

B.C.G.

Newsletter Vol 2 No 8

October 1980

Of bastarde Narcissus. Chap. liij.

* The Description.

Nhis flower hath long narrowe leaues much lyke unto Leekke blades, but not so long: amogst which springeth vp a round stalk bearing a faire yellowe flower diuided into sixe leaues like the flower of *Narcissus*, with a long rounde little bell in the middle iagde about the edges, and of a deeper yellowe then the rest of the flower. After the flowers commeth the seede inclosed in round huskes or cods. The roote is round after the maner of bulbus, & like to *Narcissus*.

* The Place.

It groweth in moist places in shadowy woods & in the borders of feeldes, as by Puers, and Bornehem, & in the Parke wood by Louayne, where as it groweth abundantly, it is also plåted in gardens.

* The Tyme.

This herbe bringeth foorth his leaues, stalkes, and flowers in Februarie, and is in flower somtimes vnder the snow. The seide is ripe in Marche. The herbe doth so perish in Apriill and May, that afterward it is no more seene.

* The Names.

This flower is called in high Douché, Geel Horngungsblumen, & is to say, the yellow flower of February, of some also Geel Tijdeloosen, & geel Sporckelbloemen: it is now called in Latine of some *Narcissus luteus*, or *Pseudonarcissus*, bycause his flowers are somewhat like to *Narcissus*: in English, yellow Crow bels, yellow *Narcissus*, & bastarde *Narcissus*: in French, Coquelourde, and there is none other name to vs yet knowē.

* The Nature.

Yellow *Narcissus* is hoate & drye, much like in temperature to *Narcissus*.

* The Vertues.

Men haue proued this true and certayne by experiance, that two drammes of this roote freshe and newly gathered, boyled in wine or water with a littl

mays or Fenell seede, and a little Ginger and dronken, driueth foorth by siege tough and clammy flemme: wherfore the saide roote is good against al diseases, that happen by reason of tough and clammy flegme.

from

Dodoens, Rembert (1578)

A niewe herball or historie of plantes first set forth in the Doutche or Almaigne tongue and nowe first translated out of French into English by Henry Lyte esquier

see back cover for reproduction of title page



The aims of the Biology Curators' Group are:-

- i) To facilitate the exchange of information between individuals concerned with collections of specimens and records, their conservation and interpretation.
- ii) To present the views of biological curators to the Museums Association of Great Britain and to other bodies.

Copy dates for future issues based on three copies per year

31 August for October issue

31 December for February issue

30 April for June issue

Editorial Note

This issue follows a geographical theme initiated by the previous Editor and covers some of the activities of our Welsh museum colleagues. It is intended to start with a "Featured Institution" as an introductory article to future issues, regardless of the overall theme of the newsletter (if indeed there is one). This issue has the National Museum of Wales' Department of Zoology as the leader in this respect.

At the back of the newsletter is a copy of a questionnaire produced by us in conjunction with the Biological Records Centre. Those people managing local or regional BRCs which are known to Monks Wood will receive a questionnaire direct from them but whatever happens please help to make the Inventory complete by filling it in now!

The opinions expressed in this Newsletter are not necessarily those of the Committee of the Biology Curators' Group.

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Cover Design: The Cenhinen bedr (Daffodil) is the Welsh national flower and was selected as appropriate for this issue.

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'Ever stolen anything before, Farquharson?' said Guffy as they pulled up in the market place at Norwich to drop Eager-Wright and enquire of a policeman for the Brome House Museum.

'Hundreds of things,' said Farquharson. 'What's a little drum, anyway? If I see anything else I like I shall bring it back as well. If we get away with this we might start on the South Ken. There's a large-size model of a flea there I've always had my eye on.'

Left to themselves, however, their mood sobered. Neither was particularly keen on the task, and the prospect of mis-representing themselves to some eagle-eyed guardian of the city's treasures appeared uninviting in the extreme.

Since Mr Campion's mantle had descended upon him, however, Guffy was determined to see the thing through. The only museum he ever remembered visiting was the Victoria and Albert, and he pictured himself being thrown out ignominiously by resplendent officials and delivered to the local police to be brought up on the following day, on a charge of attempted theft.

Any guesses? Not P.G. Wodehouse

NATIONAL MUSEUM OF WALES: DEPARTMENT OF ZOOLOGY

The zoological collections are housed in the National Museum of Wales main building at Cathays Park, Cardiff, and combined with the collections of the Departments of Botany and Geology contain natural history material of regional, national and international importance. Relevant displays are confined to Cathays Park but a new venture is the development of the Oriel Eryri at Llanberis in North Wales. This is essentially a branch museum of natural history under the control of a Principal Officer and is intended as a major interpretive centre examining the interaction of man and the environment in the Snowdonia area.

In this introduction to the Department of Zoology, however, I wish to take the opportunity of examining the current and projected problems facing the Department, details of the history of the collections being contained in later sections. Many curators will be familiar with the problems posed by possessing historical collections of importance which have never been fully curated, but at present any priority consideration must include a study of the development of ecology as a science and its potential impact on collecting and collecting policies. Large scale collecting programmes have significantly altered the amount and type of material to be accepted by museums and plans have had to be adjusted to cope with this type of material. This material necessitates radical changes in the scale of storage and documentation for efficient retrieval. The problems and plans for their solution may interest members of the Biology Curator's Group, however, success in dealing with these problems will have to be examined in years to come.

Current problems to be resolved include:-

- 1 The possession of collections containing over $2\frac{1}{4}$ million specimens covering all zoological classes. These are stored by a wide variety of methods - fluid, dry, slides etc and require constant conservation and curation.
- 2 Cramped and inadequate macro-storage with poor environmental conditions primarily created by limitations enforced by the structure of the building and by alternative demands for space.
- 3 Inadequate cabinet storage creating retrieval difficulties both for conservation and documentation purposes.
- 4 Disparate manual documentation systems (one specimen may have data stored in five different places) which need to be correlated for a complete analysis of data.
- 5 Pressure of alternative commitments preventing consistent and rapid work on the collections such as:-
 - a Display commitments.
 - b Enquiries and identifications.
 - c Staff commitments to previous studies and surveys.
 - d Administrative work related to national and international organisations and issues concerned with zoological collections.
 - e Pressure and demands from current workers in research institutions such as the Nature Conservancy Council and universities for the Museum to accept material currently being collected during the course of their studies.

- f Data retrieval for planning, management and conservation purposes requested by outside bodies.
- g The requirements of new legislation and an appraisal of its effects on museums.

The primary objective of the Department during the next five years will be to restore and document those collections of major importance. This does not mean that day to day administration, enquiries and identifications are to be ignored, the major moratorium being in the area of display which has been suspended for a period of five to seven years when the major collections should be in a reasonable condition in terms of conservation and documentation. It is realised that many other museums would have difficulty in suspending display, but it is essential that people accept the great importance that must be attached to collections of taxonomic and historical significance and of the recommendations contained in the International Code of Zoological Nomenclature.

Supportive factors to enable the achievement of this primary objective within the Department of Zoology are as follows:-

- 1 Excellent library and reprint facilities to assist in the systematic storage of the collections.
- 2 The compact nature of the Department which encompasses curatorial, technical, secretarial and clerical staff enabling a planned programme of work to be executed within the Department. The staff totals 11 persons plus two Honorary Research Associates.
- 3 Central Government finance which permits:-
 - i A phased programme of restorage over several years.
 - ii Equipment facilities and purchases to assist in restorage.
- 4 Work undertaken by previous staff on collections and display provides a firm base for future work. The completion of several galleries has meant that the Museum and Department possesses a large interpretive display on environments in Wales and a display illustrating the whole of the animal kingdom which is used widely by university students and the general public.
- 5 The freedom of the Department to initiate and follow through policy decisions. This is of major importance and illustrates the prime difference between larger provincial museums and national museums. The Department of Zoology is fairly autonomous and has a wide ranging policy decision capability which greatly increases the speed at which the work can be initiated and undertaken on both a day to day and a month to month basis under the control of the Keeper. It is precisely this freedom of action which was implied in the Drew Report by the establishment of centres of excellence for provincial museums with large important collections. As long as freedom of action and policy decisions are guaranteed a great deal can be achieved even with limited finance.

