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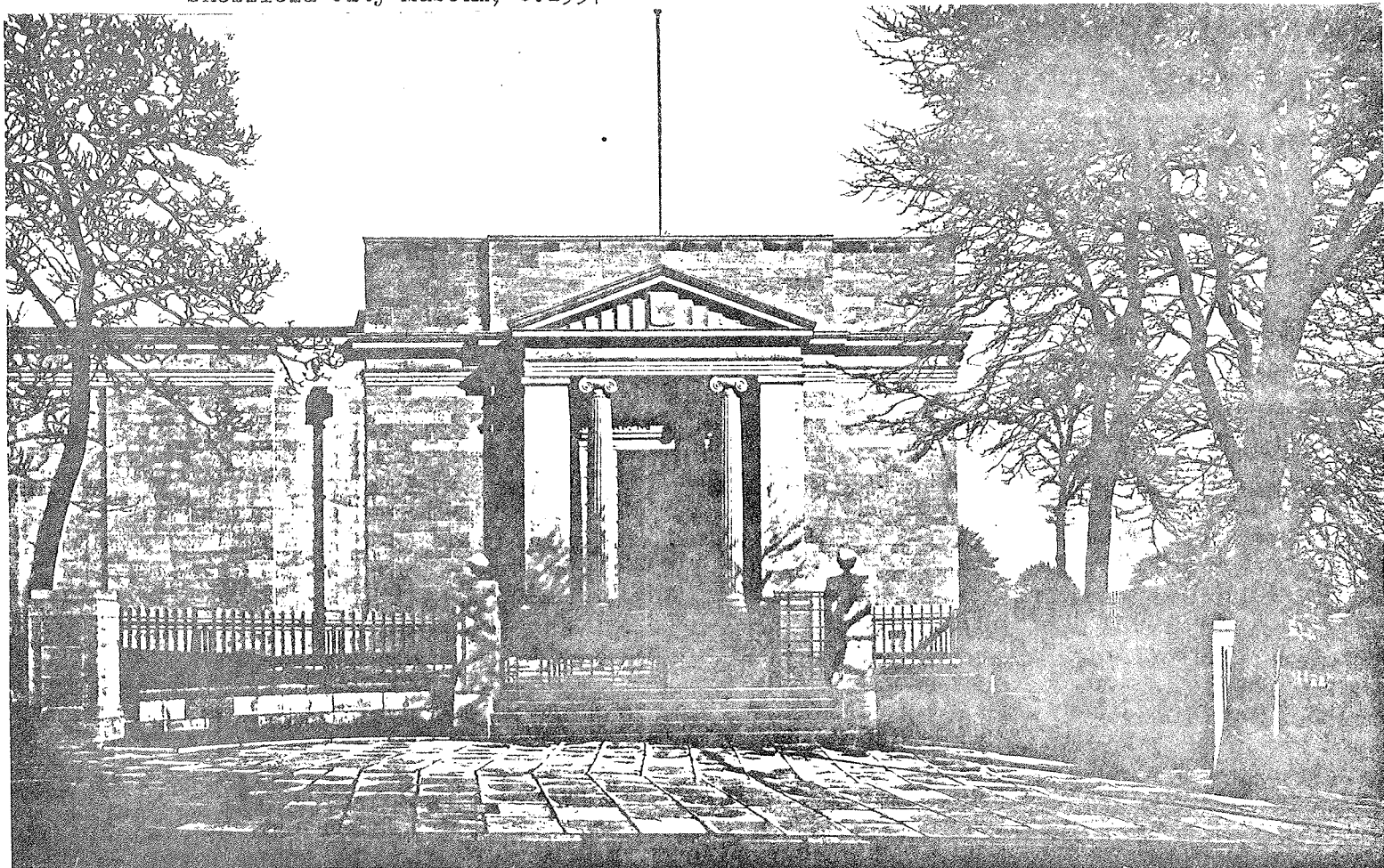
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SHEFFIELD CITY MUSEUMS : NATURAL SCIENCES SECTION

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Sheffield City Museum, c.1937



Sheffield Public Museum, later titled Sheffield City Museums, was opened on 6 September 1875, and like many other provincial museums is founded upon collections assembled and presented by the local literary and philosophical society. The Sheffield Literary and Philosophical Society (1822-1932) owned substantial collections, and maintained a museum under honorary curators (Porter 1922). However some of the material listed in their Annual Report appears never to have been transferred to the Public Museum, and much of the remainder lacks original provenance.

Brittain (1899) in his presidential address to the Museums Association documents the foundation and early growth of the Museum, of whose governing Committee he was Chairman for many years. The Annual Report of the Committee provides some insight into the running of the Museum in its infancy, frequently referring to the perennial problems of limited finance and space. However it is difficult to reconstruct much idea of the curatorial rôle in the natural sciences, as the style is often rigorously brief.

"The work of the Museum calls for no special remark, having gone on in the usual progressive manner." (Annual Report 1894-95).

The manuscript Minute Books of the Committee and the entries of the Curator in his Daily Report, however, are full of more detailed accounts, and indicate intense activity in the acquisition and display of collections. Then as now the natural sciences occupied a considerable proportion of the Museum.

Staff

The first Curator, Charles Callaway (d. 1915), was a geologist, however his appointment terminated in October 1875 after barely a year in office (Riley 1980). He was succeeded by Elijah Howarth (b. 25 June 1854, d. 1 April 1939), who served for a much longer period (1876-1928), and laid the groundwork for the Museum's subsequent development. Howarth was a pioneer in the museum profession being one of the founders of the Museums Association in 1888, and subsequently holding office as Honorary Secretary and President (1912-13). He was also Editor of the Proceedings and later (1901) first Editor of the Museums Journal. His many interests encompassed the natural sciences, (he was a Fellow of the Zoological Society of London and a Member of the Société Zoologique de France), and also archaeology and fine art. He was responsible for the foundation of the Weston Park Meteorological Station (see Garland in this issue) in 1882, and the Weston Park Observatory in 1879-80, and he also introduced one of the first school loan services in 1892-93. An obituary can be found in the Museums Journal for June 1938.

Howarth was assisted for most of his career by Charles Bradshaw (b. 9 August 1860, d. 3 July 1917), who was successively Assistant (1876-ca.1910) and Chief Assistant (ca.1910-1917). Bradshaw's special aptitude was for science, and particularly geology wherein he published a few short papers, although he

worked in most areas of museum activity. He was a President and Secretary of the Sheffield Naturalists' Club, Secretary of the Geological Section of the Yorkshire Naturalists' Union, and also a Fellow of the Chemical Society and the Geological Society of London.

Joseph W. Baggaley (b. 1 October 1886, d. ca. 1962-3) joined the Museum in 1900, and rose through the ranks to become Curator, succeeding Howarth in 1929 and retiring in 1951. For a period (1907-1918) he held office as Biological Assistant, apparently the first time that a post was formally designated in the natural sciences. He was a Secretary of the Sorby Natural History Society, and authored several papers on natural history techniques in the Museums Journal. Baggaley (1933) gives a short account of the Museum at this time.

Doris Downend joined the Museum in 1926, becoming Assistant (1933) and later Biological Assistant (1935) until her departure in 1945. She was closely involved with the Sorby Natural History Society, holding various offices including President (1944-45), an association which continues to the present day under her married name of Doris Parkin. Contemporary newspaper accounts refer to Miss Downend principally as a botanist with an extensive knowledge of local plants.

It will be seen that the Museum passed its initial seventy-five years to 1950 with only three successive Curators (later Directors) in charge, and with what would nowadays be considered as minimal staff resources. It was not until the years approaching the Museum's centenary under the directorships of H. Raymond Singleton (1951-65), Geoffrey D. Lewis (1966-72) and John E. Bartlett (1972-present), that in common with other subject areas, a Natural History (later Natural Sciences) Section was established and developed. The Natural Sciences staff over this period were somewhat numerous, however I feel it is worth recording here their names and thumbnail sketches of their Sheffield careers. In doing so I must apologise in advance for any short measure that I may give to those whom I have not known personally, and for any bias towards those who have worked with me.

