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## The University of Leeds Natural History Collections - Part 1

THE UNIVERSITY OF LEEDS HERBARIUM (LDS)  
JENNIFER M. EDMONDS F.L.S.

### INTRODUCTION

The origin of the the Botanical Collections in the University of Leeds is unknown though a herbarium is documented to have existed in the original Biology Department in 1890. There are references in W.H. Burrell's diary to it being removed from De Gray Road to No. 15 Beech Grove Terrace in October 1928, and from thence to the Main Building (presumably the Baines Wing) in June 1933. However, the collections appear to have been scattered within the then Botany Department; some were apparently stored in the old Botany House, and others in various workshops and laboratories. The purchase or renovation of odd 'cabinets' was referred to between 1927 and 1929 though the bulk of the collection was thought to have been stored for many years in the lecture room and a store room adjacent to what later became the herbarium. The specimens eventually occupied various cupboards and shelves in this herbarium. In the early 1970's the walls of this room were lined with purpose-built wooden cabinets to house the herbarium collections, though the room itself doubled as the Departmental tea-room.

However, the University of Leeds Herbarium has been totally neglected for many years. It was last actively curated in the 1930s, when W.H. Burrell, the Honorary Curator, had both acquired a number of important collections, and carefully catalogued their contents. Later G.A. Shaw continued limited curatorial work, but since his retirement in the early 1970s, the collections had largely ceased to be used or consulted. The apparent absence of any inventories or information on the way in which the many collections were arranged, meant that they were unavailable for either

### Communicating Science Course

To be Held at the Department of Museum Studies, University of Leicester on 22nd-26th March 1999.

This year the meeting is convened by Dr Melanie Quin of Techniquet. The week will attempt to discover how we can be effective science communicators. The course will look at a range of media and approaches, and will, amongst other things, draw upon Techniquet's extensive experience in shows, educational programmes, publication and interactive exhibits. The course will enable natural scientists to compare their methods of communication with other museum science communication.

For further details please write to Barbara Lloyd, Department of Museum Studies, University of Leicester, 105 Princess Road East, Leicester LE1 7LG or phone 0116 2523962, fax 0116 2523960 or email BL5@le.ac.uk. Cost of course £325, excluding accommodation.

teaching or research purposes. This coincided with the demise of whole organism teaching in the degree courses then offered, and particularly with the lack of botanical options. When insect infestation of parts of the collections became apparent, concern for the future well-being of the herbarium began to be expressed.

During the early 1990's there was considerable discussion on the ultimate fate of the botanical collections, especially since a new biology building was then being planned. Several staff in the then Department of Pure & Applied Biology favoured its transfer to the Leeds City Museum. Such a disposal, however, would have left one of the major departments of biology in the country without any botanical collections. Fortunately, due to the foresight of Dr Peter Mill, space for a separate herbarium was allocated in the planning stages of the new building, alongside a Museum, an Insect Collection Room and a Preparation Room. Peter Mill was subsequently given overall charge of the Department's biological collections, and in early 1996, it was agreed to retain the herbarium within the new Department of Biology, and to move it into the new building. Later in 1996, Richard Kilburn, Assistant Director of the Yorkshire & Humberside Museums Council proposed that HEFCE Grant aid might be available to help move and document the University Herbarium. This grant was secured in October 1996, and the move to the new building started in January 1997.

### THE MOVE

Prior to the move, the herbarium was housed in wooden cabinets lining the tea-room in the Baines Wing (Figures 1 & 2). During the first three months of 1997 the collections, occupying some 800 shelves, were packed and prepared for deep-freezing in order to prevent any insect infestation being transferred to the new biology building. Each bundle of herbarium folders was double wrapped in medium-duty polythene bags, secured with rubber bands and labelled with the cupboard location. During this procedure, a preliminary inventory of the entire collection down to the family (and in some cases down to the generic or even species) level was completed. Many parcels of unincorporated specimens found in an adjacent store room were similarly treated.

The bundles of wrapped specimens were transferred to carefully numbered crates (Figure 3), which were transported to a 'holding' area in the basement of the new building where they were stored until required (Figure 4). The



Figure 1. Before the move: the herbarium cabinets lining the walls of the tea-room in the Baines Wing.



Figure 2. Some of the William Ingham bryophyte specimens and old moss boxes in situ before the move.

herbarium cabinets were subsequently dismantled and refitted in the new building (Figure 5). This building was officially opened in September 1997, when it was named the Louis Compton Miall Building, after the first Professor of Biology at the University of Leeds (see Baker, R.A. & Edmonds, J.M. (1998). Louis Compton Miall (1842-1921) - the origins and development of Biology at the University of Leeds (*The Linnean*, 14(1):40-48).