In an attempt to improve administrative procedures and to ensure continuing expertise in academic and curatorial areas a new structure for the Department was initiated in 1979. The formation of sections, each with defined responsibilities has permitted the identification of major gaps in expertise essential for current work and future development. This new structure holds the vital key in turning statements of priorities and

objectives into reality. These sections are described below:-

The three curatorial sections include

- 1 Entomology Section where the main effort is concentrated upon restorage and curation of the large collections. Areas of research in this section are Adrian F. Amsden - Hymenoptera
John C. Deeming - Acalypterate Diptera
(Cynthia M. Merrett - Arachnid distribution in sand dunes with reference to microhabitat preferences - Vertebrate Section, S.M.A.)
- 2 Invertebrate Zoology Section where the major priority lies with conchology due to the possession of internationally important collections especially the Melvill-Tomlin collection. Areas of research in this section are Dr. P. Graham Oliver - Functional morphology and taxonomy in marine Mollusca; Microhabitat distribution of Mollusca.
Alison Trew - Isopod distribution related to microhabitat preferences.
Dr. H. Harford Williams - Parasitology - Functional morphology and taxonomy of fish helminths.
- 3 Vertebrate Zoology Section where the main concentration of effort is upon the obtaining of new storage cabinets and subsequent transfer of material therein and their systematic storage. This is assisted by the separation of the scientific and display material into different storage areas. Areas of research in this section are Peter J Morgan - Oil pollution and seabirds, their collection and storage
(Piers Langhelt - completion and publication of the Welsh Fish Survey - Technical Section)

The formation of these curatorial sections has enabled planned programmes of work and research to be initiated. Each section consists of a Keeper/Assistant Keeper and a Research Assistant or Museum Assistant working on the collections within that section full-time. This compliment of two permanent staff in each section ensures continuity of the work on the collections in each section.

Members of the curatorial sections are as follows:-

Keeper - Peter J. Morgan (Vertebrate Zoology Section).
Senior Museum Assistant - Miss Cynthia M. Merrett (Vertebrate Zoology Section) (retaining research project in British Spiders under Entomology - see above)
Assistant Keeper - Adrian F. Amsden (Entomology)
Research Assistant - John C. Deeming (Entomology)
Assistant Keeper - Dr. P. Graham Oliver (Invertebrate Zoology)
Museum Assistant - Miss Alison Trew (Invertebrate Zoology)
Honorary Research Associate - Dr. H. Harford Williams (Invertebrate Zoology)
Honorary Research Associate - Mr. D. H. Heddwyn Richards (Invertebrate Zoology)

The three curatorial sections are all attempting to achieve the same objectives of:-

- 1 The restorage, curation, conservation and documentation of the important taxonomic and historical collections with the standardisation of storage cabinets taking a high priority in terms of financial expenditure.
- 2 Concentration in developing the museum as a centre for the receipt of collections from universities, NCC etc which is connected with the use of honours students for projects which will involve training in taxonomic, curatorial and data preparation.
- 3 The examination of all current documentation procedures and their reorganisation and subsequent computerisation of data which is essential as a base to all curatorial work and collection use.
- 4 The initiation of departmental publications with a wide circulation giving details of collections.
- 5 An increase in staff's scientific research and publication.
- 6 Improved use of all technical laboratories and facilities.
- 7 Fieldwork:- Specific ecological studies of one group or one habitat rather than on general Biological Recording at the 10 km or 1 Km level.
- 8 The concentration of display on temporary travelling exhibitions rather than on major gallery re-displays.
- 9 The encouragement of enquirers to use for themselves the library facilities for the identification of their specimens as well as the collections.

These objectives form the basis of detailed plans on the Department's future staffing, spatial and financial requirements.

Supportive sections to the curatorial sections include the technical, display and documentation and publications sections.

The Technical Section which covers laboratories (except the taxidermy laboratory) adequately supports all curatorial sections but is historically more closely linked to conservation and curation in the Vertebrate Zoology Section since the curatorial staff in the Entomology and Invertebrate Zoology Sections undertake a higher proportion of routine conservation work on the collections whilst preparing material and curating collections. Good equipment should assist in planning a programme of preparation and incorporation of new specimens i.e. the use of the macerator and degreaser. Members of the Technical Section are as follows:-

Scientific Officer - Piers Langhelt (retaining curatorial work on fish collections in the Vertebrate Zoology Section).

Technician III - Kevin J Rual (assisting in taxidermy, running the aquarium and documentation of parasitology collections).

The Display Section is again primarily vertebrate zoology orientated, but the other curatorial sections have a direct input from the curators and it is hoped that many habitat displays can be broad-based. It is planned that displays explaining the work on collections will be made by curatorial staff especially in entomology and invertebrate zoology. At present the Display Section consists of:-

Research Assistant - Khalid Ghani (primarily vertebrate).

The Documentation and Publications Section sees the biggest change in planned structure and operation and this is the most difficult to achieve without additional staff. This section effectively determines the speed of operation in all other sections. This section will co-ordinate all secretarial and clerical work, accessioning, existing documentation, computerisation of data on a Westrex 43 terminal linked to the M.D.A.U. (purchased but not yet operational) and publication procedures from type-writing to distribution. It is also responsible for the departmental library, registers and photographs. It can be seen as equivalent to the curatorial sections for it attempts to deal with the back-log of work whilst trying to meet new demands on procedures, documentation and storage. Members of this section are:-

Departmental Secretary - Miss Sheryl Ann Jones (also PS to Keeper)
Clerical Assistant - Miss Carol A. Davies

A staff of 11 may seem large to people in other museums but it is the members of the supporting sections which give rise to the apparently large number. Many of the larger provincial museums have similar numbers when the centralised technical, display and secretarial staff are taken into account, but there is a distinct administrative advantage in planning future work in having all staff in one department. Changes in priority have to take into account staff's previous interests and commitments, but each section can realign and concentrate on specific tasks.

The major gap existing at present is readily identifiable - the Department of Zoology is responsible for pleistocene faunal remains, but there is no one member of staff with the expertise to deal with the storage, conservation and documentation of the large and important collections. Liaison with the Department of Archaeology of the National Museum of Wales, other museums and universities is essential and this area will have high priority if ever a new post is created. The caves and peat bogs of Wales still contain large amounts of material and a member of staff could be active in the field and of assistance to other institutions. It is estimated that at a minimum another four curatorial staff, one technician, one display person and two clerical staff are required to ensure successful future development.

Concentration on collection work and the attempt to develop and integrate policies with universities and the Nature Conservancy Council in Wales has affected other areas of work previously occupying a great deal of time. The major area affected has been biological recording and field work. In 1971 the Department of Zoology became the Regional Biological Data-bank for Welsh zoological information but a survey under Job Creation initiated by J. A. Bateman, the previous Keeper, revealed many problems and as a result priorities were altered. It was obvious that the manual system could not cope with the amount of data and more importantly that it was far from comprehensive failing to reflect the majority of data obtained during research projects by other organisations from throughout the United Kingdom conducted in Wales.

A report has, therefore, been prepared on the need for a sub-department which will give a co-ordinated approach and joint investigations with NCC are being undertaken with a view to computerisation and efficient management of data.

The second area directly involved concerned the amount of staff time and finance involved in data acquisition and sometimes specimens. This had

received a high priority and the obtaining of distributional data was regarded as being of major importance. The limited number of staff, however, severely restricted the amount of data obtained and the number of sites visited and the work was not always undertaken systematically. Consequently, all distributional recording work has been curtailed and any fieldwork undertaken now is done so as a specific ecological study analysing in detail the distribution of a small group and its microhabitat preferences. This has already proved beneficial for the data is more systematic and permits extrapolation on distribution for examination.

A study of supralittoral terrestrial isopods has been initiated and five hundred lots have been collected or sent from all parts of Britain. This collection made over fifteen months contains all but 6 of the British species of non-marine isopods. As a result of the research in Wales, several "scarce" species (from broader based recording) have been found to be common in specific microhabitats and numerous new distributional records obtained. An unexpected result of this detailed work has been the discovery of a completely new species, the description of which is in press. A study of arachnid microhabitat distribution in the Kenfig Sand Dunes in Mid Glamorgan is in progress providing material for ancillary research.

The commencement of this type of field work (more related to that of universities) and correlated research increases the collections and permits staff to undertake detailed ecological studies suitable for publication. Previous recording work, such as the Welsh Fish Survey financed by a Natural Environmental Research Council grant is being written up for publication.

By co-ordinating specific academic expertise and museum procedures, larger scale projects can be attempted and this is exemplified by the collection and curation of 2,000 auks killed by oil pollution during the *Christos Bitas* incident. The pilot scheme to preserve and form a permanent reference collection was undertaken by museum staff and many volunteers and was partly financed by the NCC whose staff and then a temporary Research Assistant measured the specimens for scientific analysis and publication. This work involving liaison with many other interested organisations plays a crucial role in the future of the Department - the storage of collections being an adjunct to many studies undertaken by staff in universities, field centres and specialist teams of M.A.F.F.