Section Heads (a title officially introduced in the mid-sixties)

T. Michael Clegg	Junior Assistant 1 Dec. 1952 - Nov. 1955
Stanley Shaw	Assistant (Natural History) 28 May 1956 - 31 May 1959
T. Michael Clegg	Natural History Assistant 12 Oct. 1959 - 31 May 1963
David A. E. Spalding	Natural History Assistant/later Keeper (Natural History) 1 Aug. 1963 - Sept. 1967
Tim H. Riley	Keeper (Natural History/later Natural Sciences) 10 June 1968 - present

Assistants to Section Head

Neil M. Henderson	Junior Assistant (Natural History) 1 Sept. 1959 - 30 Nov. 1960
C. Ian Massey	Junior Assistant (Natural History) 3 July 1961 - 31 Dec. 1961
Robin O. S. Clarke	Junior Assistant (Natural History) 19 Feb. 1962 - 20 Jan. 1965
Tim S. Sands	Assistant (Natural History) May 1965 - 3 Aug. 1969
E. Basil Bush	Assistant (Natural History) 18 Aug. 1969 - 9 May 1971
P. Brian Mander	Assistant (Natural History) 12 July 1971 - 30 June 1973
Peter S. Davis	Assistant/later Assistant Keeper (Natural History) 6 Aug. 1973 - 8 June 1975
Margaret Thompson	Temporary Assistant Keeper (Natural History) 25 June 1975 - 28 Aug. 1975
Derek Whiteley	Assistant Keeper (Natural History/ later Natural Sciences) 1 Sept. 1975 - present
Steve P. Garland	Assistant Keeper (Meteorology/Natural Sciences) previously titled Trainee Technician (Met./Nat. Sci.) 1 Dec. 1978 - present

Technical Assistants

Jim A. Dickinson	Technician (Natural History) 1 Mar. 1971 - 30 Apr. 1973
Paul Rose	Technician (Natural History) 18 June 1973 - 13 Oct. 1974
W. Jerry Lee	Technician (Natural History) later re-titled Conservator (Natural Sciences) 16 Dec. 1974 - present

Michael Clegg served for two periods at the Museum, broken by a stay at the Natural History Museum, Scarborough. His principal interests were in mammals and birds and he authored many papers in The Naturalist at this time. He was responsible for the re-display of the natural history galleries, before leaving to become Keeper of Natural Sciences at Doncaster Museum, later joining Batley Museum and Dundee Museum, before becoming Director of the Yorkshire Museum.

Stanley Shaw came to Sheffield from the Manchester Museum,

where he had been Assistant in the Department of Entomology. He worked on the organisation of the insect collections, and undertook research on the Cassidininae (Coleoptera Chrysomelidae) of New Zealand and the Belgian Congo. He was Coleoptera recorder for the Yorkshire Naturalists' Union. Stanley Shaw left for the Coventry Museum, before becoming Director at Salford.

David Spalding worked at Scunthorpe and Hull Museums before coming to Sheffield. However as a Sheffield native he was already familiar with the area, an invaluable asset in the production of his bibliographical work on local natural history, which with other papers is partly published in the Sorby Record. His interests covered many areas, making substantial additions to the collections of mosses and spiders, and initiating the Museum's rôle as a Biological Record Centre. He left to take charge of natural history in the Provincial Museum of Alberta in Edmonton.

The author worked at the Doncaster and Leicester Museums before coming to Sheffield. He has been principally involved with the systematic organisation of the geological collections, with improvements in technical and storage facilities, with the re-display of the Evolution (Geology) Gallery, and with the expansion of the Museum's Biological Record Centre particularly in respect of site files. As collector he has worked mainly on minerals and molluscs, and on the establishment of a comprehensive local collection of 'less-popular' insects, especially Diptera and Hymenoptera.

Turning to those who have provided assistance to the Section Heads, I must admit that I know almost nothing of the work of Neil Henderson, who left to join the Town Hall staff, and of Ian Massey before his departure to the Natural History Museum, Scarborough. My apologies to them both.

Robin Clarke worked on the re-organisation of the Lepidoptera and Coleoptera collections, and built up a reference collection of British Ants. He wrote on local beetles in the Sorby Record (1965, 1967). I have no knowledge of his subsequent career, apart from his authorship (1973) of the Royal Entomological Society's Handbook on Coleoptera Heteroceridae.

Tim Sands began the re-organisation of the herbarium, and with David Spalding undertook the initial survey of the area which became the Agden Bog Nature Reserve. He published several papers on local naturalists in the Sorby Record (1966, 1967), which he edited for a while before joining the Council for Nature and later the Society for the Promotion of Nature Reserves.

Basil Bush is chiefly remembered in connection with the Museum's work in the Sheffield Field Studies Group, in particular on the Hartley Brook site. He left to join the Passmore Edwards Museum.

Brian Mander was primarily interested in fish, and undertook a comprehensive survey of the local fauna which was later published (1973, 1976). He also made significant additions to the collections of millipedes and centipedes, the latter of

which are largely cited by Addey (1978). Brian Mander left to undertake research in manatees in Nigeria, and has since been involved in fisheries management.

Peter Davis came to the Museum from the Peak Park Planning Board. His principal interests were in freshwater ecology, and he set up a distributional survey of local Amphibia, "Spot the Frog", designed to generate public participation. The survey continued after his departure to the Tyne and Wear Museum Service, and was augmented and written up by Whiteley (1979).

Derek Whiteley, one of relatively few Sheffielders to have joined the Museum's curatorial staff in recent years, came well versed in local natural history. He has been closely associated with the Sorby Natural History Society, holding several offices including President (1978-80) and Editor of the Sorby Record, wherein are many papers describing his researches, mainly on mammals and other non-avian vertebrates. More recently his interests have encompassed insects to a greater extent, particularly Diptera Syrphidae.

Steve Garland came to the Museum on a Manpower Services Commission (JCP) scheme to survey local sites of biological interest, and subsequently joined the permanent staff as the first holder of the newly established Meteorology/Natural Sciences post. Besides meteorology he has been extensively involved in surveys of local insects, and has authored books on the moths and butterflies (1979, 1981).

Jim Dickinson worked at Bolton Museum as a Carnegie taxidermy trainee before coming to Sheffield Museum as our first natural history technician. Besides helping to develop this new facility, he was also involved as collector in the initial seasons of the Museum's long term entomological survey of the Sheffield District. He left to become Natural History Officer to the North-Western Area Museums Service.

Paul Rose, likewise a Carnegie taxidermy trainee, came from Bristol Museum, and arrived to coincide with the transfer of natural history technical work from a shared general laboratory in the main museum building to a separate unit in the Museum Annexe. He mainly worked on the preparation of new mammal and bird mounts to replace long-faded specimens, before joining the North of England Area Museums Service as Natural History Officer.

Our present conservator, Jerry Lee, had previously worked as taxidermist at Rowland Ward's and in private practice. Besides taxidermy he has worked extensively on the collection and description of the local beetle fauna (1980, 1981), and on the design of gallery displays.

Collections

Sheffield City Museums' collections in the natural sciences are being fully documented by collector, subject and provenance, as part of a survey instituted by the Yorkshire and Humberside Collection Research Unit in 1979. Data from this survey is being processed and stored on computer at Manchester University, and will in due course be made available in readable form to

interested persons. Accordingly the papers which follow in this issue only describe some of the more important collections, thought to be of general interest. In numerical terms, at our last count in March 1977, we housed about 8,000 plants, 6,200 vertebrates, 42,500 invertebrates, 15,000 fossils and 4,500 minerals and rocks. Numbers have increased by perhaps 15,000 since then.

Judging from the material acquired, it appears that collecting policy for almost the first hundred years of the Museum was wide in the extreme. Accordingly the resulting collections derive from worldwide sources, and represent most major taxonomic groups. The tables and figures given in Hancock and Morgan (1980) illustrate this well. Notwithstanding, however, the Museum has accrued considerable collections of local origin from South Yorkshire and Derbyshire, which may represent half of the total holding.

From 1968 a more structured policy has operated, aimed at rationalising the type and origin of material collected, to make more efficient use of the resources available, and to generally improve the service provided. This collecting policy effectively builds on the existing local strengths of the collections, and is founded on the belief that the Museum should first and foremost relate to its immediate region. A statement summarising the policy was submitted to the Working Party on a National Plan for Museums in 1975, and is reproduced verbatim here.

- A. Whenever possible and relevant, specimens of local provenance should be collected, whether for display, reference or research.
- B. Research collections should invariably be of local origin, for it is here that staff can expect to make most contribution to their subject, and to curate collections of most value to other workers. To this end, however, occasionally it may be desirable to acquire some non-local material for comparative purposes.
- C. Reference collections should be acquired as an aid to identifying local material, and interpreting local features. They will therefore be mainly of British provenance.
- D. Display collections should relate to local aspects of natural history in the main, although there is a stronger case here for the incorporation of non-local (including non-British) specimens for comparative purposes, and to provide exhibitions (perhaps of a temporary nature) to show the wide variety of biological and geological material.

In consequence, the last decade has seen a strong local bias in the material acquired, and the development of collections in groups, which were poorly represented in the Museum and generally poorly recorded in the field. The principal growth areas have been in insects (particularly flies, beetles, bugs, Hymenoptera and the 'small orders'), other arthropods

(centipedes, millipedes and woodlice), and non-marine molluscs. Amongst vertebrates, the preparation of un-articulated bird and mammal skeletons for comparison with bones retrieved from bird pellets, archaeological excavations and other sources has been a main priority. Very little collecting has been done in Botany.

Local expeditions have been mounted to achieve the above ends, including a comprehensive freshwater invertebrate survey (Zasada and Smith 1981), and in depth collecting on selected sites of ecological interest or potential by Section staff, by local naturalists under direction and by students employed or commissioned during summer vacations. The latter, normally biologists though not always naturalists, have made significant additions to the collections and to local knowledge by concentrated collecting over small areas. It has been gratifying and instructive to see how, by this method, and by working poorly-known groups, novice collectors have invariably reaped a nice harvest, including new county, vice-county and other interesting records. Some of these students have gone on to pursue museum or other careers in the natural sciences, whilst some have apparently left our sphere, to be remembered by the data label on some particularly choice specimen. Mainly for our own reference, I list their names and principal collecting areas here.

