

## **The Herbaria of South Lancashire and the Nature and use of Herbarium Specimens**

Herbaria are collections of pressed, dried and labelled plant specimens that are kept in a systematic order. In the production of a local flora, such as this one for South Lancashire, many specimens will have been collected and deposited in herbaria during the long process of field recording. These specimens or vouchers will be a supplement to the published work and will be available for future study for confirmation or correction of records in Manchester Museum (MANCH), World Museum, Liverpool (LIV) and Bolton Museum (BON). Some specimens may be retained in the private herbaria of individual recorders but eventually these specimens too will more than likely be deposited in a herbarium where they will be available to the public.

In South Lancashire there are between one and a half and two million herbarium specimens housed in fifteen institutions. The nature of most institutional herbaria is that they contain specimens from a greater geographical area than just the local region. Most herbaria contain general British collections as well as specimens from the rest of the world. However, the likelihood is that local herbaria will certainly be strong in their holdings of specimens obtained from the immediate area.

Manchester University Museum Herbarium (MANCH) is the largest in the region comprising of approximately one million specimens. The Manchester plant collections originate from the Manchester Natural History Society (MNHS) founded in 1821. In 1835 its various collections were housed together with those of Manchester Geological Society in the museum built in 1835 in the centre of Manchester. In 1860 the plant material was amalgamated as the Herbarium. In 1867 Manchester University, then Owen's College, accepted the responsibility for the collections and in 1885 they moved to their present site on Oxford Road. The herbarium continued to grow and this nucleus attracted further collections from the region. In particular, two nineteenth century Manchester businessmen and amateur naturalists, Charles Bailey and James Cosmo Melvill, collaborated to collect and buy plant specimens from around the world. They donated collections in 1904 and 1917 respectively. Another major donation came from Leopold Hartley Grindon in 1911 which contains many historically interesting specimens including a specimen of *Vaccinium oxycocos* L. collected in 1841 from White Moss in Moston, now part of suburban Manchester.

Bailey himself also collected plant specimens from the local area as did many of the now termed "working-men botanists" of the time which feature greatly in the collections at Manchester. These include those of Richard Buxton, George Crozier and George Horsefield. Other significant South Lancashire specimens have come from Benjamin Carrington, John Bland Wood and John Harbord Lewis.

More recently transferred collections from the Tyldesley Natural History Society (TDY) in 1953 and in 1992 the plant collection of what was formerly Salford Natural History Museum (SALFM) at Buile Hill Park have since added to Manchester Museum's holdings of South Lancashire plants.

Probably the oldest herbarium specimens collected from South Lancashire which still remain in the county are in the herbarium, founded in 1909, of what is now World Museum in Liverpool (LIV), part of National Museums Liverpool. These include

specimens such as *Bryonia dioica* Jacq. collected from Stretford, Manchester in 1797 and *Andromeda polifolia* L. collected near Manchester in 1799. Unfortunately the person who made these very early gatherings is unknown.

It is the second largest herbarium in the region containing over a third of a million specimens. The earliest nucleus of this collection was made by William Roscoe, a successful Liverpool lawyer, who was eager to promote cultural development in the expanding commercial centre of the city. His interests were wide but included botany. In 1799 he acquired the herbarium of Johann Reinhold Forster for the soon to be established Liverpool Botanic Garden (LIVB) which was founded in 1802. This garden was in Abercromby Square close to the city centre. It occupied ten acres of land with a large conservatory and John Shepherd became the first curator. The Forster collection was then transferred to the Museum in 1909.

The University of Liverpool (LIVU) gradually transferred its collections to the Museum, firstly in 1952 with the John Forbes Royle Herbarium, the full transfer being completed by 1986. In 1993 it acquired the University of Exeter herbarium, including local collections from T.J. Wallace.

Local merged collections came from the Liverpool Naturalists' Field Club in 1917; The Historic Society of Lancashire and Cheshire (LRL) in 1913 and The Liverpool Botanical Society (LPL) including the 12,000 sheet herbarium of William Gladstone Travis in 1971. World Museum also has 1800 sheets collected by Conrad Theodore Green the author of *The Flora of Liverpool* published in 1933. In 1947 some of the herbarium of Blackburn Museum (BCKN) was donated to Liverpool containing South Lancashire material including specimens of John Dugdale. In 1970 the herbarium compiled by the members of the Preston Scientific Society (PTN), including Charles Joseph Ashfield, was purchased and added.