These links are referred to in the Advisory Board for the Research Councils "Taxonomy in Britain" and the NERC Working Party on the "Role of Taxonomy in Ecological Research". The Department is now pursuing an active policy in accepting this type of material in case it should be lost as with past collections, but it does present many problems. They are for the most part well documented but not always preserved for long term storage in a museum. A great effort will, therefore, be required from both the technical and curatorial staff when collections arrive. The majority of projected collections will arrive either as fluid preserved or frozen material and thousands of jars of insects and fluid preserved invertebrates from one survey alone illustrates the scale of the problem facing us.

It is felt that this approach is essential to our academic survival and to enforce our relevance to society and conservation. The collections now being amassed will be essential for any retrospective analysis of the Welsh fauna from the 1970's onwards. It is also felt that we have already lost too many systematically sampled collections from the last two decades and that a conscious effort should be made to halt it. By concentrating initially on past collections it should be possible to cope with future material.

The politics surrounding museums and their collections cannot be escaped from for if the Department's collections remain as they are now few people will wish to entrust their material to us in the future and consequently we must urgently attempt to improve our image. Since the Department of Zoology of the National Museum of Wales is not alone in this thinking and most natural history museums throughout the world face similar problems, staff must also take an active part in organisations and conferences which attempt to determine and improve upon existing policies and national plans. This can be extremely time consuming and thus reducing the time spent on the collections, but it could short circuit the difficulties involved and provide long term benefits. An examination of the past priority given to conservation and museum natural history collections, however, suggests a bleak and hard future.

It is hoped that the current work structure and programme will attract assistance in the form of honours student projects, volunteers and research workers to the Department. This is to be aided by advertising our collections through a publication programme.

PETER J. MORGAN
KEEPER OF ZOOLOGY

THE ENTOMOLOGY SECTION

The National Museum of Wales had its origins in the Cardiff Museum and Free Library which first took definite shape in 1861 with the appointment of a librarian at a salary of £20 a year accommodated in a room in the Royal Arcade. By 1864 it had been taken over by the Corporation and was housed in the Y.M.C.A. building in St. Mary Street. In 1882, it moved again to the newly completed Central Library in Trinity Street where the main Cardiff City Library is still housed and in 1893 became the Cardiff Public Museum and Art Gallery when the Corporation adopted the Museums and Gymnasiums Act of 1891. The name changed to the Welsh Museum of Natural History, Arts and Antiquities in 1901, by which time the movement for the creation of a National Museum of Wales was already gathering momentum. In 1907 a Royal Charter for the establishment of such a museum was signed and Dr. W. E. Hoyle was appointed Director. The collections and staff of the Welsh Museum of Natural History, Arts and Antiquities were transferred to the National Museum of Wales in 1912 with G. R. Brook, F.Z.S., first appointed in 1903, becoming the Zoologist.

The transfer of staff and collections was not just a paper transfer since the exhibits were moved to rooms in the newly completed City Hall in Cathays Park. At the same time numbers 12 and 13 Trinity Street were rented as work-rooms and the collections were stored in 35 Park Place where Brook and his assistant worked. Brook resigned in 1915 and J. Davy Dean, who had been helping with the Molluscan collections, was appointed Acting Zoologist until 1919 when J. J. Simpson, M.A., D.Sc., who had worked as an entomologist in British West Africa, was appointed Keeper. In August 1921 the zoological collections and staff moved from 35 Park Place into the completed part of the National Museum of Wales building in Cathays Park where they have remained ever since. The following year, Colin Matheson, M.A., B.Sc., was appointed as an additional Assistant Keeper, becoming Keeper in 1926 when Simpson resigned to go to Liverpool Museum as Curator. With the appointment of Lionel F. Cowley, M.Sc., to fill the vacant Assistant Keeper post, the Department reached its zenith with a Keeper, two Assistant Keepers, a Taxidermist, a Technician and a Typist. One Assistant Keeper post and the post of Taxidermist were lost by 1940 and it was not until 1971 that the staffing level again reached that which had existed 44 years earlier. It is a curious fact that no-one has ever been appointed as the Entomologist to curate the insect collections in the National Museum of Wales, although Dean and Matheson wrote the odd note on insects from time to time. When the writer was appointed to replace Cowley, it was still as a general zoologist sharing the work of the Department with Matheson. It was only in 1967 when

the second Assistant Keeper post was recreated that it was possible to specialise on the Arthropoda.

The Entomology Section per se was created in 1978 when a second entomologist, P. Mark Heath, B.Sc., was appointed to assist specifically with the insect collections which now contain well over 500,000 specimens. When Mr. Heath resigned to pursue studies elsewhere the post was upgraded to Research Assistant and John C. Deeming who had experience in the B.M.(N.H.) and at the Institute for Agricultural Research at Samaru in Nigeria was appointed.

Nearly half the species on the British list are represented in the collections by some 385,000 pinned specimens. The collections are notably poor in Parasitica and Aptyrygota whilst a fluid collection of soft bodied insects and developmental stages is virtually non-existent. Fewer than 50,000 specimens originate from Wales but there is a useful foreign collection of some 150,000 specimens. The major collections are summarised below in alphabetical order.

Reginald L. BARROW, B.A., F.R.E.S. (1879-1967)

A small collection of c. 1,000 specimens of Diptera and Hymenoptera from Worcestershire. A friend of H. M. Hallett (see below) from whom he received much encouragement. Hallett and Barrow were co-authors of the "Hymenoptera Aculeata of Worcestershire" *Trans. Worcestershire Naturalists' Club* 1955 XI: 75-80.

Thomas Richard BILLUPS, F.E.S. (1841-1919)

A collection of 1,900 British Diptera and 3,300 British Hymenoptera. Billups lived in Peckham where he was a fruit and vegetable salesman and was later associated with the South London Society. The specimens, unfortunately, carry little data.

The Viscount BOLINGBROKE (1896-1974)

A collection of 3,100 Macrolepidoptera mostly from the New Forest area. The 6th Viscount Bolingbroke and 7th Viscount St. John (Sir Vernon Henry St. John) lived at Ringwood in the New Forest. Most of the specimens were collected by himself, but there are some specimens given to him by F. W. Frohawk, whose daughter Valezina he married in 1950. The collection includes an interesting series of vars. and aberrations, some of which appeared in Frohawk's Varieties of British Butterflies 1938 which was dedicated to Valezina. Viscount Bolingbroke published a number of notes in Entomologists' Record.

Charles Adolphus BRIGGS, F.E.S. (1849-1916)

The Briggs' collection of about 5,500 British Dragonflies, Ephemeroptera, Orthoptera (s.l.), Neuroptera and Trichoptera was purchased by Ernest Heath and donated to the National Museum of Wales. The collection is strong in material from Lynmouth where he lived and includes the British Trichoptera collection formed by P. Wormald. He was a frequent contributor to entomological journals. His Lepidoptera were sold at Stevens in 1896 when he moved to Lynmouth.

George William CHASTER, M.R.C.S., L.R.C.P. (1863-1910)

The first entomological collection purchased by the National Museum of Wales, these 11,000 specimens of Coleoptera and the Mollusca were purchased from his sister. Chaster lived in Southport and many of the localities are Lancashire. He contributed to the *Ent. mon. mag.* and was editor of the *Proceedings of the Southport Natural Science Society* in which he also published "The Coleoptera of Southport and District" in 1899.

W. Edney COX, F.R.E.S., (1869-1948)

A collection of about 4,300 British Lepidoptera including micros of which Cox added some 60 species to the Glamorgan list. The collection includes a number of bred hymenopterous parasites which are as yet unidentified. He co-operated with Hallett in publishing the Entomological Notes in the *Transactions of the Cardiff Naturalists' Society*.

George FLEMING, M.A., (1856-1927)

Fleming's earlier collections were destroyed when his house was burnt down in 1904. However, by the time of his death he had accumulated over 20,000 specimens, mostly from Merthyr Tydfil where he lived. The collection is rich in Micros and, like Cox above, he was responsible for valuable additions to the Glamorgan list publishing in the *Transactions of the Cardiff Naturalists' Society* and in *The Entomologist*.