- 1971 Gillian M. Squire (Ford Valley)
- 1973 Bill Davison (Agden Bog; Killamarsh)
- 1974 Derek Whiteley (Agden Bog)
- 1975 Derek Whiteley (Great Hollins and Wilson Spring Woods)
- 1976 Derek Cawthorne (Ewden Valley)
- 1977 Susan Ashurst (Chapelton area)
- 1978 Keith Clarkson; Carol Klemperer (both laboratory work)
- 1979 Graham Bullivant; Carol Klemperer; Neil Redgate (all Ecclesall Wood; Porter Valley)
- 1980 Andrew McCann; Neil Redgate; Susan Watson (all Ecclesall Wood)
- 1981 Tim Bird (Rocher, Bradfield); Susan Watson (Holbrook)

Before leaving the subject of collections, it is relevant to say a few words about storage. From the earliest days until the mid-1970's, substantial parts of the collections were held in drawered units in the galleries and therefore immediately available for public inspection. However, as displays have been modernised, material has been removed to separate stores, largely outside the main museum building in the Museum Annexe. This early Victorian town house now holds the Section's laboratories, an office and a series of about ten rooms, each

devoted to one or more subject areas of the collections. Although not ideal, and as usual somewhat crowded, it has been possible to store most material in a systematic manner to facilitate search and access. The majority of the collections are now once more easily available for study, having been in some disarray for many years apparently in consequence of blast damage and chaos resulting from a near-miss bomb in December 1940.

It is pertinent also to note that the Museum has a substantial library for staff use, which is available for reference to the public on application. Present purchase funds allow the addition of new key works on the British fauna and flora, and a few works of more general nature. Very few journals are taken in the natural sciences, being restricted mainly to those of Yorkshire or Derbyshire origin. This apparent short-coming however is largely off-set by the immediate proximity of the University's main and departmental libraries, although some subjects notably entomology, are poorly covered.

Display

The Natural Sciences Section is currently responsible for the display of two galleries (ca. 225 sq. metres each) and six corridor cases. The galleries include an Evolution, principally geology, gallery, which was re-cased and re-displayed in 1976. The second gallery is devoted to local natural history, described in broad habitat terms, and to a smaller area of foreign material. This gallery is being re-displayed piece-meal in Victorian cases, until capital monies become available for a complete modernisation, which has been postponed some five years to achieve other museum developments. However current work is following the same, detailed brief that will be used in the major scheme, in order to test ideas and to reduce subsequent preparation time.

Somewhat unfashionably for a large provincial museum, Sheffield has not yet added design staff to its establishment, although consultant designers have been used on major gallery schemes. Fortunately the Natural Sciences staff over recent years have included a number of accomplished illustrators, and currently includes Jerry Lee who has a Diploma in Art and Design.

In common with other museums, Sheffield maintains and displays a small amount of livestock. Currently this is restricted to an observation bee-hive, which has in some form been in more or less continuous operation since the early 1950's. A series of aquaria and cages in modified display cases were finally removed in 1974 during a major re-development of the museum foyer. However it is intended that an area for fish and invertebrates will form part of the new gallery development. Living plants have been incorporated into the Evolution Gallery, and have been described (Riley 1978) in a previous issue of this Newsletter.

Extramural activities

The Natural Sciences Section have maintained close contact with a number of local bodies active in related fields. Of longest standing, as the staff profiles show, has been the liaison with the Sorby Natural History Society and its

precursors. In 1981, all four Section members served on the Society's Council in some capacity and all serve as recorders for their specialist subjects. The Museum has also published several works jointly with the Society, beginning with Birds of the Sheffield area (1974) and continuing with items in the Sorby Record Special Series on moths, butterflies, etc. The mutual benefits of these ventures lie essentially in maximising print numbers to reduce unit costs, and in rapid initial sales to a receptive market of members.

Staff have also been associated with the Sheffield Bird Study Group, the Derbyshire Entomological Society, with various Sections of the Yorkshire Naturalists' Union, and with the Derbyshire and Yorkshire Naturalists' Trusts. The Museum, through David Spalding, was instrumental in establishing the latter's Agden Bog Nature Reserve, and has subsequently done much recording on the site. The author has been Chairman of the Management Committee for several years.

Staff of the Section have lectured on a variety of extramural courses for the W.E.A., and more recently for Sheffield University's Department of Continuing Education. All personnel are currently involved in a series of courses for the latter, aimed at promoting the less-popular branches of natural history in Sheffield and outlying areas.

In common with many other museums at the time, Sheffield developed two nature trails in the late 1960's, on land managed by the Council's Recreation Department. Both trails are brochure-guided and still in operation.

The Museum has also been involved with several local ad hoc bodies, including the Sheffield Field Studies Group and the Amenity Woodland Advisory Group. The former consisted of Council representatives and teachers, and published guides describing mainly ecological projects at four specific sites in the Sheffield District and another on general urban studies. The Amenity Woodland Advisory Group was established by the Council's Recreation Department to sound out opinion from bodies interested in woodland management. The Museum has undertaken surveys for the Group, and generally provided information on wildlife and conservation.

Publications

As previously described, the Museum has published several books and information sheets on the natural sciences, which are sold from the museum enquiry desk together with outside-produced material. The list below itemises the former which are currently in print. Prices are subject to 10% addition for postage and packing (minimum 12p), and are payable in advance.

An introduction to Sheffield natural history (Spalding 1973)	45p
Birds of the Sheffield area (ed. Smith 1974)	£1.50
Mammals of the Sheffield area (Clinging and Whiteley 1980)	80p

Ringling and recoveries in the Sheffield area (Crabtree and Mawson 1980)	65p
The Moths of Sheffield (Garland 1979)	65p
Butterflies of the Sheffield area (Garland 1981)	90p
Freshwater Invertebrates of the Sheffield District (ed. Zasada and Smith 1981)	£1.00
Freshwater fishes of the Sheffield area (Mander, Riley and Whiteley 1976)	15p
Amphibians and reptiles in the Sheffield area (Whiteley 1979)	10p
Climate of Sheffield (Whiteley 1976)	10p
Rivelin Nature Trail brochure (ed. Sands 1968)	45p
Graves Park Nature Trail brochure (ed. Riley 1970)	25p

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The botanical collections number some 8000 specimens, and include several collections of importance or interest, which are outlined below.

Fungi

T. L. C. Bottomley

A small collection of ca. 60 freeze dried fungi from local sites.

Lichenes

Jonathan Salt (1759-1815)

About 85 lichens collected between 1795 and 1807, and mounted on sheets or in folders. Principally from Derbyshire and South Yorkshire, they include species new to both counties and some now extinct (e.g. Ramalina fraxinea - Derbyshire). Of special interest as the collection predates subsequent losses through atmospheric pollution. Re-determined and described by Hawksworth (1967).

Algae

Jonathan Salt

105 specimens or thereabouts, but unlike his lichens largely un-localised.

Margaret Gatty (1809-1873)/Horatia K. F. Eden (1846-1945)

A collection of British and foreign, mainly marine, algae made by Margaret Gatty and donated by her daughter Horatia Eden. There is much material from William H. Harvey, including a volume titled Australian Algae (1857). The latter has Harvey's coded locality numbers and may include co-types (pers. comm. Dr. Helen Blackler, University of St. Andrews).

Margaret Gatty was a correspondent and friend of Harvey, who named the alga Gattya pinella for her, as did George Johnston the marine worm Gattia spectabilis. Her own writings included a re-drawn version of Harvey's Phycologia Britannica, which was published in 1872, under the name Mrs. Alfred Gatty, and many children's stories. The Sheffield collection includes some drawings and proofs, correspondence with E. C. Jelly and Busk, and watercolours of algae by Miss Hutchins of Bantry which she received from Harvey and were once in the possession of W. J. Hooker.

Margaret Gatty's life and works are described by Maxwell (1947). Other algae from the Gatty collection are in the Gatty Marine Laboratory, University of St. Andrews.

Bryophyta

Jonathan Salt

Salt again provides the basic collection, consisting of nearly

200 sheets or folders. Dated items cover the period 1800-1807, but relatively little is localised. Contains specimens from Sowerby, Steinhauer and Donn's Herbarium (G. Donn).

David A. E. Spalding

About 150 packets collected ca. 1963 in Yorkshire and Derbyshire.

M. (Margaret) Stovin (1756-1846)

A small collection of 18 sheets (plus 1 lichen and a few vascular plants), including some Derbyshire material, all of which are signed Mrs. M. Stovin. Presumably the collection given by Margaret Stovin to the Sheffield Literary and Philosophical Society. Mentioned here because of the recent interest and published work on the collector. (Allen and Lousley 1979 ; Skidmore 1981).

