kevin Tuck [since 1973], Linda Pitkin [since 1980, and since 1989 working on geometrids as part of Malcolm Scobles' team], and Monique Tobin [1983-90], plus the notable contribution of visitors and volunteers Tommy Vallins, S. N. A. Jacobs, A. Maitland Emmet, R. Heckford, J. Langmaid, B. Goater, and Richard Fairclough — all dedicated to the most neglected of the lepidopterans.

'Lepidoptera' at The Natural History Museum is a unique resource on a world-wide scale both in terms of its collections and Library,

and the specialised expertise of its staff and associates. This, in turn, has generated notable recent input through graduate and post-graduate students, particularly Ian Kitching, George Beccaloni, David Lees, Angel Vilorio, Martin Krüger, Jason Weintraub, Mark Cook, Susan Weller, Marcus Matthews, and John Tennent. And it still retains its special focus for serious 'students of Lepidoptera', be their interests taxonomic, faunistic or ecological. A glance through names held in recent visitor records is very much a "who's who" of world lepidopterology today: *Zsolt Bálint* (Budapest, Hungary), *Henry Barlow* (Kuala Lumpur, Malaysia), *Carol Boggs* (Stanford, California, USA), *Michael Boppré* (Wittental, Germany), *Andy Brower* (Corvallis, Oregon, USA), *Keith Brown* (Campinas, Brazil), *Jean-Marie Cadiou* (Brussels, Belgium), *Sir Cyril Clarke* (Liverpool, England, UK), *Ugo Dall'Asta* (Tervuren, Belgium), *Phil DeVries* (Eugene, Oregon, USA), *Rienk de Jong* (Leiden, Netherlands), *Alexey Devyatkin* (Moscow, Russia), *Paul Ehrlich* (Stanford, California, USA), *Tomoo Fujioka* (Tokyo, Japan), *Haruo Fukuda* (Kagoshima, Japan), *Larry Gilbert* (Austin, Texas, USA), *Christoph Häuser* (Stuttgart, Germany), *Claude Herbulot* (Paris, France), *Marianne Horak* (Canberra, Australia), *Suguru Igarashi* (Tokyo, Japan), *Hiroshi Inoue* (Tokyo, Japan), *Ole Karsholt* (Copenhagen, Denmark), *Niels-Peder Kristensen* (Copenhagen, Denmark), *Claire Kremmen* (Stanford, California, USA), *Gerardo Lamas* (Lima, Peru), *Claude Lemaire* (Gordes, France), *Martin Lödl* (Vienna, Austria), *Jim Mallet* (London, England, UK), *Kauri Mikkola* (Helsinki, Finland), *Jackie and Lee Miller* (Sarasota, Florida, USA), *Jim Miller* (New York, New York, USA), *Scott Miller* (Honolulu, Hawaii, USA), *Joël Minet* (Paris, France), *Clas Naumann* (Bonn, Germany), *Wolfgang Nässig* (Frankfurt, Germany), *Ebbe Schmidt Nielsen* (Canberra, Australia), *Mike Parsons* (Gainesville, Florida, USA), *Camille Parmesan* (Santa Barbara, California, USA), *Carla Penz* (Eugene, Oregon, USA), *Jacques Pierre* (Paris, France), *Rimantas Puplis* (Vilnius, Lithuania), *Tommaso Racheli* (Rome, Italy), *Bob Robbins* (Washington, DC, USA), *Miriam Rothschild* (Ashton Wold, England, UK), *Mike Singer* (Austin, Texas, USA), *Alma Solis* (Washington, DC, USA), *Hermann Stauder* (West Krugersdorp, South Africa), *Ward Watt* (Stanford, California, USA), and *Osamu Yata* (Fukuoka, Japan), to name but some.

By 1990, a crisis of confidence seemed to hit museums in general and systematics in particular, and those who fund them. Institutions felt a need to re-invent themselves in pursuit of relevance, 'visitors' became 'customers', 'botany' became 'plant sciences', and in our case the British Museum (Natural History) became The Natural History Museum. 'Lepidoptera' was not unaffected by these changes, not least in ceasing to exist as either an individual or composite administrative entity, being encompassed by more abstract concepts such as 'Divisions', 'Programmes' and 'Themes'. But if longevity is any reflection of practicality, then 'Lepidoptera' has served us well. The future presents many new challenges. As intimated above, for curators the demands of the electronic age are daunting and require clear identification of priorities; in addition the Entomology Building itself fails lamentably to comply with current collection standards; for researchers we have moved into a new era where much research support is no longer core-funded (and there remains the danger that the siren-call of funding pushes research away from its collection base). And what of molecular facilities and their appetite for funds? What would Norman Riley make of things now? As a man with an indefatigable zest for administration, I suspect he would chair innumerable committees, totally ignore their recommendations, and drive the Department toward his vision of the future!

APPENDIX

The following reference list gives some indication of current research interests of staff members, research associates and recent students. Of course, it is very far from exhaustive. However, in including major original publications, review articles and theses, it provides an overview of active areas of research covering collections, systematics, biology, biogeography and faunistics.

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