A. Eric GARDNER F.R.E.S. (1913-1976)

The large collection of insects bequeathed to the National Museum of Wales by Eric Gardner is one of its most important collections. Containing over 93,000 specimens the collection is rich in British Coleoptera (c. 76,000) and includes the F. J. Coulson collection and a large number of specimens from F. D. Buck and other Coleopterists. The British Macrolepidoptera collection (c. 9,000) is, like the Coleoptera, superbly set, labelled and identified. Amongst the foreign collection the Orthoptera (c. 3,000) includes many rarities. His important Odonata collection went to the B.M. (N.H.) and his British Orthoptera to the British Entomological and Natural History Society.

Willoughby GARDNER, D.Sc., F.R.E.S., F.L.S., F.S.A. (1860-1953)

Dr. Gardner's interests included, amongst other things, the Aculeate Hymenoptera and the history of entomology. He bequeathed his collection of about 2,300 aculeates from North Wales and his library of 330 volumes illustrating the history of natural history and especially entomology to the National Museum of Wales. He published a list of the Aculeate Hymenoptera of Lancashire and Cheshire in 1901 and was a past President of the Lancashire and Cheshire Entomological Society. The notebooks referring to the numbers on Gardner's specimens accompanied the collection.

Rawdon GOODIER (?- ...)

On leaving North Wales in 1968, Rawdon Goodier donated his collection of about 1,000 specimens of Diptera and Coleoptera to the National Museum of Wales. Many of these specimens are those quoted in his papers on the "Welsh Mountain Beetles" *Nature in Wales* 1968, 11: 57-67; "Records of Welsh Diptera" *Nature in Wales* 1965, 9: 191-5 etc. At the same time his collection of about 150 spiders from North Wales was deposited at the Museum.

Arthur Foster GRIFFITH, M.A. (1856-1933)

Of Welsh descent Griffith gave his large British Lepidoptera collection of 60,000 specimens to the Museum and personally arranged the two cabinets in which they are housed. This task was achieved over a period of 10 years during which time he also donated a fine collection of bird's eggs, nests and skins. The collection is rich in micros and blown larvae and includes many specimens bought at sales and auctions in London. Whilst many specimens came from Sussex (Griffith lived at Brighton), there are also many from Scotland and elsewhere in Britain. Griffith obtained the remains of the collection made by Henry Cooke between 1840 and 1870. He also acquired the collection formed by J. L. English (1820-1888) who worked at Henry Doubleday's shop in Epping. Still later he purchased the collection made by William Borrer of Hurstpierpoint, Sussex.

George Charles GRIFFITHS, F.Z.S., F.E.S. (1852-1924)

A collection of about 1,000 specimens of Diptera from the Bristol area which was purchased from Janson in 1930. His Lepidoptera were sold at Stevens in 1925. Griffiths was a prominent member of the Bristol Naturalists' Society and better known for his contributions on Lepidoptera in Tutt's *British Lepidoptera* and elsewhere.

Howard Mountjoy HALLETT, F.R.E.S. (1878-1958)

Hallett's contribution to the National Museum of Wales was much more extensive than the number of specimens (11,500) in his collection would suggest. He was responsible for much of the entomological part of the Faunistic Survey of Glamorgan publishing his results in the *Transactions of the Cardiff Naturalists' Society* and editing the same section of the *County History of Glamorgan* Vol. 1. He carried out a considerable amount of curatorial work arranging three of the six main reference cabinets (A. F. Griffith above prepared the two Lepidoptera cabinets). His main interest was Aculeate Hymenoptera of which he made a collection of 5,000 specimens from Herefordshire and Glamorgan. He also collected Coleoptera (4,800) and Hemiptera (1,500) extensively. Apart from virtually being the Museum's honorary entomologist from 1912 to 1935 when he moved to Herefordshire, he also prepared indices to the collections and Published Welsh Records. Hallett had a full-time job in a shipping office in Cardiff and lived in the coastal town of Penarth about 5 miles away.

James B. HODGKINSON, F.E.S. (1823-1897)

A collection of 1,750 named British Hemiptera/Heteroptera mostly from the North-west of England, but with little data. The collection was purchased from Janson in 1929. Hodgkinson was better known as a Lepidopterist and these collections were sold by Stevens in 1897.

Arthur LOVERIDGE (?- ···)

A small collection of about 800 specimens of East African Butterflies with good data. Loveridge had been the assistant in charge of the Temporary Exhibition in the City Hall from 1912-1914 during the transfer of the collections from the Cardiff Museum to the National Museum of Wales. The butterflies were collected after he took up the post of Curator of the Museum of the Natural History Society of British East Africa at Nairobi.

Philip Brookes MASON, M.R.C.S., F.L.S., F.E.S. (1842-1903)

About 3,500 Hymenoptera and 2,500 Diptera were purchased from Mason's widow in 1914. Some of these specimens were incorporated in the cabinets but others remained in store boxes. Few of the specimens carry any data but several are from the collections of Frederick Smith and Hamlet Clark.

Dr. James Cosmo MELVILL, F.E.S., F.Z.S., F.L.S. (1845-1929)

A collection of 2,400 Hemiptera and Symphyta purchased at Stevens when his Lepidoptera collections were sold. The locality information when present on the carded specimens is often on a pink label glued onto the card. Melvill apparently devoted more time to entomology in later life. He was better known as a Conchologist and his large collection came into the possession of J. R. le B. Tomlin who finally bequeathed his whole collection to the National Museum of Wales (see Oliver and Trew elsewhere in this issue).

Frank NORTON (? - c. 1949)

A collection of 3,000 Coleoptera and some Hymenoptera Parasitica from Glamorgan. The parasitica had been named by Claude Morley but were not bred specimens. Norton lived in Cardiff and supported the entomological group which developed around Hallett's enthusiasm.

Colonel Charles George NURSE, F.E.S. (1862-1933)

This Diptera collection containing some 15,000 specimens from the South-east of England was purchased for £70 in 1934 from Janson. The collection of 3,500 Aculeata and Symphyta were purchased at the same time for £15. Both were important acquisitions, the Diptera especially as they form the foundation of the collection of this group at the National Museum of Wales. Nurse spent most of his military career in India where he collected extensively, these specimens going to the B.M. (N.H.). On his return to Britain he lived first near Bury St. Edmunds and later at Tunbridge Wells.

Rev. E. James PEARCE, M.A., F.R.E.S. (? - . . .)

E. J. Pearce was the author of the R.E.S. handbook on the Pselaphidae and his collection of this group together with the Scydmaenidae and Haliplidiae was given to the Museum in 1958. Although the collection contains a relatively small number of specimens (6,000) it is comprehensively and fully documented, with 14 files and includes much paratype material.

Thomas William PROGER, F.Z.S. (1860-1947)

A small collection of about 1,000 insects from Costa Rica where his eldest son worked a coffee estate. Proger was associated with the National Museum of Wales from its inception and was a keen naturalist who lived in Cardiff but travelled extensively in South America.

Robert Henry Fernando RIPPON (1836-1917)

This large collection was offered for sale by Rippon in 1910 when he appears to have been in financial difficulties without a pension. The collection of 106,000 insects, shells and minerals from most parts of the world was purchased by Lord Rhondda for a sum believed to be in excess of £1,000 in 1918 from Rippon's widow and donated to the National Museum of Wales. At the time the insect collection must have contained a multitude of undescribed species from Australia and South America but as there was no

one to curate it in Cardiff it remained almost undisturbed for the next fifty years. It presented the staff of the Department of Zoology with an insuperable problem and the cabinets and store boxes were moved from place to place but seldom opened. It is still relatively untouched but as cabinets and store boxes disintegrated much of it has been transferred to new storage in the last ten years. Half the collection consists of beetles and another 20,000 are Butterflies including his Ornithoptera which were the subject of his monograph "Icones Ornithopterorum". The remainder consists of moths, Odonata, Orthoptera, Hemiptera, Diptera and Hymenoptera.

Rippon organised a collecting expedition to South America which was advertised in the *Entomologists Weekly Intelligencer* 1861, Vol. IX: 208. No obituary of Rippon seems to have been written. He seems to have been a very religious man and an artist in his own right. One of the few completely coloured examples of the "Icones Ornithopterorum" is in the National Museum of Wales library.

Professor Theodore H. ROBINSON, D.D. (? - ?)

This collection of nearly 4,000 Macrolepidoptera from the New Forest, Bournemouth and other southern coastal localities had been on loan to the Department for some years prior to 1941 when Robinson who lived at Llanishen, a suburb of Cardiff, brought some friends to view it. It was finally given to the Museum in 1956 when the donor had moved to London, but it is not known over what period it was collected.