Pteridophyta

Several small collections, including local specimens from Jonathan Salt (ca. 100 sheets) are present. The following may be of general interest.

Thomas Carnelley

Two bound volumes of about 200 specimens dated 1867-72, including specimens from Cheshire, Scotland, Ireland and Switzerland. Additional information on Carnelley would be welcomed. (An associate collector is Surr.)

Spermatophyta

Jonathan Salt (1759-1815)

A substantial herbarium of about 2500 British and 1700 foreign plants (plus non-vascular plants noted above), once in the possession of W. Staniforth and given by him in 1826 to the Sheffield Literary and Philosophical Society who later added to it. Salt's manuscript Flora Sheffieldiensis is also in the Museum. Howarth (1889) describes the collector and most of the British material, amongst which are many first records for Derbyshire and Yorkshire (Linton 1903; Lees 1888). Salt discovered Carex elongata in Britain, however all Carex sheets are apparently missing, and any information on their present whereabouts would be gratefully received.

The foreign plants are currently being researched by the author. They are mainly cultivated specimens from nurseries in Sheffield and London (Lees; Loddiges; etc.), and gardens. Many are associated with the name Cooper, who is possibly Joseph Cooper, gardener to Lord Fitzwilliam of Wentworth Woodhouse (Rotherham) from which garden and stove many items came. A few sheets are labelled 'native specimen, New Holland' and others 'Botany Bay', the latter apparently per Kew Gardens. Being assembled mainly over the period 1800-10, many species were recently introduced and new to cultivation. Large numbers of South African Erica are present, including E. jasminiflora Salisb. currently considered a threatened

species (Lucas, G. and Synge, H. 1978).

Amos Carr (d. 1884)

A remnant of about 20 sheets of local plants, being all that remains of a much larger collection given by the Sheffield Naturalists' Club in 1883. See Anon (1884) for list of the collection and obituary, and Lees (op. cit.) for many records from Carr.

J.S.

A large collection (around 1500 sheets) of British plants collected between 1817 and 1850 with ca. 40 associated collectors. Inferred by David Spalding to be possibly the herbarium of John Smith (1798-1888) of Kew, but more recently by Peter Davis as that of Johannes Stephenson, on the basis that some sheets are enfolded in uncut and corrected proofs of the latter's book De humani generis varietatibus. Published in Edinburgh in 1817, this is also the location and date of the earliest items in the collection. Any further information on Stephenson is required.

Charles B. Waite (d. 1977)

About 1000 plants collected 1943-1970 throughout Britain and Europe. Past-president of the Sorby Natural History Society.

Rose H. Mawson

Around 300 watercolours, including a few of fungi, painted around 1900 from plants, some originating in Derbyshire and Yorkshire but mainly unlocalised.

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Natural History Gallery, June 1937

Lepidoptera

In common with most museums this order constitutes the bulk of the insect collections with about 24,000 specimens. In total we possess a very good British reference collection of Macrolepidoptera with a good proportion of material from the Sheffield area. The Microlepidoptera collection is incomplete in many areas but over 400 species are represented with a high proportion of Pyralidae and Tortricoidea. Foreign Lepidoptera are represented mostly by butterflies and are largely unidentified, although some rare species are present. Many of the collections contain small numbers of blown larvae and occasional pupae, but otherwise we have no preserved immature stages.

British Macrolepidoptera are now collected passively with a strong emphasis on local specimens. The Microlepidoptera collections require significant additions to render them useful as a British reference collection and are short of recent material from the Sheffield area.

Coleoptera

We possess a collection of over 7000 British Coleoptera that forms a useful reference collection in certain families. In addition recent work has been concentrated on field collections of species in our local area and a good voucher collection has resulted. This recent collection was built up by using staff fieldwork time, the fieldwork of volunteers during the summer months and local naturalists. It has reached the state when the main need is to concentrate on additions to certain as yet unstudied families.

Local material will continue to be added to the voucher collection and there is a possibility that a good British reference collection could be built up using the existing, older material as a basis. This would necessarily involve accepting non-local specimens.

The non-British Coleoptera collection contains a large amount of duplicate British Museum material and also several privately donated collections, in all totalling about 2000 specimens. As a whole it contains a great variety of species from a wide geographical area and may include some interesting specimens.

Hemiptera, Diptera, Hymenoptera and all other Orders

These insect orders were very poorly represented up to the late 1960's, since when museum staff fieldwork and the work of volunteers and local naturalists has been concentrated on their collection. When staff expertise is available, or an external expert is willing, the relevant field has been studied and collections made.

We now possess a good local voucher collection of Diptera, which is however deficient in certain difficult areas requiring

a specialist knowledge that has not been available. The Hemiptera, Odonata, Orthoptera and certain sections of the Hymenoptera have also reached a similar level with the basis of a good local voucher collection.

Collecting of other Orders has been mostly passive with the exception of freshwater insects.

The Freshwater Invertebrates Survey employed two people on a STEP scheme for one year to collect samples of freshwater invertebrates from each one kilometre square of the National Grid in the Sheffield Metropolitan District. Material was identified by the STEP employees, museum staff or by external experts for certain Orders. The results were published jointly by the Sorby Natural History Society and Sheffield City Museums as Freshwater Invertebrates of the Sheffield District by K. A. Zasada and E. H. Smith (eds. 1981). The resulting specimens are stored in propylene phenoxetol solution in glass tubes with one tube per species per site; approximately 5000 tubes in total.

This survey has resulted in very good local collections of aquatic Hemiptera and Coleoptera adults and a few immature stages. Larvae and nymphs of Trichoptera, Plecoptera, Ephemeroptera, Odonata, Megaloptera and Diptera are all well represented as are 'non-insect' invertebrates.

The pinned insect collections include small numbers of British Odonata, Orthoptera, Neuroptera and Mecoptera and there is a small, recent Siphonaptera collection in phenoxetol.

Non-British collections of Hymenoptera, Hemiptera, Neuroptera and other Orders are small, containing British Museum duplicates and small private collections from many areas of the world.

Chas. G. Barrett

Barrett donated this small collection of 230 British Microlepidoptera in 1886 and 1892. Unfortunately there is no data with them. Barrett was the author of many papers on Microlepidoptera and of The Lepidoptera of the British Islands (1892-1907). Several rare species are present.

Austin Brackenbury

The Brackenbury Collection is a recent one donated by the collector, who is a local naturalist. He is still collecting and donating material, most of which is from the Sheffield area including a large proportion from Wharncliffe Woods. The collection numbers over 4000 insects, predominantly Diptera, but including Coleoptera, Hemiptera, Hymenoptera and a few other Orders.

W. E. Brady

This collection of about 2000 Macrolepidoptera was received in 1980 from Mr. L. H. H. Glover of Barnsley who had rescued it when the collections of the Barnsley Naturalists' Society were

disposed of at the closure of Barnsley Museum in the 1960's. (A small number of specimens of local interest were also donated from another collection, which was also the Society's own with small numbers of specimens from many Barnsley area lepidopterists.) Brady's collection contains no data labels, but many specimens bear numbers which refer to data in notebooks owned by Barnsley District Libraries. These also contain many local conchological notes. The notes begin with specimen number 67 in 1897, so apparently an earlier volume must have existed.

D. Bryce

A collection of about 340 British Coleoptera with locality data mostly from Lancashire (especially Clitheroe), but also including specimens from Yorkshire, Isle of Wight, Hants., N. Wales and Cumbria. A few associated collectors include Alan Brindle. Most specimens were collected in 1949 and 1950.

William Buckley

A collection of over 7600 Lepidoptera made in the first half of this century, the majority of which are British. 230 are foreign, largely from Spain. S.W. Yorkshire is most strongly represented in the collection but there are specimens from all over the country. Over 150 associated collectors include large contributions from H. W. Baker (specimens mostly from Stowmarket and Needham Market), B. Cooper (mostly S.E. England), T. H. Fisher (mostly S.W. Yorkshire), B. Morley (mostly S.W. Yorkshire), F. Norton (mostly Wales), F. J. Rasell (mostly Northants.) and H. D. Smart (U.K.). Not a fully comprehensive British collection, but contains some interesting species. A small number of Microlepidoptera are present and include a few specimens collected by H. H. Corbett in the Doncaster area around 1920. These bear original exhibition labels from the occasion when they were exhibited at the Yorkshire Naturalists' Union. They include some new Yorkshire records. (See Beaumont, H. E. 1981. Naturalist no. 106 83-4.)

Captain Ernest B. Connell

200 accessioned and probably as many unaccessioned West Indian invertebrates. Nearly all are insects including numerous Coleoptera. Most are from Trinidad and were collected around 1914.

Albert Ernest Hall

A Sheffield collector who lived in Pitsmoor and collected extensively in this area during the 1880s and 1890s. His Macrolepidoptera were presumably scattered when they were sold by Watkins and Doncasters Ltd. and only a few exist at Sheffield. (Information on Hall specimens in other museums would be welcome.) The 590 specimens are largely British Microlepidoptera with the majority from Sheffield. Hall's entomological diaries are owned by the Museum and contain mostly references to his collecting of Macrolepidoptera. His colleague Mr. Batty collected with him, but the whereabouts of his collection is not known.