#### THE REINSTALLATION

From April 1997 to April 1998 the entire herbarium was gradually frozen and re-housed in the cleaned cabinets. A routine procedure was established, during which the polythene-wrapped specimens were transferred from the storage crates into cardboard trays, which were loaded onto a large trolley which could be wheeled in and out of the walk-in freezer as required (cf. Figure 4). The specimens were all frozen at a temperature of -18 C for at least 72 hours, brought up to ambient temperature over a period of 8 hours and then refrozen for a further minimum period of 72 hours. They were then transferred to the herbarium, and allowed to reach ambient temperature over a period of approximately 7



Figure 3. Crated bundles of wrapped and labelled specimens waiting to be moved to the new building.

hours. The polythene coverings were then removed, and the specimens re-stored in their respective bundles in the cardboard crates for at least 48 hours before being shelved in the cabinets (cf. Figure 6). During the re-shelving, a more detailed inventory of the specimens was compiled, which was checked against the original made in the Baines Wing. All cardboard generic covers were replaced and relabelled with the appropriate family and generic numbers and names. In addition, most of the original flimsies enclosing the individual specimens were trimmed to remove the torn and dirty edges; many were completely replaced (cf. Figures 7 & 8).



Figure 4. Bundles of specimens transferred to cardboard trays in the 'holding area' prior to freezing.

Different classificatory systems proved to have been used in the arrangement of the various collections. The herbarium has proved to be a rich source of material not only of British origin, but also, and unexpectedly, of specimens collected throughout the world. All groups of plants - algae, lichens, bryophytes, pteridophytes, gymnosperms and angiosperms - are represented, with some genera (eg. *Carex* L., *Hieracium* L., *Rosa* L. and *Rubus* L.) being particularly abundant. Certain non-British geographical regions are surprisingly well-represented; these include New Zealand, Madagascar, East and South Africa, certain states in the USA, and alpine regions of Europe. There are also collections of some historical value (eg. the Sandstede Collection of *Cladonia* (lichen) species, and the Fox Collection of flowering plants, ferns and lycopods from Madagascar).

#### MAJOR COLLECTIONS IN THE UNIVERSITY OF LEEDS HERBARIUM

The major collections represented in the University of Leeds Herbarium are as follows:

##### 1. Bryophytes

The bulk of the bryophyte herbarium was obtained from William Ingham of York (1854-1923) (cf. Figure 2). Although Ingham had originally, in July 1920, offered to sell his collection to the University for the sum of £200, negotiations with the Department and the University authorities seem to have been inconclusive. Following

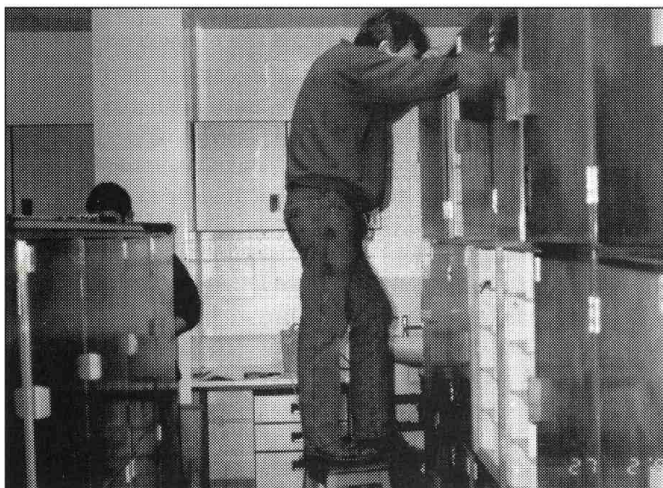


Figure 5. Carpenters refitting the herbarium cabinets in the new building.

Ingham's death in early 1923, his executors, Mabel and Wilfred Ingham, offered their father's British Moss and Liverwort collections to the University as a gift. These collections numbered some 1200 specimens; they were apparently immediately mounted the small packets on paper sheets to facilitate better handling and the more important of the collectors noted. These prominent collectors included: T. Barker; R. Barnes; Boswell; R. Braithwaite; J. Needham; J. Nowell; H.T. Parsons; W.H. Pearson; M.B. Slater; R. Spruce; Wm. West; J.A. Wheldon; and Wm. Wilson. Meanwhile in 1926, W. Bellerby was persuaded to donate Ingham's European and exotic collection of bryophytes, which had been given to him by Ingham's executors, to the University in memory of Wm. Ingham. Bellerby noted that this collection comprised some 18 parcels each containing scores of packets, with the liverworts alone totalling some 1800 packets. This was later augmented in 1927 by Ingham's comprehensive collection of approximately 380 sheets of mounted *Sphagna* specimens which had inadvertently been sent to the Cardiff Museum along with his general herbarium.