Professor J. H. SALTER, D.Sc., (c. 1862-1942)

Professor Salter was head of the Botany Department at Aberystwyth but prior to this had lived in Tenerife, South-west France and Dorset. His extensive collection of nearly 36,000 specimens of Coleoptera, Lepidoptera and other Insects was given to the Museum shortly before his death and was accompanied by detailed notebooks. In 1936 he published "Cardiganshire Coleoptera" in *N. W. Naturalist* 11: 272. His natural history diaries are in the National Library of Wales at Aberystwyth.

John Read le Brockton TOMLIN, M.A., F.R.E.S. (1864-1954)

As well as his extensive conchological collections Tomlin donated a very large collection of British beetles to the National Museum of Wales. This contained over 83,000 specimens and incorporated several other collections in it. Tomlin's own collection contained many specimens from Glamorgan obtained when he held a teaching post in the Llandaff Cathedral School from 1890-99. He was responsible for the 'Coleoptera of Glamorgan' published in the *Transactions of the Cardiff Naturalists' Society* which was later augmented by Hallett. He then moved to Darley Dale where he remained until 1902. He was able to spend more time and money on entomology and conchology after benefiting under the wills of relatives and in 1906 moved to Reading on his marriage. He knew many Coleopterists and purchased or was given several collections before finally donating them to the National Museum of Wales in 1946. These were the Phytophaga and Curculionidae of Colonel Stephen BARTON, mostly from Bristol, part of the collection of HADFIELD of Newark and the Staphylinidae of George Robert CROTCH, all purchased at Steven's in 1899. E. G. ELLIMAN'S collection of Staphylinidae etc was given to Tomlin in 1929, many specimens being collected in the Chesham area. Other collections were those of William CHANEY whose collection included specimens given him by G. C. CHAMPION and that of J. S. WHITE who lived at Droylsdon near Manchester. In 1922 Tomlin moved to St. Leonard-on-Sea by which time he seems to have been concentrating on conchology at the expense of entomology. By the time of his death few entomologists knew him personally.

Henry Wyndham VIVIAN, M.A., F.E.S. (1868-1901)

This collection of 20,000 specimens of British Macrolepidoptera was presented to the former Cardiff Museum in 1902 by Vivian's widow, Lady Maude Vivian. Later when the National Museum of Wales was established it was transferred to it and is, therefore, the earliest collection to come into the possession of the National Museum of Wales. Vivian wrote a number of articles on entomology, the earliest appearing in 1888 in *The Entomologist*. He lived at Glanafon, Port Talbot near Swansea. Certain specimens from the Evan John collection were obtained by Vivian but when the remainder of this collection was offered to the National Museum of Wales in 1931 they declined to purchase it. Evan John who lived at Llantrisant, it appears, all his life became an F.E.S. in 1865 and died in 1930. The collection was accompanied by detailed notebooks, but its ultimate fate is a mystery.

A large number of individuals have given collections of less than 1,000 specimens which are not described here. Some of these are collections of great rarities or unusual importations but their exclusion does not mean that they are unimportant. This sketch is simply to give an outline of the collections of a Museum which has obtained its specimens almost exclusively by purchase or donation over the last 70 years.

ADRIAN F. AMSDEN
ASSISTANT KEEPER OF ZOOLOGY

THE INVERTEBRATE SECTION

The Invertebrate Section is responsible for all marine and terrestrial invertebrates excluding the insects and arachnids. In this article, I would like to give some indication of the contents of the collections, their significance and development.

When writing a feature article on the collections under one's own charge the problem of remaining objective is ever present. The temptation to overstate the importance of the collections is great. This is probably derived from the underlying hope that by drawing attention to them and their associated problems of understaffing and storage that some salvation may be forthcoming. No doubt all curators of natural history collections have had these hopes dashed recently with the ever increasing financial restrictions. Such restrictions however may have a spin off in that we are all forced to be more critical of our role and the value of the collections in our charge. Should we ask for large sums of money to be allocated to the storage of collections that in reality have no more significance than the Victorian compulsion for displaying collections and pretty objects from "Eastern Seas"? There is still so much to be learned about the invertebrates themselves and their ever declining natural environments that it appears to me to be wasteful to devote scant resources to bygone curios. I do not intend here to criticise truly significant historical taxonomy but rather to draw attention to the vast range of materials which are present in the invertebrate collections of the National Museum of Wales. This situation is probably paralleled in most other museums with natural history collections. The requirements made on these collections are many and include the provisions of specimens for; taxonomic research, historical research, morphological research, reference in three dimensional identification, for display, education and as records of distribution. In some cases, museum specimens may represent all that is left of some biotas. Ancillary requirements include the provision of library facilities, laboratory equipment and study areas for visitors.

Given the wide ranging nature of the collections and the numerous requirements made of them, some assessment has been necessary in order to formulate curatorial and collecting policies. These must be in line with the level of staffing and curatorial facilities available.

Collections can be assessed by the number of user requirements that they fulfill but one also has to add into this a subjective grading. Taxonomically significant material is more important than display material, specimens with distributional data are more important than unlocalised reference material. However, it becomes obvious that nearly all the requirements except for the taxonomic significance can be fulfilled by a single collection, i.e. one which is well documented. In the National Museum of Wales this fact causes a distinct dichotomy in the collections. On one hand there are the old collections which must be assessed for their value and on the other the newly acquired material which comes via donation or our own fieldwork. Of the latter we have a degree of control over the data accumulated. Storage of this material which is almost invariably collected live, necessitates the use of fluid preservative and this in turn causes spatial and retrieval difficulties. The curatorial and collecting policies are therefore rather different in these two major groups.

The older collections are probably typical of many other museums in that there is an abundance of conchological material with small amounts of other Phyla stored in spirit.

The conchological material in the Zoology Department consists of approximately 160,000 lots, whereas the spirit material cannot exceed 10,000 jars. The conchological material is diverse in its value, ranging from the taxonomically and historically important Melvill-Tomlin collection to the poorly localised shells in the Geological Society collection. The major problem with this material is the huge amount of space required for storage and it was here that the most critical assessments had to be made.

The conchological material can be roughly categorised into four sections; Category A includes all type and figured material. Category B includes all other material with historical and taxonomic significance. Category C includes material which has a reference value because of good data, Category D includes badly localised material with little historical significance.

Category A material is plentiful in the Melvill-Tomlin collection with a few others in the Fedden, Chaster and Dillwyn collections. Category B material makes up a large proportion of the Melvill-Tomlin collection and is probably present in small quantities in the Fedden, J. F. Jackson, Wotton and Rippon Collections. These latter collections however contain much Category D material and the extraction of the few significant lots is not warranted under present conditions. Category C material is mainly of British origin and besides the excellent recent collections of land and freshwater mollusca of S. P. Dance and J. E. Chatfield, there is also that of the J. T. Marshall (part of Melvill-Tomlin), Chaster, Bartlett Span and Phelps collections.

There are two components to the conchological collections, the historically and taxonomically significant Melvill-Tomlin collection along with the other type material and the reference material. The greatest user requirements have always been on the Melvill-Tomlin collection and this has therefore received top curatorial priority. A full discussion of this collection, its significance, curation and uses are given in the following article. This decision puts priority on some 80,000 lots and given no increase in the present staff level of 2 it is estimated that adequate curation of this collection alone would take some 10-15 years given the other commitments of staff remaining static.

The remainder of the invertebrate collections except for the taxonomically significant Hoyle cephalopods which includes Challenger, Porcupine and Albatross Expedition material are difficult to assess. This results simply from the lack of expertise in the groups such as the Echinodermata and Crustacea. This lack is common to all the smaller institutions and this is one instance where considerably more inter-museum-university liaison is desirable. The Tattershall mysids and the echinoderms of the Portuguese East African Expedition are probably the most notable of the non-molluscan collections.

The older collections do not entirely fulfill the listed requirements especially those of: (a) Well localised reference material needed for identifications. (b) As distributional records, or (c) Material for modern systematic and morphological study. Such deficiencies are most noticeable in the non-molluscan collections. This brings me to the other part of the dichotomy in the collections and more specifically to collecting policies. While no national collecting policy exists, it remains unrealistic to set rigid collecting policies for oneself. One however must take into account well established policies of other museums. A call for some informal intermuseum discussion seems warranted. It is possible however to note some directions in which one would like to see developments. Given the lack of British material in the collections, the aim is to build up good series of reference material of all invertebrates which would be stored in "spirit". At this moment, geographical boundaries are somewhat irrelevant, but limitations to fieldwork and local contacts would naturally restrict the area to South West, United Kingdom. As one would also expect most demand on these collections to be of a more local nature, such restrictions are not immediately disadvantageous. It is worth noting however, that the Celtic and Irish seas include the boundary between the Southern Lusitanian and Northern Boreal faunas and that faunistically one is working in an area stretching from North Spain to Norway. With this aim in mind, the fieldwork of the section is orientated towards the marine invertebrates. As far as non-British material is concerned, then one must, given the already significant molluscan collections in the section, consider any offer of material which is taxonomically or historically significant and also that which fills gaps in the reference dimension of our large world wide collection.