E. A. Price

About 1130 specimens of Macrolepidoptera, mostly British, much with locality data. Over 50 associated collectors constitute a minor part of the collection. Price collected largely around Bakewell in Derbyshire and published 'Butterflies and Moths in the Bakewell District' in the Derbyshire Archaeological Journal (1954) pp. 62-67.

The collection was donated by Mrs. Curtis in 1964 and includes a diary relating to the butterfly specimens.

William Sheldon

A collection of about 3800 Lepidoptera purchased in 1884. The Macrolepidoptera are largely with data and include many Sheffield specimens with a selection from other areas of Britain. The Microlepidoptera are nearly all without data.

Lieutenant G. Shepley

A large number of British Coleoptera with no known data, which were donated to the Museum in 1945 by his brother.

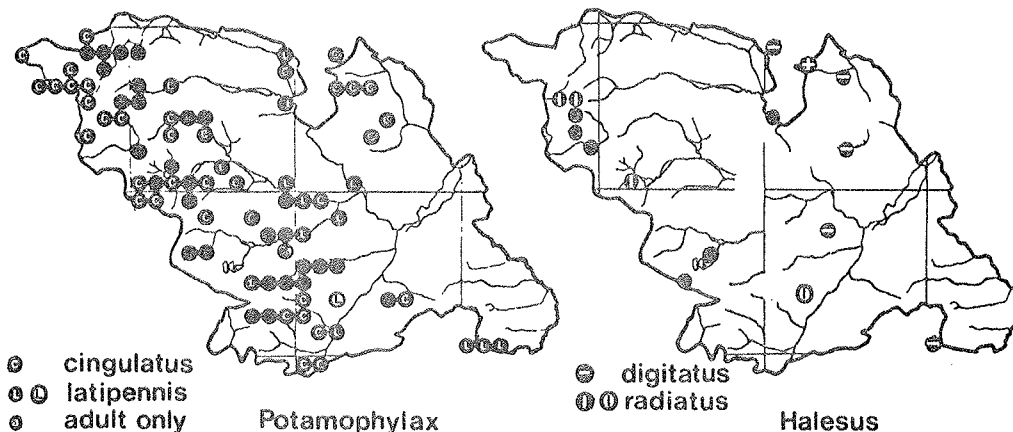
Reverend E. Ashford Smith

Over 2800 British Coleoptera purchased in 1911. It has been inferred that they were collected in the Nottingham District in 1880, but seems unlikely for some (including coastal) species.

Arthur Whitaker (d. 1949)

6200 Macrolepidoptera, 180 larvae and 54 pupae. Apart from the immature stages, data is present and over 150 associated collectors are represented. Whitaker collected extensively around Barnsley and also generally around Britain. Major associate collectors include B. W. Adkin, R. T. Cassal, A. J. Hipwell (who collected largely at Wisbeck, Norfolk), J. Mason (Cumbria), H. Massey, B. Morley, L. W. Newman and S. Walker (of York). The Museum also has a photocopy of Whitaker's entomological diary.

Caddis 2



MOLLUSCS Tim Riley

At our last count (March 1977), the mollusc collections at Sheffield City Museums numbered some 5000 specimens or sets, being made up of about 150 local, 850 other British, and 4000 foreign items. Since then, we have added perhaps 500 sets from our Freshwater Survey of the Sheffield District, and a few examples of newly recorded local species such as Boettgerilla pallens. These figures are exclusive of fossil and sub-fossil material.

The above collections derive from over eighty donors, mostly contributing small quantities of common species. There are however several more interesting collections, which warrant separate mention.

Sheffield Literary and Philosophical Society (1822-1932)

A collection of over 800 items, no doubt from a variety of original sources which require further research as they include several interesting lots, such as some 50 North American Unionidae.

J. Harris (of London)

About 450 sets donated in 1875 per A. J. Mundella (M.P. for Sheffield). Most are from Moreton Bay (Queensland), Australia.

Henry Clifton Sorby (1826-1908)

British marine molluscs given at various dates by this pioneer marine biologist, and including several preserved $3\frac{1}{4}$ inch square lantern slides.

British Museum (Natural History)

Presented in 1880, 1895 and 1908. Around 200 sets of duplicate specimens, including material from the collector Hugh Cumming (Dance 1966), and an interesting suite of freshwater molluscs with marine affinities from Lake Tanganika.

General Sir Galbraith Lowry Cole (1772-1842)

A collection of about 400 sets of marine molluscs from Mauritius, given in 1881 by the family of Lowry Cole, but presumably collected by himself. Lowry Cole was the younger son of the 1st Earl of Inniskillen, and a well-known soldier, serving in the West Indies (1794) and Egypt (1801), and commanding the 4th division in the Peninsula (1809-14). He was subsequently governor of Mauritius (1823-8) and Cape Colony (1828-30). Lowry Cole and Gwynn (eds. 1934) describe his career including his time in Mauritius which had just been won from the French, but do not mention any interest in shells. The British Museum also received items from the Lowry Cole collection.

John W. Taylor (of Leeds)

A reference collection of British non-marine molluscs presented in 1910 and 1915 by this well-known authority.

Associated collectors include W. A. Gain, Miss Hele, F. (or T.) W. Wotton, C. G. Barrett and B. Tomlin.

A. L. Booker

A small collection of about 120 sets of foreign land molluscs given in 1927, including a few items from the Sir R. Rawson and Nevill collections.

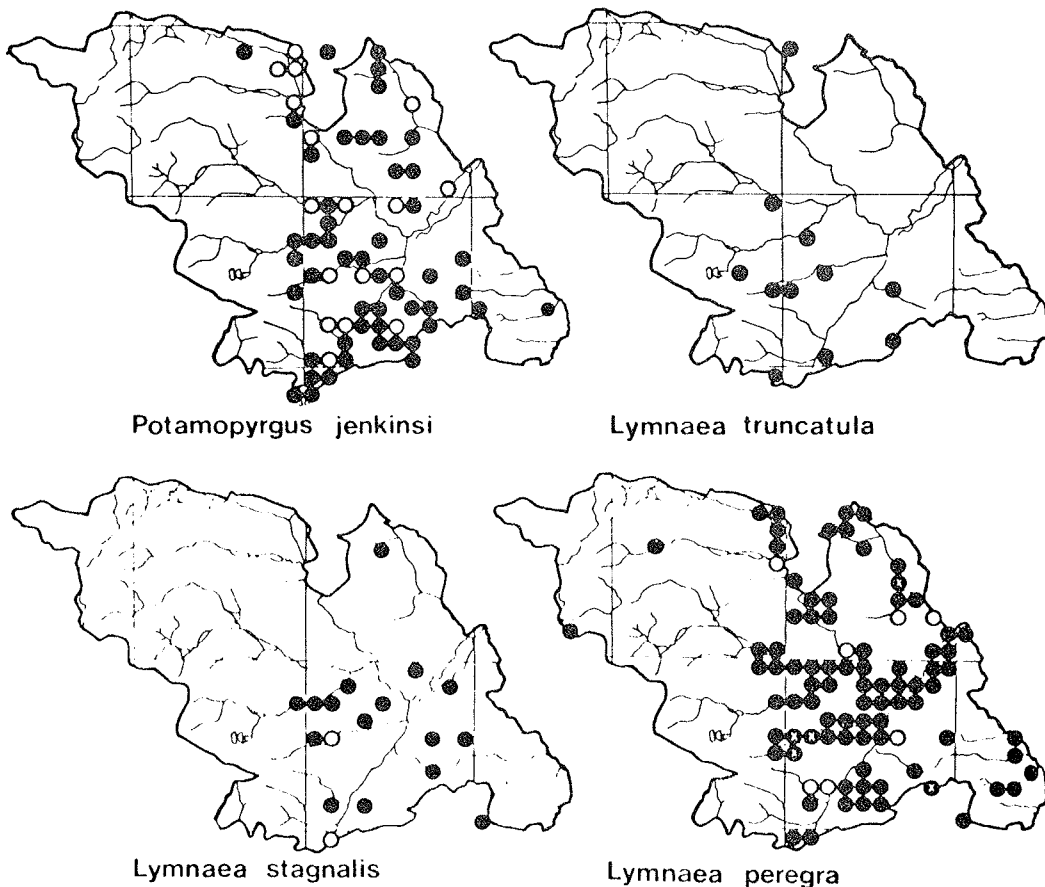
Freshwater Survey

The voucher collection of freshwater molluscs resulting from the Museum's Sheffield District survey of 1979-80. Described in Riley (1981) and comprising perhaps 500 sets preserved in Steedman's B solution.

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Molluscs 1



This section deals with the collections of invertebrate animals other than insects and molluscs. Historically, the collections are worldwide in scope, and mainly marine, although one or two smaller collections of terrestrial invertebrates are local in origin and are useful historical voucher material for present day surveys. In the past 18 years or so conscious efforts have been made to collect and survey local invertebrates as part of a systematic fieldwork programme; and at the same time to build up comprehensive reference collections; and to publish survey results whenever relevant.