Two of their largest recently acquired local collections were those of Fred W. Holder of Southport, made between 1920 and 1960 and those of Vera Gordon of Waterloo, Crosby. Miss Gordon along with Dr. J.P. Savidge and Dr. V.H. Heywood played a crucial part in the revision of the original records and manuscript of W.G. Travis which, when published in 1963, became *Travis's Flora of South Lancashire*.

The third largest herbarium in South Lancashire is that at Bolton Library and Museum Service (BON) which was originally founded in 1883 as the Chadwick Museum in Queens Park. Now in the town centre in Le Mans Crescent it houses approximately 60,000 botanical specimens. The largest number of specimens came from the purchase of the almost complete herbarium of Dr. Philip Brookes Mason of Burton-on-Trent in 1907. This personal collection covers all vice-counties and represents the amalgamated work of many individual collectors. The earliest South Lancashire specimens in the Museum collection are part of this accession and include specimens collected by Joseph Dickenson, John Dugdale, William Wilson, John Hardy, Henry Smith Fisher and John Harbord Lewis. Examples include *Agrostemma githago* L. collected in 1850 from Accrington by Dugdale and *Polygala vulgaris* L. collected by Henry Smith Fisher from Waterloo near Bootle in 1864.

In a more local context the herbarium of the Borough of Bolton Botanical Society, founded in 1895 by Thomas Greenlees and others, was also donated to the Museum. In 1907 when this society's remit widened it became the Bolton Field Naturalists' Society. Greenlees continued to collect locally until 1937, all his specimens being

deposited in the Museum. An interesting example mentioned in the *Flora of Bolton* (1920) and as a specimen in the herbarium is *Andromeda polifolia* L. collected from Red Moss, Horwich near Bolton in 1890 and possibly now extinct in South Lancashire. In 1898 a large collection of bryophytes were transferred to Bolton from Radcliffe Literary and Scientific Society Museum (RFE) including specimens of the Lancashire coast collected by John Harbord Lewis. Other important collections donated to Bolton include those of James Sims, Reverend Herbert Mann Livens and those of Professor Brian William Fox who assisted with *Travis's Flora of South Lancashire*. Some particularly interesting Brian Fox specimens are the exotics from the Crown Wallpaper tip in Darwin which are cited in Travis.

Oldham Museum (OLDM), now called Gallery Oldham, has a herbarium with about 11,000 specimens. Most of the collection was acquired relatively recently, in 1995, with the donation of the herbarium of Oldham Microscopical Society and Field Club (OHM). This society was founded in 1864 and one of its founder members was James Nield, who began the herbarium and after whom it was named. Important local collectors and members of the society represented in this collection in addition to Nield are John Whitehead and John Byrom. A collection of greater age than these is that of Squire Ashton whose origins may be associated with the Oldham Society of Botanists (OSB). The herbarium contains specimens of *Pedicularis sylvatica* L. from Fairbottom in 1860 and Piethorne Clough in 1870 and *Hammarbya paludosa* (L.) Kuntze from Greenfield, Saddleworth in 1864 which are now lost to these areas. This collection is also rich in bryophyte specimens and in addition to the historic collectors already mentioned are some made more recently by Bessie Eleanor Bescoby, Leonard Nixon Kidd and William Foulkes Edwards.

Warrington Museum (WRN) has a herbarium comprising about 9200 sheets. It incorporates the herbarium of the Warrington Naturalists' Field Club (WRNFC) including many specimens of William Wilson, James Cash and Thomas Glazebrook Rylands. Some of Warrington's collection was transferred to The National Museum of Wales in 1927.

Stoneyhurst College (SYT) houses the herbarium of the Stoneyhurst Association with about 5000 specimens. However the only local associations seem to be with the collectors and the college.

Stockport (SKT) has the Stockport Society of Naturalists collection (active in 1886-7), whose members were recorded as collecting botanical specimens and also the Stockport Field Club (1896-1900), also associated with the town. However the herbarium at Stockport Museum which is held at Woodbank Hall, comprising just over 3000 specimens, does not reflect these local societies but does have specimens from societies in surrounding areas. It has the collection of Thomas Entwistle who was president of the Middleton Botanical Society for fifteen years and who was also in charge of herbaceous plants at the Manchester Botanical Garden. In addition this herbarium contains specimens from James Edwin MacDonald who was the Botanical Referee for Manchester Field Naturalists' Society.