In addition to the Ingham bryophyte collections there are a large number of other foreign specimens, many probably acquired by W.H. Burrell in the 1930s, and including a number collected by J.H. Priestley. Most of these were previously unincorporated; they have now been reboxed and shelved as appropriate. The liverwort collection is arranged according to W. Ingham's *A Census Catalogue of British Hepatics* (1913), while the moss collections are arranged according to W. Ingham's *A Census Catalogue of British Mosses* (1907) and J.A. Wheldon's *A Synopsis of the European Sphagna* (1917). Catalogues - including William Ingham's original inventory and note-books, and card indices, have also been found for most of the bryophyte collections; these have been installed in the herbarium and allow instant access to information on the bryophyte genera and species represented. These collections now occupy approximately 170 shelves in 17 cabinets.

## 2. Lichens

The Rev. William Johnson's Lichen Collection was acquired by the University in 1922. It was subsequently neglected until the early 1970s, when it was worked over, repacketed and remounted by M.R. Seaward and G.A. Shaw (see M.R.D. Seaward, *The Naturalist*, January 1972: 13-14). The collection is composed of 1614 gatherings arranged alphabetically in order of the genera according to P.W. James' *A New Check-list of British Lichens* (*The Lichenologist*, 3: 99-153 (1965)). Though largely collected from the North of England, this collection also includes a number of Norwegian specimens. It also includes what is thought to be the only extant bound volume (fide A. Norris) of W. Johnson's *Fascicule No.12* (Nos.441-480) (1914) of his *North of England Lichen Herbarium* ("Comprising Specimens collected mostly in Cumberland, Durham, and Northumberland"). This volume is therefore of considerable importance. Another bound volume of miscellaneous algae and lichens, largely collected by Johnson between 1880 and 1888 in the North of England has been shelved with the lichens.

In addition, the Heinrich Sandstede collection of *Cladonia* species is housed in 20 large herbarium boxes. This important historic lichen collection is fully documented in, and arranged according to, Sandstede's *Cladoniae exsiccatae*, of 1918-1930, and comprises numbers 1-1886.



Figure 6. Frozen specimens awaiting documentation and reinstallation in the 'new' herbarium.