Despite these deliberations on the significance of use of collections there remains one obstacle, dissemination of information. No matter how important or how well documented the collections are, they will never be used unless they are publicised. To this end the section has initiated a series of handlists which are guides to the contents of the collections and their possible significance. At present they are produced only for the Melville-Tomlin collection.

I have not included the research work of the section and will only mention that it falls into two categories. Mainly marine molluscan systematics and morphology but with a deviation led mainly by Alison Trew into the distribution of terrestrial isopods.

I hope that this article has not only informed the reader of the major contents of the invertebrate collections but has also given some broad insight into the current work of the section.

Dr. P. GRAHAM OLIVER
ASSISTANT KEEPER OF ZOOLOGY

THE MELVILL-TOMLIN COLLECTION

Alison Trew and Graham Oliver

The Melvill-Tomlin Collection is by far the most important single acquisition in the invertebrate section of the Zoology Department of the National Museum of Wales. Its importance is scientific as well as historic as it contains some eighty thousand lots totalling over one million specimens covering a majority of known molluscan species. Its specimens were acquired over a period of approximately one hundred years covering the great era of molluscan taxonomy. Much of the historical background to the collection and its two great initiators, James Cosmo Melvill (1845-1929) and John Read le Brockton Tomlin (1863-1954) is given by S. Peter Dance (Amgueddfa - Bulletin of the National Museum of Wales, No. 8, Summer/Autumn 1971). Just as important as the shells themselves was the library contained within the bequest. This consisted of some two thousand and two hundred volumes of books, some of which are quite rare, seven thousand reprints of many different authors from all over the world and a collection of letters from many British and foreign Conchologists.

Tomlin began transferring part of the collection to the National Museum of Wales in the early 1940's but the main part came in 1955 after his death. It was contained in Tomlin's own cabinets and boxes and as there was no storage space in the Museum large enough for them, it was stored in the basement. The shells were not entirely arranged systematically but in many instances according to size. The collection was indexed at that time but otherwise nothing was done to it. In 1967 a new Assistant Keeper post was created in the Zoology Department to take responsibility for the collection, and a room was found to house it. Over the next three years the collection was moved into the new storage area but only partly removed from the old cabinets into the new storage drawers. In 1979, the entire Melvill-Tomlin collection was finally moved into the new storage drawers. This necessitated removing the Department's other, less important shell collections to very inadequate storage (behind the dioramas in the main Zoology gallery). All the old cabinets were removed from the Melvill-Tomlin room and the new storage was completed. This consists of a central bench which combines both compatible storage and a work surface with seating facilities. All the drawers in the room are interchangeable. The shells were arranged in the new storage into Superfamily order and the curatorial work is now being undertaken to reclassify, check nomenclature, catalogue each superfamily and to separate the types.

The collection is being resorted according to a numerical system. Each Superfamily has a letter and a number. e.g. the Tonnacea are G (for Gastropoda) 24. A classification is taken from a recognised work on the group and using this each genera and sub-genera is allocated a number. For example in the Tonnacea:-

genus	Tonna	24.40
sub genus	Tonna	24.401
sub genus	Eudolium	24.402
sub genus	Malea	24.403

Each sub genus is then arranged in alphabetical order of species. The advantages of this system is that it is easy to locate material without a knowledge of molluscan classification, i.e. the species name can be located in the index and its number found. It uses a recognised classification for each sub-family or genus so that visiting malacologists can use the system easily. The disadvantage is that although it can cope with minor revisions

or re-identification, it cannot cope with major revisions of a whole Superfamily.

The collection is being catalogued using our own catalogue sheets (See fig. I). These are based on a computer card for ease of transcription but they are larger, so that normal handwriting can be used, which in turn is easier to read. They also have additional spaces provided for revision. The line marked O is for the original label information and then 1R to 7R to accommodate subsequent revision. The sample shown is for a type specimen and these sheets are pink rather than the normal white. Each holotype is individually registered. Space is provided for references to original descriptions, figures and for any other notes.

When a Superfamily is catalogued, a handlist is then prepared. This is in four parts, as shown by the sample pages II, III, IV and V. Page II is the general list which lists the species in classification order, as they are in the drawers, and includes name, number of lots, status, general locality and sources. A reference is included for holotypes, plus its individual registered number. Synonomies are cross referenced. Page III is a cross referenced index to determine which genus each species is classified within and Part IV is a reference to the sources of material in the Superfamily. This gives general information and a reference to more detailed information, usually an obituary. Part V is a bibliography of references used in the reclassification.

The cataloguing is based on data from existing labels and this is assumed to be correct, as this curation is aimed at giving ease of access to the collection and not as revisionary taxonomic research. The latter would be left to experts in each group. The handlists are designed solely to give other workers in malacology some idea of our holdings so they know what is available for scientific research. For this reason, the Melvill-Tomlin room has been fitted with facilities for visiting scientists, a large working area and microscopes.

The importance of the collection is in two main areas, scientific and historic. Scientific because it covers a large spectrum of the molluscan phylum with good collections of some of the lesser known groups. Historical because of the number of sources, many of whom were contemporary Conchologists of Melvill and Tomlin. The latter also bought collections and worked on original material which was then incorporated into their collections.

The sources can be divided into four main types: expedition material, sales, dealers and collectors. So far, ten superfamilies have been catalogued and one hundred and eighty three sources have been discovered. We expect to find many more.

The expedition material includes that where Melvill undertook to describe the molluscs - the Scottish National Antarctic (W. S. Bruce), the Percy Sladen Trust (Stanley Gardiner) and Torres Straits (A. C. Haddon). There is also material from "Challenger", Discovery I (ex. E. A. Smith), Discovery II (ex. A. W. B. Powell), H.M.S. Sylvia, Captain St. John, Terra Nova, Norwegian North Atlantic Expedition, "Investigator" and St. George (Hornell). Foreign expeditions are also represented in the Danish Expedition to Siam (via H. Lynge), Siboga Expedition, Princess Alice and Travailleur, Spitsbergen Expedition (via Torell or Odhner), Albatross (via Dall) and Porcupine.

Much material was bought at sales, mostly at Stevens in London. More detailed information is contained in "Shell Collecting, An Illustrated History" by S. Peter Dance, 1966. The material includes shells from the collections of C. Bulow (sold 1913), J. C. Cox (sold 1905), Damon (sold 1910 and 1929),

G. and H. Nevill (sold 1904), Lombe Taylor (sold 1880 and 1929), J. J. MacAndrew and Sir David Barclay (sold 1891 and 1898). These collections themselves contained material from other notable collections such as Dennison, Tankerville and Stainforth.

The third type of material was bought from dealers such as Sowerby and Fulton, Paul Geret in France, and H. B. Preston. The latter's material contained many syntypes especially from Antarctica and India, from such people as Bennet and Annandale. Sowerby and Fulton's material contained specimens from many different sources such as Hungerford and Prevost. Geret handled Bavay and Caziot.

The fourth type of material is from collectors, both amateur and professional colleagues in museums. The collectors lived and collected all over the world and included W. J. Eyerdam (Alaska), Pedro de Mesa (Philippines) Louis Dubois (Argentina), J. Viader (Mauritius), Yoichiro Hirase (Japan), William H. Turton (South Africa and St. Helena), Harold C. Winckworth via R. Winckworth (Indian Ocean), Despott (Malta), Adele B. Koto (U.S.A.), F. G. Pearcey (Britain), Sam Archer (Singapore), Miss McKinnon Wood (Kenya), A. H. Piele (mainly Bermuda), Richard T. Lowe and Boog Watson (Madeira), A. M. Norman and Monterosato (Mediterranean). The Melvill-Tomlin collection also contains the Marshall collection of British mollusca. There was also a lot of exchange between professional colleagues. In America there was William H. Dall, Frederick Baker and H. Hamphill, Herbert N. Lowe, Hyning, I. S. Oldroyd, Charles Orcutt, Henry Pilsbry and Lorenzo Yates. In Australia there was Charles Hedley, Tate, W. Lewis May, C. J. Gabriel, Tom Iredale, W. R. P. Oliver, Roy Bell and William T. Bednall. New Zealand contacts included A. W. B. Powell, Bucknill and Drier. Material from South Africa came from Barnard, the University of Cape Town Ecological Survey (via T. A. Stephenson) H. J. Puzeys, W. Falcon and the Natal Museum. In Sweden there was N. Odhner and O. Torrell, Iceland - G. G. Bardorson and Denmark, H. Lynde. Tweedie from the Raffles Museum sent material from Singapore. Edouard Lamy, Etienne Locard, Jousseaume and Paul Pallary contributed Mediterranean and north east Atlantic material.