The museum in Southport, now known as The Atkinson (SPT), houses the collections formerly at The Botanic Gardens Museum, which bizarrely never had a botanical garden but was surrounded by a municipal park and was opened in 1876. This

institution houses a small herbarium collection of about 2800 sheets. Some of these specimens were transferred in 1975 from Crosby library (CRBY) as was the collection of the Southport Scientific Society (SPTS) which includes the 250 specimens and microscope-slides of William Waddington who was president of the Society from 1939-1945.

Tameside (TMAL) Museum Service, also responsible for what was Stamford Park Museum, Stalybridge (SGE), has a total collection size of about 1600 sheets. It includes the collection of the Ashton-under-Lyne Botanical Society (ASTN) and a collection of about 1000 locally collected mosses made by Jethro Tinker.

Lancashire County Museum at Preston now houses all the natural history collections which used to be held at Fleetwood Museum. This includes small botanical collections previously transferred from Clitheroe Castle Museum (CLOE), Darwen library (DWN) and the Florence Parkinson herbarium from Blackburn Museum (BCKN).

Rochdale (RCHM) Museum contains about 400 specimens and includes the merged collections of the Rochdale Equitable Pioneers' Memorial Museum (RCHP) and the Rochdale Field Naturalists' Society (RFNS). An important local collection which includes rose specimens collected in the Ashworth area is that of Dr Thomas Hunt (fl. 1870-90) who was a member of the still extant Rochdale Literary and Scientific Society. The Museum holds the library of the Middleton Botanical Society which used to meet in The Ring O'Bells pub in Middleton.

Bury Museum has one important botanical collection consisting of four bound volumes amounting to about 120 very small specimens collected by Ethel Carr. All the specimens are from the Bury and Bolton area and are collected between 1916 and 1926. Many of these records are mentioned in the Bury Metropolitan Borough Flora (1977) by J.J. Zawadzki; for example a specimen of *Crocus nudiflorus* Smith, collected from Harwood Fields, Birtle (SD 8313).

Towneley Park Museum, Burnley has a small herbarium of specimens collected from Towneley Park by various generations of museum staff.

Rossendale Museum at Whitaker Park, Rossendale has a collection of unlocalised seaweeds made by J.E. Lord who was a member of a local natural history society.

Bacup Natural History Society (BAC) is one of a few natural history societies which still maintains its own Natural History Society and Folk Museum. There are a few hundred herbarium specimens amongst the general natural history collections.

Of these thirteen public museums, one private museum and one college museum; only the museums in Manchester, Liverpool, Bolton and Oldham have specialist botany or natural sciences staff.

### **The Nature and Uses of Herbaria**

Herbaria have a history dating back to the sixteenth century but there is evidence that reference collections of medicinal herbs and dye plants were being made before this

time. The first herbaria were made in book form, the plant material being glued onto pages but by the eighteenth century most herbaria were made using loose sheets. By doing this the specimens could be easily reordered as ideas about classification changed and at the same time specimens could be compared side-by-side more easily. Some of the lower plants, the bryophytes, lichens and fungi were originally treated in the same way as higher plants and were pressed and glued down but by the late nineteenth century it became normal practise for these plants to be dried and stored loose in packets or envelopes. However algae with their natural content of alginic acid “glue” have always traditionally been mounted onto herbarium sheets like higher plants.

Each herbarium specimen will have a label and the data on it is vitally important. The minimum data recorded should include the name of the species; where it was collected from; the date of field collection and by whom the specimen was collected. Modern day specimens will carry a National Grid Reference, abundance details and probably habitat details in terms of associated species, substrate and altitude. Correctly identified specimens therefore represent information about distribution, frequency and abundance of species and where there is a sequence of specimens, whether these parameters have changed over time. Obviously the more complete the information given on the label then the more potential uses for the specimens.

These labels record names of collectors and owners; the dates and the travels of the collectors. So herbarium sheets are also important social documents. Institutions normally store additional data such as copies of published works, notebooks, correspondence, botanical drawings, photographs and ephemera. These facts and documents may be useful in compiling data for biographies and for family history researchers. In addition the institution may hold associated personal objects such as collecting equipment and microscopes. Bolton Museum has for example, the microscope and microscope slides belonging to Thomas Kay Holden who with Thomas Greenlees was co-author of *The Flora of Bolton* (1920). Oldham has a microscope and cabinet of microscope slides which once belonged to James Nield and the vasculum, a plant collecting case, which belonged to Rev. Charles Edward Shaw who with others wrote *The Flowers of the Rochdale Area* (n.d. c.1960) and *The Plants of Middleton* (1989).