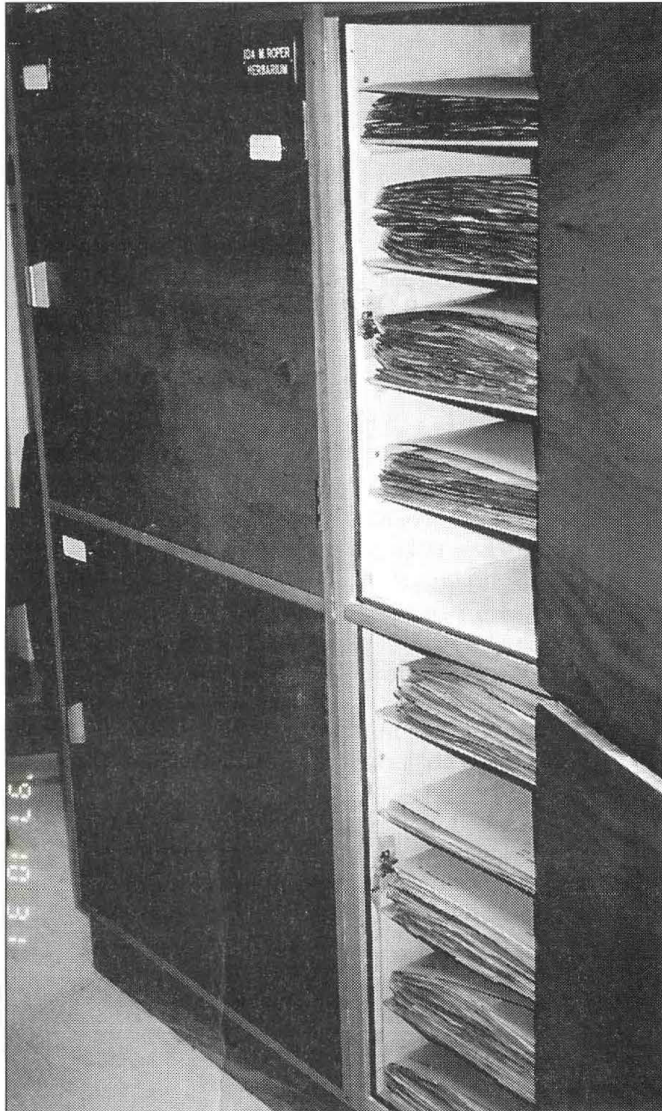


Figure 7. Part of the reinstated Ida Roper Herbarium, showing the new generic covers and appropriate labelling.

The lichen collections now occupy some 80 shelves in eight cabinets.

### 3. Algae

A sizeable collection of algae, including red, green and brown representatives were uncovered during the move. These have now been sorted into their respective groups, and a preliminary inventory compiled. The algae included in Johnson's bound volume of "Algae and Lichens" were largely collected from the North of England between 1880 and 1889. An index to the species bound in this volume has yet to be compiled.

Since the move to the new building a number of algal specimens have been used in undergraduate and graduate class demonstrations, especially those on biodiversity and adaptive radiation. The algal collection currently occupies five shelves.

### 4. Canon Bullock-Webster's Charophytes

This collection was presented as a gift to the University in 1933 by the Rev. G.R. Bullock-Webster, Honorary Canon of Ely Cathedral. It is composed of 42 sheets issued as two fascicles in 1924 and 200 additional sheets collected in Great Britain, Ireland, France and Switzerland. It is accompanied by detailed inventories and check-lists by Burrell, and will be reshelfed between the algae and the British Higher Plants and Ferns. Since Bullock-Webster was a leading authority on this difficult group of submerged aquatic plants, co-authoring a definitive monograph of the family, this collection represents an extremely important component of the herbarium.

### 5. Ferns

The herbarium includes a large numbers of fern specimens, collected both in the British Isles and abroad. Most of the individual British bequests mentioned below include sizeable sets of fern specimens. The exotic Phanerogam collection also includes a large number of fern specimens, many of which were collected by W.A. Sledge in New Zealand in 1929. In addition, there is a folio containing 51 unusually large sheets of "Ferns of New Zealand" collected by A.J. Green c. 1880. This includes the original hand-written inventory, and because of its size, has had to be stored separately. The J.T. Fox collection of Madagascan plants mentioned below also includes a number of fern and lycopod specimens.

There are also two fine leather bound volumes containing various fern, lycopod and Selaginella Pal. specimens. One consists of 38 sheets collected in the mid 1850's and titled "A Collection of British Ferns and Lycopods chiefly gathered and arranged by T.W. Gissing". The other, dated December 1859, is "A Collection of Foreign Ferns and Selaginellas grown in England by John Waterhouse of Well-Head, Halifax. Prepared to be sold for the benefit of the Wakefield Lancastrian School by Mr W.R. Milner". This is composed of 39 fern sheets and 11 different Selaginella species.

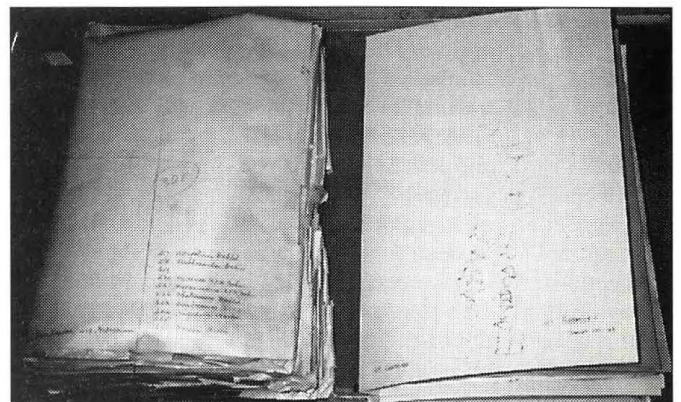


Figure 8. Part of the John Cryer Herbarium, showing the original condition of the folders (left) and their replacements (right).