The Melvill-Tomlin shell collection therefore covers a wide spectrum and the library is well equipped to augment conchological research. The books include a complete set of Reeves' *Conchologica Iconica*, Sowerby's *Thesaurus*, reports on all the expeditions for which material exists in the collection, Tryons' *Manual*, Kiener's *Coquilles Vivantes*, The Conchologists First Book by Edgar Allan Poe (1st Edition and very rare), complete sets of *Journal of Conchology*, *Proceedings of the Malacological Society*, *Nautilus*, *Journal de Conchyliologie*, *Annales de la Societe Malacologique Belgique*, *Archiv fur Molluskendunde*, *Nachrichtsblatt Malakozoologischen Gesellschaft* and a few other journals. In fact, it is probably the most comprehensive collection of conchological books in Great Britain outside the British Museum (Natural History).

There is also a collection of pamphlets, reprints and sale catalogues. The latter covers almost all the shell sales of the late nineteenth and early twentieth century. In many cases the catalogues have been annotated to give name of purchaser and price paid. These are an important source of historic information.

The proportion of curatorial time devoted to this collection is considerable and some may find the details of the procedure extravagant. This detail not only has its own intrinsic taxonomic and historic value but perhaps more importantly it gives ease of access to the collection which after all, is surely the basis of curation.

FIGURE 1

SUPERFAMILY LIMOPSACEA (GLYCIMERIDAE)					COLLECTION MELVILL-TOMLIN	FORM
GENUS	SPECIES	CODE	Rev. Date	STATUS HOLOTYPE	No. Specimens IV	
7R				TOWN, PT. POSITION Muizenberg		
6R				BAY etc. [FOREST]	RIVER [LAKE]	
5R				ISLAND [MTN. RG.]	DISTRICT	
4R				COUNTRY [IS. GROUP] South Africa	SUBCONT.	
3R				OCEAN [SEA]		
2R				GRID [LAT. LONG.]	DEPTH [ALT.]	
1R	Glycymenis	connollyi Tomlin 1926	11-20	90/79		
0		connollyi Tomlin		SOURCE Connolly		
Tomlin. J.R.B. 1926 On South African Marine Mollusca with descriptions of new species. Ann. Natal Mus. <u>5</u> (3) p 299-300 pl. 16, fig. 12.					COLLECTOR	
					EXPEDITION	STAT. NO.

TONNACEA Piele 1926 (G.24)

(plus COLUBRARIINAE)

GENERAL LIST

Oocorys Fischer 1883 (G.24.01)

<i>sulcata</i> Fischer 1883	1	Cape Point
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Galeodea Link 1807 (G.24.10)

<i>bucquoyi</i> Locard		See <i>echinophora</i> Linnaeus
<i>echinophora</i> Linnaeus 1758	4	Mediterranean
<i>leucodoma</i> Dall 1907	1	Japan
<i>rugosa</i> Linnaeus 1771	3	Mediterranean
<i>tyrrhena</i> Gmelin 1791		See <i>rugosa</i> Linnaeus

Sconsia Gray 1847 (G.24.11)

<i>striata</i> Lamarck 1816	1	No loc [MacAndrew, Lienard]
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Morum Röding 1798 (G.24.131)

<i>grande</i> A. Adams 1855	2	Japan: No loc. [Prevost, MacAndrew]
<i>lamarckii</i> Deshayes		See <i>oniscus</i> Linnaeus
<i>macandrewi</i> Sowerby 1888	HOLOTYPE	Descriptions of fourteen new species of shells from China, Japan and the Andaman Islands. Chiefly collected by Deputy Surgeon General R. Hunderford.
1 complete specimen N.M.W. 1955.158.21		<i>Proc. Zool. Soc. Lond.</i> 1888 p. 567-8, pl. xxviii, figs. 1-2. Loc: Hong Kong
<i>macandrewi</i> Sowerby 1888	PARATYPE	Hong Kong
<i>oniscus</i> Linnaeus 1767	4	West Indies? (2): Indian Ocean (1)
<i>ponderosa</i> Hanley	1	Japan
<i>praeclarum</i> Melvill 1918	HOLOTYPE	Description of <i>Morum praeclarum</i> sp. nov. with remarks on the recent species of the genus. <i>Proc. Malac. Soc. Lond.</i> 13, p. 69, No loc. [MacAndrew]
1 complete specimen N.M.W. 1955.158.22		
<i>tuberculosum</i> Reeve 1842	4	Gulf of California [Piele]: Galapagos: Ecuador: No loc. [Damon]

INDEX TO SPECIES

<i>abbreviata</i>	Lamarck	1822	See <i>granulatum</i> Born
<i>achatinum</i>	Lamarck	1816	See <i>labiatum</i> Perry
<i>aculeatus microstoma</i>	Fulton		CYMATIUM
<i>adicus</i>	Jousseaume		CYMATIUM
<i>aegrotus</i>	Reeve	1844	See <i>gallinago</i> Reeve
<i>affinis</i>	Broderip	1832	See <i>granularis</i> Roding
<i>africanus</i>	A. Adams	1855	CYMATIUM
<i>albivaricosa</i>	Reeve	1844	See <i>bubo</i> Linnaeus
<i>albofasciata</i>	Sowerby	1835	See <i>nana albofasciata</i> Sowerby
<i>alfredensis</i>	Bartsch	1915	COLUBRARIA
<i>alfredensis</i>	Bartsch	1915	CHARONIA
<i>alfredensis</i>	Bartsch	1915	See <i>lampas pustula</i> Euthyme
<i>algoensis</i>	Tomlin	1947	FUSITRITON See also <i>magellanicus murrayi</i> Smith
<i>amictum</i>	Reeve	1844	CYMATIUM
<i>antillarum</i>	d'Orbigny	1853	See <i>muricinum</i>
<i>antiquata</i>	Hinds	1844	COLUBRARIA
<i>anus</i>	Linnaeus	1758	CYMATIUM
<i>aquatilis</i>	Reeve	1844	See <i>pileare</i> Linnaeus
<i>areola</i>	Linnaeus	1758	PHALIUM
<i>argus</i>	Gmelin	1790	ARGOBUCCINUM See also <i>proditor tristanensis</i> Gray and <i>ranelliformis</i> King
<i>asperrima</i>	Dunker	1862	See <i>bufonia</i> Gmelin
<i>australasia</i>	Perry	1811	See <i>parthenopeum</i> Salis
<i>australis</i>	Lamarck	1822	See <i>lampas rubicunda</i> Perry
<i>bacillum</i>	Reeve		See <i>bracteatus</i> Hinds
<i>bandatum</i>	Perry	1811	PHALIUM
<i>bassi</i>	Angas	1869	CYMATIUM
<i>bednalli</i>	Brazier	1875	RATIFUSUS

REFERENCE OF SOURCES

ARCHER	Samual Archer (1836-1902). Collected at Singapore. Collection aquired by Tomlin.
BELL	Could be Roy Bell, an Australian collector and friend of T. Iredale. There was another Bell in the 1920's, a Alfred Bell, who was a professional collector of shells and fossils (Dance 1966)
BRAZIER	John Brazier (1842-1930) An Australian conchologist. Obit. <i>J. Conch. Lond.</i> <u>19</u> , p.110
BULOW	Carl Bulow. Collection sold at Stevens in 1913
CASEY	Information required
COX	James Charles Cox (1833-1912) Collection sold at Stevens in 1905. Most of it is in the Australian Museum, Sydney (Dance 1966). Obit. <i>Proc. Malac. Soc. Lond.</i> <u>10</u> , p.316
DACIE	John Charles Dacie (1860-1929) Collection sold at Stevens 1929.
DAMON	Robert F. Damon (1845-) Son of Robert F. Damon (1814-1899) Collection sold at Stevens 1910 and 1929
DRIER	An ex-director of the Auckland Institute, New Zealand. More information required.
DUBOIS	Louis Dubois (circa 1920) Dealer in marine invertebrates from Mar del Plata (Tomlin correspondence)
ELLIOTT	Information required
EYERDAM	W. J. Eyerdam. A marine cooper who joined expeditions to north east Pacific. Member of <i>Conch. Soc. G.B.</i> , 1929 (D. Heppell - Personal correspondence).
GARDINER	J. Stanley Gardiner. Leader of the Percy Sladen Trust Expedition to the Indian Ocean (1905). Mollusca described by J. C. Melvill 1909. <i>Trans. Linn. Soc. Lond.</i> <u>13</u> , (1), pp. 65-137.
GIBBON	Information required
GREENLEES	Miss Greenlees. Information required.