Herbaria also have a role in preserving samples of cultivated specimens. Some herbaria specialise in this role but most herbaria will have some specimens of cultivated plants or sometimes specimens gathered in botanic gardens. World Museum Liverpool holds specimens from Liverpool Botanic Gardens which have previously been mentioned. There were also The Manchester Botanical and Horticultural Society Gardens founded in Old Trafford in 1833, where there was an emphasis on plantings of foreign and rare plants. In addition to specimens from these Gardens, the Manchester Herbarium also famously contains the cultivated specimens assembled by Leo Hartley Grindon for his pioneering work in adult education. The Borough of Bolton Botanical Society created a botanical plot in Queen's Park but this time the flower-beds, pools and plantation contained native British plants. Bolton Museum holds both a planting plan and some herbarium specimens from this garden.

The plant specimens themselves are used to study variability and morphology in species. Location data on plant specimen labels can be used in analysis of plant

distributions; climate change studies and has obvious uses for species conservation, biodiversity issues and in planning control.

The most fundamental use of herbarium specimens is in describing and ordering of biological diversity which is called systematics. This investigates the relationships in terms of organization and evolution between organisms. The process of describing and naming life forms and arranging them in classification that reflect patterns of relationships is called taxonomy. A further role of the taxonomist is devising and writing of identification keys. These published keys and known, labelled herbarium specimens both form basic identification aids for unknown plant specimens. Every plant species will have a type specimen, this is the original specimen on which the new species description will have been based. Some types date back to the eighteenth century and new types are constantly being made as plants are discovered. These type specimens stored in herbaria are invaluable to researchers of plant taxonomy and systematics and form a major and irreplaceable international resource. Institutions which hold herbaria, be they museums, universities or botanic gardens have an important role in preserving these specimens and also making them available to workers. Most herbaria welcome visitors and administer loans to researchers unable to visit in person.

To some extent some herbarium specimens may be used for destructive testing for phytochemical, and cytological or chromosomal (DNA) studies. These samples may be used to test absorbed substances for example pollution studies or for taxonomic research. Any studies like this would only be undertaken with permission of the holding institution and in these cases too it would be imperative that the results of these studies and the resulting publications to stay with the specimens concerned. In this way unnecessary duplication of work and wear and tear on specimens can be avoided.

Collectors often unwittingly gather other organisms when gathering plant specimens for preservation. Plants bear the traces of leaf mining insects, moth cocoons, molluscs, galls and micro-fungi whether they are recently or historically collected. Herbarium collections can therefore be examined for pests and diseases of the living plant and can be useful in pest distribution and control studies.

Herbarium specimens can also be used for comparative material to help identify plant fragments, seeds and pollen found in archaeological excavations or in criminal investigations. Tree pollen from specimens in Bolton Museum has been used to help identify pollen from archaeological excavations in Lancashire.

Museums can use herbarium specimens for temporary displays and exhibitions in their public places. Specimens can also be used in supervised public education programmes. However where specimens are expected to be handled a great deal herbarium specimens are less likely to be used. They would be substituted with expendable specimens collected especially for the purpose.

Herbarium specimens properly stored and protected from mechanical damage, chemical damage and from moisture and insects should last almost indefinitely. If the institution housing the collection has a botanical or natural history curator or collections manager in post then there should be no doubting the level of collection

care or degree of access available either by loan or visit. Unfortunately, many collections are increasingly without a dedicated member of staff or sometimes even have no staff. However, many of the larger herbaria with staff now have programmes of photographing or digitising specimens making them available to all on the internet.

Today the need for general collecting from a given area has largely diminished. Often photographs can be taken instead however the selective collecting of plant specimens is vital and is still maintained by botanists today. When these modern day collections are placed in a herbarium alongside previously collected specimens from the same area they will add much to the historical perspective of any plant studies. However collectors must exercise restraint and take care not to endanger the survival of any rare plants in the wild. In fact, some plants are totally protected by *The Wildlife and Countryside Act* (1981) and it is an offence to remove any part of these plants. In South Lancashire this would include Killarney Fern (*Trichomanes speciosum* Willd.).

Herbarium specimens along with zoological collections can be seen as reserves of scientific data in waiting and may have future uses as yet undetermined. After all the original compilers of the historical collections now in museums could never have perceived their specimens being used in the many and varied ways that they currently are.

Herbarium abbreviations are taken from Kent & Allen (1984)

Patricia Francis 12/2006  
Edits made 18 June 2009  
Further edits made April 2012  
Further edits made September 2016