## 6. British Higher Plants

### 6.1. *The Ida Roper Herbarium*

This collection forms the basis of the University of Leeds Herbarium. It was bequeathed to the University in 1935 by the eminent Natural Historian Ida Roper (1865-1935) who resided in Bristol. She was an extremely active field botanist as well as an ardent member of the British Botanical Exchange Club, a Fellow of the Linnean Society, Honorary Secretary of the Bristol Naturalists Society and a regular attendant at British Bryological meetings. Her herbarium, therefore, represents an extremely important collection of British plants, especially since many of the specimens are augmented by the attachment of photographs of both plants and local scenery, letters, contemporary articles and paintings.

The Ida Roper Herbarium was found to be arranged according to G.C. Druce's British Plant List (1928), and a profusely annotated copy of this List - entitled University of Leeds Herbarium Catalogue, unearthed during the move, was used extensively during the reinstallation procedure, when considerable re-ordering of the specimens proved necessary. Her herbarium now occupies 180 shelves in 20 cabinets; it is thought to contain approximately 10,000 specimens. The old copper and enamel labels were recovered and attached to the appropriate herbarium cupboards, and cards bearing the appropriate cupboard and family numbers have been inserted in brass holders attached to every cabinet (cf. Figure 7). The families, genera and species of plants found in Britain can now be retrieved on demand, after identifying their appropriate numbers in the Druce's List.

A separate collection of British Willows (*Salix L.* species) collected during the period 1892-1896 by Edward F. Linton and arranged according to Linton's Monograph has been incorporated into this herbarium, but retained as a separate entity. The specimens, collected between 1892 and 1896, are all ex Herb. E.F. Linton, and each sheet is numbered according to the pages of his monograph. This "Set of British Willows", which was acquired by Burrell for the sum of £5 in 1920, now occupies four shelves within the Salicaceae.

### 6.2. *The John Cryer Herbarium*

The majority of specimens in this herbarium were collected between 1840 and the early 1900's, mainly from Yorkshire; John Cryer (1860-1926) was a local amateur botanist from Shipley, near Bradford. Like the Ida Roper Herbarium it is arranged according to Druce's British Plant List (1928). Particularly important sections of this herbarium include extensive collections of *Hieracium L.* and *Carex L.* Superficially this collection was in very poor condition and all the generic covers and flimsies had to be replaced (cf. Figure 8). The actual specimen sheets, however, proved to be a relatively clean and unaffected. The collection now occupies 60 shelves.

### 6.3. *The Joseph Pickard Herbarium*

Another old herbarium, largely collected during the 1800s, this collection, though extremely muddled when unpacked from the brown paper packing, had again originally been

ordered according to Druce's British Plant List (1928). The specimens were re-ordered according to this list, and now occupy 20 shelves.

### 6.4. *The David B. Bartley Herbarium*

This herbarium was largely collected during the 1950's by David Bartley, a former member of staff of the Botany Department. Unfortunately, it has suffered damage from both flooding and insect infestation, and many of the sheets need repairing. The collection was found to be arranged according to the First Edition of A.R. Clapham, T.G. Tutin & E.F. Warburg's *Flora of the British Isles* (1958). A large number of loose specimens belonging to this herbarium were unearthed and incorporated where appropriate and the collection now occupies 12 shelves.

### 6.5. *The F. Houseman Herbarium*

This herbarium was predominantly collected from Yorkshire in the 1960's, and includes many aliens and introductions. No order of the collection could be determined, so the entire herbarium was re-sorted into an alphabetical order of families, genera and species. A number of specimens from Ireland were also found and incorporated, together with an extensive collection of *Hieracium L.* which was found to be arranged according to Dandy's List. The collection now occupies nine shelves.

## Why Museums Matter : Avian Archives in an Age of Extinction

A joint BOU/BOC/NHM/BirdLife conference to be held on 12-14 November 1999 at Green Park, Aston Clinton nr Tring, Hertfordshire

Aim - to highlight the continuing and changing importance of museum specimens to bird research and conservation and to discuss ways in which the information contained in this resource can best be made available to a wider public.

There will be a workshop on the topic of "Increased Co-operation between Museums, especially in Europe", open only to curators and collection managers of bird collections to be held at The Natural History Museum, Tring, immediately after the conference on 14-15 November. An early expression of interest in attending the conference and/or workshop will help ensure you receive priority notification when bookings open. General conference enquiries should be made to the British Ornithologists' Union Office, c/o The Natural History Museum, Akeman St, Tring, Herts HP23 6AP (tel: 01442-890080; e-mail: bou@bou.org.uk), whilst enquiries relating to the museum workshop should be made to Robert Prys-Jones at the same address (tel: 01442-824181; e-mail: rpp@nhm.ac.uk).