Marine Invertebrates

Mrs. H. K. F. EDEN (née GATTY) (1846-1945) donated a collection of at least 700 items, mainly foreign bryozoans, but also corals, gorgonians, sponges and hydrozoans collected between 1849 and 1886. Some material was almost certainly collected by her mother Mrs. Margaret GATTY (1809-1873), and material from other collectors includes Dr. JOHNSTON of Berwick. Many specimens are cited or figured, including some material which was transferred to the British Museum (Natural History). Other types or fragments of types may still exist in our collection, but they await further specialist research.

Miss E. C. JELLY donated between 1883 and 1887 about 240 bryozoans mainly from Australia and the English south coast.

Dr. Henry Clifton SORBY during his summer cruises aboard his yacht, the 'Glimpse' in the period 1881-1902 collected 312 various marine organisms, which he bequeathed to the museum in 1908. His excursions took him along the east and south coasts of England, exploring adjacent seas and estuaries along the way. He appeared to have a particular interest in ascidians; and also developed a technique for mounting entire organisms between glass lantern slides for projection, experimenting with various staining techniques for transparent specimens such as jellyfish.

Terrestrial and Freshwater Invertebrates

1. Crustacea

Almost entirely the result of local recent fieldwork by museum staff. The fluid preserved collection of woodlice (Isopoda) resulted from a survey to assist the national mapping scheme in the 1970's. The Sheffield Freshwater Invertebrates Survey (see 'Insects' section) sampled over 430 sites, which provided good systematic series of Argulus, Asellus, Gammarus and Crangonyx.

2. Chilopoda and Myriapoda

About 200 specimens consisting of local material collected since 1960. Field recording has added considerably to our knowledge of these animals in our area.

3. Arachnida

The collections consist largely of spiders, but a few harvestmen, pseudoscorpions, ticks and water mites are represented.

The Ernest A. PARSONS collection contains about 450 tubes mainly from Yorkshire and Lincolnshire, with associated correspondence and manuscript material. Collected between 1907 and 1912.

Thomas WINDER collected about 80 arachnids from Yorkshire between 1881 and 1891.

David A. E. SPALDING was Section Head in the 1960's and collected spiders from Derbyshire, Yorkshire, Shropshire and Northumberland. More recently, systematic collecting and pitfall-trapping projects at selected sites, have taken place as part of a general assessment of local invertebrate faunas. Andrew MACAN and Austin BRACKENBURY have added several hundred samples from Ecclesall Wood (1980) and Wharnccliffe Wood (1977-80) respectively. Local specialists Colin Howes, Michael Roberts and Clifford Smith have encouraged collecting and have willingly identified material for us. Clifford's book The Spiders of Yorkshire is scheduled for publication in 1982.

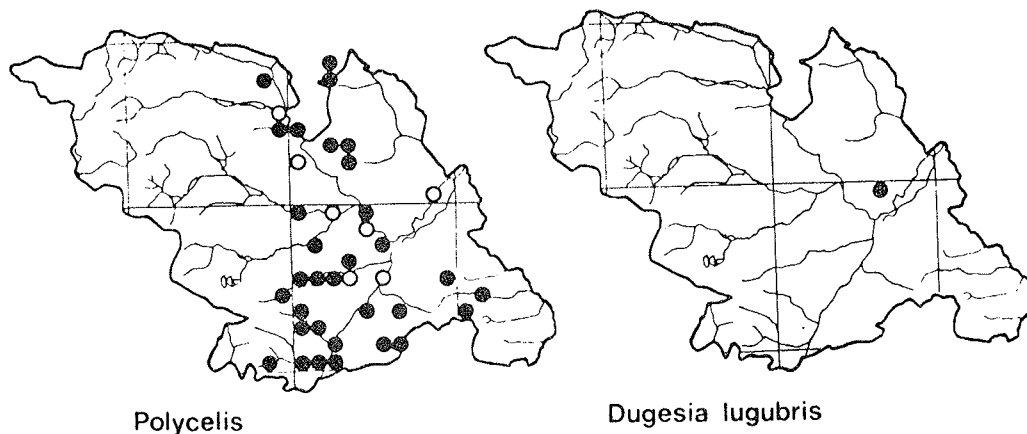
Foreign arachnids are represented by a few pinned specimens, and an interesting voucher collection of imported aliens and casuals found in Sheffield's fruit and vegetable shops and markets.

4. 'Worms' and Sponges

Mainly specimens from the Sheffield Freshwater Invertebrates Survey 1979/80. The oligochaetes were cleared in lactic acid and mounted in polyvinyl lactophenol on microscope slides for identification. About 200 samples were collected.

One of our few foreign freshwater sponges Uruguaya coralloides, collected by Alderman Bragge in the R. Uruguay, has recently been researched during a taxonomic revision of the species. Its provenance is closely associated with the type specimen, possibly being collected at the same time.

Flatworms & True Worms



Vertebrates account for about 13% by number of the total natural sciences collections at Sheffield City Museums, but owing to the wide range of size, fragility and preservation of specimens, pose continuous curatorial problems.

General storage problems have been overcome to a great extent during the past decade, by the use of standard lightweight metal office cabinets (6' x 3' x 1½') with adjustable shelves, and close-fitting locking doors. They can be purchased 'off the peg' each year, as revenue budgets permit and are light enough to move around as collections expand. Mounted specimens, articulated skeletons and large study skins are now almost totally housed in these units, and a further year should see the re-housing programme completed.

The entire spirit collections (vertebrates and invertebrates) formerly preserved in alcohol (70% I.M.S.) or formalin were transferred to 1% propylene phenoxetol (Steedman's B soln.) in 1979. The project took 3 months and 200 litres of Steedman's solution, and solved the problems of meeting fire and health/safety standards, and evaporation of preservatives. At the same time much dried out spirit material was successfully reconstituted using sodium orthophosphate solution. Three years later specimens show no signs of deterioration, and significant time has been saved from routine 'topping-up'. However, thin paper labels are more fragile in the new medium, and further work is required to identify a better label material.

Hand in hand with good collections are efficient technical facilities. To conform with the Health and Safety at Work Act a skinning room, wet-preservation room, chemical store and general preparation room were either installed or improved in 1978, thus providing essential back-up facilities for the conservation, curation, growth, and indeed, use of vertebrate material.

Although the vertebrate collections are of no known major taxonomic importance, they constitute a very important part of the Section's work. They are essential for display and teaching purposes (particularly mounts and articulated skeletons), invaluable assistance for identification (particularly bones, eggs, study skins and spirit material); many serve as vouchers for important biological records; and many act as primary material for ecological, faunal and taxonomic research. At Sheffield Museum use of collections and facilities by amateur and professional zoologists is encouraged as much as possible.

Fish

The fish collections are relatively small, comprising about 250 specimens in total. Reference specimens, mainly British freshwater species, stored in propylene phenoxetol, are a major part of the collection. In addition, a small number of mounted specimens, angling trophies and casts are used for displays and exhibitions.

P. Brian MANDER and James A. DICKINSON collected over 50 specimens during the Sheffield Fish Survey, organised by the

Museum in 1971-72. This formed the basis of a local fluid-preserved voucher collection which is slowly growing as local fieldwork progresses. A short term aim is to fill the remaining gaps to provide a comprehensive reference collection of local species and hybrids, together with microscope slides of associated scales.

Henry Clifton SORBY (1826-1908) donated a collection of about 80 marine fishes from the English East coast, taken on summer cruises aboard his yacht 'The Glympse' in the 1880's. It includes entire specimens mounted as $3\frac{1}{4}$ " square lantern slides, a technique first perfected and described by Sorby.

Amphibians and Reptiles

About 300 specimens, mainly fluid preserved, together with a small but useful collection of mounted reptiles, and flat skins of snakes.

The largest collections are of L. F. PEACOCK who donated 70 fluid-preserved snakes from Honda, New Granada in 1876, and the BRITISH MUSEUM who increased the foreign collection in 1895 by donating 170 'duplicate' amphibians and reptiles.

Fortunately, most of the older British material originates from Sheffield and North Derbyshire and is significant with respect to local studies. It forms a basic collection to which new material is slowly but actively being added, representing series of local native species and vouchers of casual aliens. A collection of Common Toad road casualties is currently in deep freeze awaiting stomach analysis, measuring and permanent preservation.

The main uses of these collections are reference for identification, faunal studies; and teaching, mainly connected with specialist evening classes.

Birds

The total bird skin and mount collections include about 3000 specimens, of which about half are British. In recent years mounted specimens have been rehoused in lightweight metal office cabinets. This programme is ongoing, and will be completed shortly. British study skins are stored in 'Tring' drawer units, in systematic order, and have been checked for identification. Foreign skins require further attention. Major collections include:-

BRITISH MUSEUM 'duplicates'. About 420 foreign bird skins, with an emphasis on Asian material, collected in the 19th Century and donated by the Trustees in 1885.

Charles DIXON (1858-1926) was originally a Sheffield ornithologist, who later discovered the St. Kilda Wren. He donated or sold 135 skins and mounts from Britain and Europe, but most of his collection went to the British Museum.