## BCG/GCG Natural Science Curatorial Course '99

To be held at the Department of Museum Studies, University of Leicester, in association with Leicester City Museums and Leicestershire Museums. 14-18th June 1999.

An introduction to the collection and curation of natural science materials, consisting of discussions on the modern context of natural science work in museums with sessions looking at recording and managing data, days in the field gathering biological and geological specimens, identification in the field and in the museum, as well as systematics, organisation, preservation and collection management, and finally an examination of the role of connoisseurship skills.

There will also be some extra-curricula sessions but spotting, eating curry and hopefully a trip to one of the strangest pubs in England. For further details please write to Barbara Lloyd, Department of Museum Studies, University of Leicester, 105 Princess Road East, Leicester LE1 7LG or phone 0116 2523962, fax 0116 2523960 or email BL5@le.ac.uk. Cost of course £325, excluding accommodation.

### 6.6. The M.A. Hewitt Herbarium

This herbarium was found to be arranged according to the First Edition of Clapham, Tutin & Warburg's *Flora of the British Isles* (1958). The specimens were predominantly collected in 1959, largely from nearby Yorkshire localities. Again, many sheets need repairing. The collection now occupies four shelves.

### 6.7. Agricultural Botany Herbarium

This herbarium had suffered from extensive insect damage. It was largely amassed during the late 1960's, with many specimens having been cultivated in the Chelsea Physic Garden and collected by C.D. Sayers. Again, no order of specimens could be determined, so the entire herbarium was sorted into an alphabetical sequence of families, genera and species. It now occupies seven shelves.

### 6.8. J.G. Baker's North Yorkshire Plants

There is a bound copy of *Rosa* and *Rubus* specimens mounted in the summer of 1872 which apparently forms part of J.G. Baker's North Yorkshire Plants. However, this volume does not have an inventory and many of the sheets require "annotating".

## 7. The Exotic Phanerogam Collections

These were mainly found to be arranged according to G. Bentham & J.D. Hooker's *Genera Plantarum* (1862-1883). Within each of the genera, however, the species have now been re-ordered alphabetically. This part of the herbarium has proved to be a fairly comprehensive world-wide collection, with various areas and plant groups particularly well-represented. Among the most important collectors represented are H.G. Baker (USA - 1949); D.B. Bartley &

D.J. Hibberd (Canada - 1965); N.L. & E.G. Britton (Puerto Rico - 1933); P. Browney (Pyrenees - 1969); Bruins-Lich (St. Helena - 1929); G. Davidge & D.B. Sumithraarachchi (Sri Lanka - 1974); P.H. Dorsett & W.J. Morse (Japan - 1929); F.K. Horwood (Somalia - 1973); J.G. Jack (Cuba - 1928-30); J.R. Lawton (Nigeria - 1963-4); E.C. Leonard (Haiti - 1926-28); L. Lewalle (Belgian Congo - 1953; Burundi - 1971); L. Mille (Ecuador - 1932); J. Ormonde (Azores - 1968); R.E. Pichi Sermolli (Ethiopia - 1966); H. Santopan (India - 1944); L.I. Scott (Italy - 1930), L.I. Scott & J.H. Priestley (South and East Africa, St. Helena - 1929), J.H. Priestley (Ireland - 1930s); W. A. Sledge (New Zealand - 1929; Madeira - 1949; Ceylon - 1950-51, 1954; W. Samoa - 1965), J.W. White (Europe - 1902-06); K.M. Wiegand et al. (USA - 1914-19, 1924), L.R. Wilson (USA - 1928), T. W. Woodhead (Europe - 1905-6), and H.W. Woolhouse (Zaire - 1974).

Interestingly, a number of specimens collected from Konigsfold in Norway by Louis Compton Miall, after whom the new biology building was named, were also 'discovered'. Unfortunately, these are undated.

The exotic phanerogam collection is now housed on 135 shelves in 15 cabinets. Individual foreign collections of particular importance include:

7.1. J. Tregillis Fox's specimens collected in Madagascar between 1881 and 1887. Though mainly of orchids, his specimens also include various other monocotyledons as well as a number of ferns and lycopods.

7.2. Alfred Deseglise's herbarium of Gramineae. These specimens were mostly collected in France between 1837 and 1879, but also include a number from Austria, Italy, Switzerland, Ethiopia and India. They have been rearranged in alphabetical order of genera. In addition, a separate Deseglise collection of cereals cultivated in Jordan between 1858 and 1860, is composed of a large number of oat, barley and wheat cultivars and varieties.