Samuel GARDNER donated a very fine collection of raptors and owls in 1875, mainly British in origin and including some specimens taken around Sheffield.

Prof. C. J. PATTEN (1870-1948) during his period as Professor of Anatomy at Sheffield University, donated nearly 500 bird study skins, and various manuscripts, photographs and lantern slides. His specimens are fully documented, mostly from light stations in Co. Wexford, Eire; but a good proportion were taken in Yorkshire and Derbyshire. Other material collected by Patten was presented to Belfast and Dublin Museums.

Henry SEEBOHM (1832-1895) was a Sheffield businessman in the iron & steel trade, and expert ornithologist who travelled widely throughout Europe and Siberia. His collection of nearly 490 eggs and 452 skins reflects his travels, but emphasises his interest in Siberian and N. European birds, particularly waders. The Museum's copy of Seebohm's The Geographical Distribution of the Family Charadriidae is annotated by Seebohm and includes some original colour proofs, but his ornithological notebook was apparently sold by Quaritch in 1973 (to whom?). Seebohm either exchanged material, or had collectors working for him in other countries, as 15 associates have been identified so far from specimen labels. His major collection is in the British Museum (Nat. Hist.).

Reuben WEBSTER was a taxidermist working in Sheffield at least during the period 1859-1902. In 1890 the museum purchased 271 birds preserved and mounted by Webster, and collected during the period 1863-1884, mainly from Yorkshire and Derbyshire. A further 496 cases were sold to unknown persons.

In recent years our policy has been to replace faded, worn or historically valuable specimens on display with new mounts prepared from corpses in our taxidermy workshop. An army of local body-snatchers donate a constant stream of road casualties, window-strikes, victims of severe weather, cat kills and exhausted rare vagrants, which keep our deep freezers full to the brim. The latter group of rarities are prepared as 'voucher' cabinet skins, thus sparing a detailed description to the local or national 'Rare Birds Committee'. It really is surprising what the public can turn up. In recent years we have received Sheffield's second Storm Petrel, first Leach's Petrel, fourth Shag, second Red-throated Diver, and first Long-tailed Skua.

Occasionally a series of a single species may be added to the collection. One recent researcher offered to make round skins of our deep-frozen Yellowhammers, whilst analysing their stomach contents. Otherwise, the short-term aim is for a comprehensive collection of British species, for reference purposes, demonstrating differences in sex, age and forms.

Bird Eggs

Three major collections constitute a large proportion of the estimated total collection of 7000 eggs.

Arthur WHITAKER bequeathed about 750 clutches of British birds collected mainly around Sheffield and Barnsley earlier this century. Whitaker was a well-known egg specialist during the 1930's and 1940's, and the collection's associated card index records much accurate information on breeding sites, nest construction, clutch sizes, habitat etc. His ornithological diaries are stored at the Edward Grey Institute.

J. B. WHEAT was a Sheffield solicitor who collected eggs throughout Britain during the period 1888-1934. The collection consists of two cabinets accompanied by a detailed notebook. Several associated collectors include Dr. Norman H. Joy's (the famous coleopterist) eggs from Berkshire.

Victor H. SANDFORD was also a Sheffield solicitor, who donated a cabinet of 1108 British and European eggs collected during the period 1892-1900. Sandford's collection includes many species not represented elsewhere in the museum.

The more interesting small collections are those of William REID, collected mainly from Yorkshire between 1903 and 1932; Henry SEEBOHM (European - see bird skin collections); and some 60 eggs from the well known Rev. F.C.A. JOURDAIN.

The bird egg collections as a whole receive more attention from enquirers than the skin collections. Of course, casual browsers (mainly youngsters) account for most enquiries. In the peak season up to a dozen oologists a week may ask to see the well-secured reference set of British bird eggs. This specially prepared set saves wear and tear on the more important scientific collections, and prevents further stimulation to take clutches. As an aside, youngsters usually subsequently leave with a few R.S.P.B. and Y.O.C. handouts, to fire an interest in bird-watching as opposed to egg collecting.

Researchers requiring measurements, weights, details of colour variation, 'dumping' or 'dwarf' eggs, are dealt with personally or by post and have been a welcomed increasing trend. Also, a remarkable number of historical records of breeding birds locked up within the collections, are currently being tapped for a local publication.

Mammals

The mammal collections currently number about 850 specimens. Mounted animals, used mainly for display represent most major taxonomic groups, and include many good specimens of British and foreign origin (including 5 Duck-billed Platypuses). Some of the finest include early mounts by Gerrard's and Rowland Ward's. New mounts are being prepared from corpses at a steady rate for present and future redisplay projects.

The study skin collection, almost entirely British, with a distinct local flavour has been rehoused systematically in 'Tring' drawered units. Several small systematic studies by local amateur mammalogists have resulted in significant additions to this collection, including:-

- | | |
|---------------|--|
| Mountain Hare | - pelage study by Mrs. V. Clinging:
skins, skulls. |
| Grey Squirrel | - pelage study by D. Whiteley <u>et al</u> :
skins. |

- Mole - diet study by I. Alcock: skins, skeletons and stomach contents retained.
- Small mammal ecology - study by N. Redgate: skins, skeletons, signs.
- Pipistrelle Bat roosts - casual finds: entire specimens incl. young.
- Badger and Fox - a series of road casualties: skins and skulls.

The Natural Sciences Conservator, Jeremy Lee, and Derek Whiteley actively encourage enthusiastic amateur mammalogists, and press-gang night school students to prepare their own skins. Efficient modernised laboratory facilities have proved essential for this sort of work.

The more interesting collections include the following:-

T. M. CLEGG collected mammal skins in South Yorkshire, during his time as Natural History Assistant at the Museum (1959-1963). Part of his collection was donated to the Museum.

E. GERRARD (jnr.) ca. 90 mounts and skeletons were purchased between 1880 and 1937.

Arthur WHITAKER (with Jos. ARMITAGE) pioneered studies of bats in Yorkshire and published many observations in The Naturalist. His collection of bat skins relates to the period 1905-1919, and includes an early specimen of the Grey Long-eared Bat (Plecotus austriacus) from Christchurch in 1909.

B. H. WOODWARD (of Perth Museum, Australia). A small collection of mounted Australian mammals was received by exchange in 1905.

Osteology

Historically, the bone collections consist of a miscellany of articulated skeletons, a few teaching specimens prepared by dealers, and various exotic skulls, large limb bones, teeth and the inevitable bird sternum collection. One item appearing in an early gallery photograph, but now missing is the entire skeleton of a whale.

Storage problems have generally been solved by the use of standard metal office-type cabinets for larger material. Smaller specimens, now mainly disarticulated are stored in open-topped drawer units, in resealable polythene bags, tubes or plastic boxes for ease of reference.

The main current growth area is the preparation of a comprehensive series of British bird skeletons. A large water bath and large cooking dixie are recent acquisitions which have facilitated both enzyme digestion and direct heating techniques respectively. Several hundred disarticulated bird skeletons have been prepared from frozen corpses in the past three years. A variety of freshwater fish, British and domestic

mammals, and reptile skeletons are being prepared at a slower but steady rate. Smaller and more delicate species are preserved entire as alizarin-stained specimens in propanol.

Alongside the growth in the bone collection there is a corresponding steady growth in their use.

- Members of staff are still major users. Public identification enquiries ranging from single bones to samples of owl pellets, and archaeological and Pleistocene finds are now answered more efficiently with handy reference material.
- Researchers and enquirers are encouraged to use the collection personally. Links have been established with students from the nearby Department of Prehistory and Archaeology at Sheffield University (which is very active in the field of environmental archaeology).
- Local ornithologists are beginning to find the growing collections of bird skeletons of assistance in the analysis of raptor and owl diets.

Pleistocene Vertebrates

The collections of Pleistocene vertebrates number about 3,500 individual items in total, and represent a wide range of species with a strong local bias. They are housed in open-drawer wooden cupboards, and curated with the geological collections. Three fairly large recently acquired collections have yet to be accessioned and amalgamated.

Sheffield is situated midway between two major outcrops of limestone. To the south-west lies the Carboniferous Limestone of the Peak National Park, and to the east the Permian (Magnesian) Limestone. Both regions are scattered with various outcrops, caves, shelters and fissures; the traditional hunting ground for Pleistocene geologists, biologists, and archaeologists for over 100 years.

Some of our older collections represent pioneer 19th Century excavations at these sites.

Rev. J. M. MELLO excavated Creswell Crags on the Derbyshire/ Nottinghamshire border in the 1870's, and donated 114 mammal bones in 1875. Some are cited in a number of papers published in local and national journals.

Prof. W. BOYD DAWKINS of Manchester University also worked at Creswell Crags in the 1870's, often in association with Mello. He donated a further 45 mammal bones in 1878, and published widely on the finds at Creswell.