### 7.3. Fruits and seeds

A large number of boxes containing fruits and seeds, discovered in a store room, were also frozen and sorted. The specimens, which had almost exclusively been collected in the tropics, have been cleaned as well as possible, reboxed, labelled according to the Bentham & Hooker system and stored in association with the exotic Phanerogam collection. In addition, there are approximately 20 boxes of glass vials containing seeds of foreign genera. These may have been acquired by Burrell in the 1930's. Although they have been sorted into an alphabetical order of genera represented, an inventory of this collection has yet to be made.

### 7.4. Wood specimens

A large collection of tropical wood samples was similarly treated though, as yet, no inventory to this collection has been prepared.

## 8. Botanical lithographs

One of the last collections discovered during the move was a collection of extremely dirty large botanical lithographs. These are housed in seven large cardboard

folios, and labelled "Botanische Wandtafeln von L. Kny". Totalling over 130 sheets, these lithographs were apparently produced by various printers in Berlin and Leipzig between 1895 and the early 1930's. The topics illustrated are extremely varied, and include plant anatomy, cell structure and development, heterostyly, insectivorous plants, fern and bryophyte structure, development and reproduction, algal fertilisation, mycological development and structure, together with various higher plants. Many are beautifully coloured, though a number are in black and white. They are thought to be extremely valuable. A typed inventory of these sheets has been word-processed, and copies placed in the map drawers now housing the collection.

## ACHIEVEMENTS

Although inevitably time-consuming, the completion of all the processes involved by JME has meant that the entire herbarium of some 40-50,000 sheets, together with the other miscellaneous botanical specimens, have been carefully examined and documented, resulting in a comprehensive overview of all the botanical collections. Moreover, the process has also resulted in the 'discovery' and 'rescue' of various collections not previously known to exist.

Although not all of the objectives outlined in the original HEFCE proposal have been achieved, for the first time in over 50 years the University of Leeds Herbarium now represents a workable collection in which taxa from any representative geographical area can at last be located and retrieved for further study. All of the 'generic' card folders have been replaced, together with the more ragged flimsies. Until the entire collection can be collated on a database, the individual bequests have been retained separately. The flowering plants are currently arranged according to either Druce's British Plant List (1928), Bentham & Hooker's Genera Plantarum (1862-1883), or Clapham, Tutin & Warburg's Flora of the British Isles (1958 - First Edition). Where no order in a particular collection could be determined, the specimens have been sorted into an alphabetical order of families, genera and species. Each herbarium cabinet has been numbered, and labelled with the details of the collection it contains together with the arrangement of the specimens, and the families included. Within each cabinet, the folders have been labelled with the appropriate family and generic numbers, according to the taxonomic treatment by which they are arranged. In addition, the large number of botanical books, floras and glossaries that were amassed during the move, and shelved within the Herbarium, now complement the botanical collections, greatly enhancing their value.

We believe that this is the first time that the contents of the entire University of Leeds Herbarium have been revealed and listed, albeit in a preliminary fashion. Now that the specimens can be retrieved as required, the collection constitutes a valuable reference and research resource for teaching and research within both the University and the City, and further afield.

## FURTHER WORK

A great deal of work remains to be done on these collections. The major tasks are as follows:

### 1. Herbarium specimens

The flimsies enclosing the individual specimens or sets of species need replacing throughout the collections. In addition, many sheets require repairing, largely in the form of some specimen re-mounting. There are also 22 boxes of specimens, which had been stored as undocumented unopened packets in the Baines Wing, which require sorting and incorporating. A start has been made on these specimens, but twelve of the boxes contain material which requires mounting.

#### 1.1. Irene Manton's specimens

We have recently located several boxes containing herbarium specimens in the Irene Manton Archives, which are currently housed in the Special Collections Unit of the Brotherton Library. These include five herbarium boxes of fern specimens, apparently derived from America, Australia, Canada, Europe and Switzerland; a sixth containing seaweeds collected in New Zealand; and a seventh containing Demonstration specimens - mostly of Cruciferae. There is also a packet containing material collected by Manton and W.A. Sledge in Ceylon. These specimens should clearly be housed in the University Herbarium, and we have just successfully negotiated for the return of this collection from the Brotherton Library. These specimens will be collected, frozen, sorted and catalogued within the next few weeks.

### 2. British seed collection

A very large seed collection representing most families and genera found in Great Britain is currently housed in small glass vials in large glass-fronted trays. These seem to be arranged according to Clapham, Tutin and Warburg's first

## Sharing Museum Skills - Millennium Awards

The scheme was launched in October 1998 as a result of a £1.2 million grant from the Millennium Commission. The aim is to benefit communities by improving the public experience of museums, art galleries and other allied heritage institutions, by enabling staff and volunteers working within museums to share, learn and apply new skills. It will operate over a three year period and seeks to establish a series of six week secondments in UK museums for individuals who are already working within the sector.

The grants are likely to be in the region of £2-4,000 to cover out-of-pocket living expenses and include a contribution to both the host and seconding museum. All types of museum-related work are eligible under the scheme and applications will be assessed on a quarterly basis until May 2001. Closing dates for 1999 are 10 February / May / August / November.

If you would like to hear more about the scheme, leaflets and application packs are available from:

Annie Hollobone, Millennium Awards Administrator,  
Sharing Museum Skills, 16 Queen Anne's Gate,  
London, SW1H 9AA Tele. 0171 233 4200 e-mail :  
a.hollobone@mgcuk.co.uk



edition of the Flora of the British Isles (1958). They are accompanied by a large number of scanning electron micrographs of whole seeds of many of the genera. Both the seeds and the SEMs need cataloguing and cross-referencing.

### 3. Conservation of botanical lithographs

Most of the botanical lithographs are extremely dirty, and many are torn at the edges. They are all in need of conservation. Following visits by Paul Green and Sharon Connell, Conservators at the Brotherton Library, conservation techniques have been demonstrated, and some necessary materials provided. Finance is now necessary to instigate an appropriate conservation programme for this valuable collection.

### 4. Slide collections

There is an enormous collection of biological lantern slides dating back to the late nineteenth or early twentieth century, which cover an extensive range of both botanical and zoological topics. There are also many boxes of microscopical slides; some such as the moss slides prepared by R.D. Barnes between 1859 and 1919 are of considerable historical interest. These all again require sorting and cataloguing.

### 5. Palaeobotanical specimens

We have recently re-acquired the Alan Wesley palaeobotanical specimens, many of which are extremely valuable. This collection needs sorting and cataloguing as a matter of some urgency. Alan Wesley, although retired for many years, recently visited the Museum and Herbarium, and has very kindly offered to help sort and identify his specimens which include a unique reference collection from the North Yorkshire Jurassic beds as well as an invaluable set acquired from the Indian "Upper Gondwanas". In addition to the Wesley collection many other fossil plant specimens came to light during the move; many of these have already been used for student practical demonstrations, but again they require cataloguing.

### 6. Archival material

A large number of notebooks, catalogues, card indices, letters, photographs and plant lists were found inter-dispersed among the herbarium sheets and in the old store-room. These all need reviewing, cross-referencing with the specimens and collections, and cataloguing. Biographical details of the collectors and synopses of the more important collections also need to be published.

### 7. Databases

The inventory of herbarium specimens down to the generic level, made during the reinstallation of the herbarium, remains as an extensive hand-written file. This needs to be transferred onto computer, so that it can be more readily available. In addition, a database of the collections needs to be initiated, so that the contents of the University of Leeds Herbarium can become readily available to the botanical community, both nationally and internationally. At the same time, similar processes need to be initiated with regard to all of the biological collections now housed in our

Museum and Herbarium. We hope to select appropriate databases in the near future, if we are able to secure funding for such a project.

### 8. Displays

With the reinstallation of the herbarium more or less complete, the use of parts of the collection for displays and teaching is now being considered. Use of the biological collections in this way, within both the Department and the University, should help to raise the profile of our collections. Indeed, the reaction to those already mounted, by both students and by external societies such as the Leeds Naturalists' Club and the Leeds Microscopical Society, has been extremely encouraging.

### CONCLUSIONS

The arrangement of the various bequests and collections separately, and often according to different classificatory systems, is not entirely satisfactory. When resources are available, the entire British vascular plant collection should probably be amalgamated and re-ordered according to D.H.Kents' List of Vascular Plants of the British Isles (1992). This would bring it in line with other major British Herbaria, and increase both its national and international value as a user-friendly and reputable herbarium. Similarly, the exotic specimens need re-ordering into a more user-friendly system. The provision and operation of a database of these collections is clearly crucial to their long-term survival and use. Nevertheless, the University of Leeds Herbarium is now readily accessible for both teaching and research within the University, as well as being available for research by taxonomists throughout the world.

However, the value and importance of these collections now needs to be both publicised and recognised not only within the University and the City, but also nationally and internationally.

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