A. Leslie ARMSTRONG (d. 1959) was an eminent local archaeologist who excavated various caves at Creswell and other sites in Derbyshire in the mid 20th Century. He donated at least one Pleistocene specimen, but a much larger collection, at present awaiting attention is almost certainly Armstrong's material. Some of his excavation notebooks and drawings are held by the Museum's Antiquities Section.

Rooke PENNINGTON donated 92 Pleistocene mammal bones from the fissure at Windy Knoll, Castleton, Derbyshire in 1876. Pennington's main collection is at Bolton Museum.

George NELSON donated in 1876 a collection of Pleistocene mammals mainly Glyptodon and Megatherium excavated from the banks of the River Salado, Buenos Aires.

Smaller Pleistocene collections include the following

J. VIRTUE TEBBS. Oligocene and Pleistocene mammals from South and East England, comprising elephants and Palaeotherium medium. Purchased in 1900.

Alderman BRAGGE. A small collection of Pleistocene edentates from Brazil, purchased in 1877.

Beaumont MORFIT. Mammals from Atwick, East Yorkshire. Donated 1897-1900.

Col. R.A.J. KINGSCOTE. Megaceros from Ireland. Purchased 1923.

Rev. J. S. KING. Mammals, mostly from Creswell Crags. Purchased in 1893.

In more recent years, two large interesting local collections have been received

A. L. PILL, a businessman from Castleton, Derbyshire, donated a collection of about 2000 bones, excavated from three caves in Hartle Dale, Bradwell, during the period ca. 1961-1963. These fossils, supposedly Bronze Age are mainly Mammalia, including small rodents, lagomorphs and carnivores; and a few avian and amphibian specimens.

Museum fieldwork by Tim H. RILEY in 1974 resulted in the collection of about 300 bones from a fissure at Hazlebadge, near Bradwell, Derbyshire. The material represents a cold climate fauna, probably Devensian, comprising mainly mammal remains, with a few amphibians and birds. The collection is currently being researched by T.H.R. and includes samples of unsieved matrix for detailed examination.

History

The first readings were taken at Weston Park in September 1882 when wet-bulb, dry-bulb, maximum and minimum temperatures, barometric pressure, rainfall and an estimate of wind speed and direction were recorded. In January 1898 the addition of a sunshine recorder, a cup-counter anemometer and two earth thermometers brought the Station up to the required standard for a Meteorological Office Climatological Station. From that time the Station's monthly readings have been published in the Monthly Weather Report of the Meteorological Office.

Until January 1937 Elijah Howarth, the Curator of Sheffield City Museum, maintained the Station privately but in that month it was formally adopted by Sheffield Corporation Museums Department to be run as a public service. From 1937 to 1945 the Station was maintained jointly by Mr. Baggaley (Curator) and Mr. Walker (Chief Assistant: metalwork and numismatics), and later by Mr. Barwick of the Schools Service Section until 1959. In that year responsibility for the Station fell on the Natural History Section where it has remained to present.

Following a report to the Art Galleries and Museums Sub-Committee in January 1978, in November 1978 the first appointment was made with specific responsibility for running the Meteorological Station when a Trainee Technician (Natural Sciences/Meteorology) was appointed. In May 1981 this post was subsequently regraded to Assistant Keeper. The work is within the Natural Sciences Section with about one third of the work devoted to meteorology, the rest of the time involving natural sciences work.

Throughout the recent history of Weston Park Meteorological Station the Attendant staff have also played a vital role. Readings at weekends and on public holidays are performed by them, and a weather diary is kept during working hours. All new Attendants are given a basic training by the Assistant Keeper and a set of instructions have been specially produced to assist beginners with the job.

The work of the Station

The operation of Weston Park as a Climatological Station co-operating with the Meteorological Office requires that the recordings must be of a high standard. Any problems relating to the purchasing of instruments or with the running of the Station are usually solved by consulting the local Meteorological Office at Bawtry. The Station is inspected by an official from the Meteorological Office every few years to check the condition and accuracy of the instruments and any faults are quickly rectified. In addition the observer can attend a short course run by the Meteorological Office at their Shinfield Park College near Reading to improve the quality of recording and to help solve any problems.

Figure 1.

SHEFFIELD CITY MUSEUMS

WESTON PARK METEOROLOGICAL STATION

DECEMBER 1981

Date	Wind Direction & Knots	Dry Bulb °C	Humidity %	Air		Rainfall mm	Sunshine Hours
				Max. °C	Min. °C		
1	NW 7	2.7	82	5.7	2.1	tr.	5.7
2	NW 7	5.0	89	10.3	2.7	-	1.3
3	WNW12	10.2	91	11.2	2.7	3.7	-
4	NNW12	5.2	95	7.2	5.1	0.4	2.0
5	WNW 6	4.3	89	6.1	2.5	1.7	1.5
6	W 9	4.3	93	6.2	2.6	1.5	0.3
7	W 6	4.9	86	5.1	0.3	tr.	-
8	NW 6	-2.2	81	1.1	-2.9	-	4.1
9	W 10	0.2	85	2.0	-2.3	1.1	2.2
10	Calm	-2.2	94	-0.1	-2.2	2.6	1.7
11	NW 3	-3.0	-	-0.1	-5.2	-	-
12	NW 5	-2.1	-	0.9	-3.5	-	5.3
13	S 4	-3.5	80	0.4	-5.4	23.6	-
14	WNW 3	0-	78	3.1	-3.8	18.1	1.1
15	Calm	-1.2	91	0.6	-2.4	tr.	def.
16	Calm	-5.2	93	-1.6	-6.0	-	1.2
17	Calm	-5.8	92	-1.2	-7.8	-	0.2
18	NNW 6	-1.5	90	0.6	-9.1	-	4.4
19	Calm	-6.2	-	1.2	-6.8	7.3	2.3
20	SE 12	0.3	96	1.2	-6.5	10.0	-
21	ESE 3	0	96	0.4	-0.3	4.1	-
22	NNE 6	-0.9	91	-0.4	-1.5	tr.	0.7
23	Calm	-2.4	93	1.1	-4.4	1.6	-
24	N 6	1.1	96	2.1	-2.5	-	-
25	Calm	-2.5	-	1.0	-3.1	tr.	2.1
26	Calm	-6.0	92	0.8	-7.5	0.9	-
27	E 10	0.8	85	1.5	-6.6	2.6	-
28	NNE 4	1.5	98	1.8	0	3.0	-
29	NNE 4	1.6	98	2.0	-3.1	8.0	-
30	Calm	1.1	98	5.5	-2.8	11.9	-
31	Calm	2.5	95	4.6	-0.6	0.1	1.3
						<hr/>	
						102.2	37.4

Mean of daily maximum temperatures 2.6
Mean of daily minimum temperatures -2.5
Mean of max. and min. temperatures 0.1

Long term averages for December

Sunshine hours 35 (1941-70)
Rainfall mm 74 (1941-70)
Mean of daily maximum temperatures 6.9 (1941-70)
Mean of daily minimum temperatures 2.3 (1941-70)
Mean of max. and min. temperatures 4.6

Note: the above are a selection of the readings taken at 09.00 hours G.M.T. Details of Grass Minimum and Earth Temperatures, Snowfall, 24 hour Anemograph Traces, Cloud Cover etc. are available on request.

Two Meteorological Office forms are completed regularly. The first is sent weekly and contains only the major readings to assist with forecasting. The second is the monthly return form which transfers all of our data from the previous month to the Meteorological Office. The form is designed for computer input and all of our more recent data is held on the Bracknell Headquarters' computer along with that of around 800 other Climatological Stations. Weston Park is apparently the 25th oldest of the stations currently co-operating with the Meteorological Office.

In addition to the above forms, at the end of each month all of the data is entered into a permanent ledger held at the Museum. A monthly form is also completed to provide a summary of data for Dr. Fellowes who runs a co-ordinating survey for stations in the North Midlands. He produces monthly sheets with summaries of data from all the region's stations.

Service to the public

Apart from fulfilling the requirements of a co-operating Climatological Station for the Meteorological Office, Sheffield City Museums makes data from the Weston Park Station freely available to the public. Each month the more important daily figures are stencilled and about 150 copies are duplicated (Fig.1). Over 70 of these are sent out to various individuals, institutions and industries each month and many others are distributed to casual enquirers. These sheets are available for all years since 1963, although photocopy charges are made for months which have been fully used. A time and money saving system for sending out the 70 or so sheets involves all the recipients depositing a set of 12 stamped, addressed envelopes with the Museum each year.

Daily and monthly figures are also displayed on a board outside the main Museum entrance and many people consult them every week.

Enquiries are very varied, the major categories are listed below:-

1. Casual public enquiries such as "when did my roof blow off?" and readings for setting barometers.
2. Enquiries from the media. Daily figures are published in the Sheffield Morning Telegraph and occasionally a telephone conversation will lead to a paragraph concerning any unusual weather recorded. Also BBC Radio Sheffield records interviews for broadcast when particularly interesting weather conditions occur.
3. Enquiries from teachers and pupils concerning school projects, and more detailed enquiries from undergraduate and post-graduate university students.
4. Enquiries from agriculture, architects, builders and heating engineers concerning extremes and averages.