Firstly, many thanks to Aileen Blake of the British Museum (Natural History) who did most of the updating and reclassifying of names in the Cymatiidae.

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THE NATIONAL MUSEUM OF WALES: DEPARTMENT OF ZOOLOGY

INVERTEBRATE SECTION: PARASITOLOGY

Dr. H. Harford Williams Parasite Collection
(Donated to the National Museum of Wales in 1970)

The above collection contains about 1,000 lots of fluid preserved specimens (including whole intestines of fish) and 5,000 whole mounts. These 6,000 lots represent Monogenea, Digenea, Cestoda, Nematoda and Acanthocephala of fish mainly from the Eastern Atlantic; Cestoda of Elasmobranchs from the Mediterranean and a small sample of cestodes from Australian elasmobranchs. Each lot is now being catalogued with information on parasite and host names, site in or on the host, precise geographical locality (latitude and longitude) and date of collection. Specimens will be indexed by accession number, by host and parasite genus and species with a view to computerisation.

At present emphasis is being placed on research material from elasmobranchs and from October 1979 to March 1980 about 150 lots were conserved.

In addition to the aforementioned the collection includes an interesting miscellaneous collection of parasitic arthropods from fish and a range of helminths from all vertebrates collected and used for university teaching purposes over a period of about 25 years.

Dr. Harford Williams' personal library of books and reprints, kept at the nearby Open University in Wales building, and libraries of the National Museum of Wales and nearby University College, Cardiff have hitherto been adequate for cataloguing the collection. Towards further research progress on the ecology, functional morphology and taxonomy of this collection, however, there are plans to extend considerably the parasitology library section of the National Museum of Wales. Most literature facilities which are normally available to visiting scientists are, therefore, available.

Priority is given to research on the specificity of helminth parasites to elasmobranchs and to aspects of zoonoses in relation to the marine environment. Laboratory space and facilities are available for visiting scientists but must be pre-arranged with the Keeper of Zoology and Dr. H. Harford Williams.

Much of the material was collected between 1954 and 1970 when the northern North Sea and the Mediterranean were considered to be relatively free of pollution. This situation at present, however, i.e. 1980 is said to be considerably changed in relation to oil exploitation in the North Sea and the high degree of pollution at present in the Mediterranean. The collection, therefore, may be of interest to future investigations of the areas over a similar period of 16 years.

DR. H. HARFORD WILLIAMS
HONORARY RESEARCH ASSOCIATE

KEVIN J. RUAL
TECHNICIAN

THE NATIONAL MUSEUM OF WALES: ZOOLOGY DEPARTMENT

VERTEBRATE SECTION

The vertebrate collections pose the largest and most immediate curatorial problems to the department. In common with many other museums, the variety (shape, size, fragility and storage methods) of specimens creates both macro and micro storage difficulties. Storage areas in most instances are too small, even sub standard for some preservation methods, whilst non standard storage prevents the systematic arrangement of specimens for retrieval and documentation.

The situation has arisen by the redeployment of display material, especially of mounted mammals and bird cases, removed during gallery redisplay to the area reserved for scientific collections. A realignment, creating storage space for display specimens has released 800 square feet which can now be used for standard cabinets to house the bird skins, mammal skins and bird eggs in systematic sequence. Once housed, these collections which contain a limited number of specimens will make documentation retrieval and publication relatively simple when given the correct priorities.

It is considered essential that these collections be available as quickly as possible catering as they do, for a large number of enquiries from identifications to the more detailed taxonomic and distributional requests. In contrast is the mounted material which at the moment is rarely requested and would only be used for temporary exhibitions, certainly in the foreseeable future. Long term curatorial headaches are immediately apparent when the storage methods utilised for other vertebrate material are considered. Frozen, skeletal and fluid preserved material require exacting environmental conditions for their correct storage and conservation and as these three preservation methods are liable to see the biggest increases in the receipt of museum material both in numbers and volume during the next twenty years, future plans have to be carefully considered and designed to cope with this eventuality. Related to the storage of the material itself is the need for greatly improved ancillary services in the form of laboratories (which must conform to the stringent requirements of the Health and Safety Act) and scientific technical assistants. This consideration is one which holds the key to any future development by the Department of Zoology and at the present moment is the subject of detailed forward planning.

The exact size of the vertebrate collection is not known at present but the following notes should give members some idea of our holdings and of our major strengths and weaknesses.

1. The Fish Collections

The fish collections are relatively small in comparison with the other vertebrate collections. They are derived from three major sources. The first source is common to many museums in Great Britain, for during the 1910 to 1930 era, large numbers of 'duplicates' were given by the national museums in London to other national and provincial museums. Two major duplicate collections came to Cardiff, 454 specimens from a wide variety of geographical sources were presented by the British Museum in 1911 and in 1925, 186 bottles from the Francis Day collection were presented by the Science Museum. These two collections have been restored and conserved over the past few years and are the subject of investigation at the present moment. However, one thing has become patently obvious and reflects curatorial and conservation problems associated with the maintenance of fluid preserved material. Of the 186 bottles received in 1925 from the Science Museum, only 66 are still extant, the contents of the other 120 having been destroyed after desiccation during the interim period.

The second source of fish material in the section is that derived from the museum staff and associates. Colin Matheson, then Keeper of Zoology and Professor W. M. Tattersall, University College, Cardiff, collected fairly extensively in marine areas around Wales. More recently during the late 1970s Piers Langholt collected material from freshwater systems in Wales whilst conducting the Welsh Fish Survey for biological recording purposes. None of these collections are comprehensive but they have been supplemented by other material donated by members of the public and by anglers. The third source contains important fish material donated by Travis Jenkins, again marine in origin, which was part of mixed collections containing both invertebrate and vertebrate specimens.

It is known that at present, several collections of fish taken systematically both in power stations and at specific sights in Wales and the Bristol Channel are extant. It is envisaged that these collections will form the main proportion of the large collections of fish due to come to the National Museum of Wales in the next few years.

2. Amphibian and Reptile Collections

The reptile and amphibian teaching collections of University College, Cardiff were donated to the department in the late 1960s and these supplemented those of Arthur Loveridge, especially from East Africa and of Dr. J. J. Simpson, Keeper of the department until 1926.

The important material in spirit within the collection contains a good cross section but c.300 specimens from zoos are in cold store awaiting incorporation either as skeletons or fluid preserved material.

3. The Birdskin Collections

The birdskin collections contain approximately 12,000 specimens. None of these are type specimens although those collections recently coming to the Museum contain important historical specimens and need to be researched. The sources of the material are similar to those for the fish.

The British Museum of Natural History donated collections of duplicate material in 1911 and 1943. The 1911 donation consisted of 856 specimens of world wide provenance whilst the 1943 donation was a collection of bird skins from British Guiana collected by F. V. McConnell. The latter collection illustrates the importance of the work being undertaken by the collection research units in this country, for it was assumed by the British Museum (Natural History) that the entire collection was still at Tring, but two major parts of the collection, one at Liverpool and now the second in Cardiff were shown to have been distributed as duplicates, making the series present in the original collection somewhat smaller. This was important, for several years ago the material was examined prior to an expedition to Guyana in the belief that the collection was complete.

One major collection recently purchased was the Vivian Hewitt collection obtained from the British Trust for Ornithology and this contained 3,183 skins representing 75% of the families and 85% of the sub-families of the birds of the world. This collection, obtained in 1979 also contains important historical specimens from various collectors and dealers such as Jardine, De la Touche, Eyton and Boucard.

The section benefited greatly from its association with J. G. Williams who worked in the Department prior to World War II. In all, over many years, 440 skins of birds, mainly British ducks and waders but with good representation of African material were donated to the department. The H. E. Forrest collection of British Birds totalling 181 skins was received in 1919 and the collections aforementioned are the major ones of any size received by the department.

The type of material now being received and collected has changed and poses difficult problems of storage and of conservation. 2,000 auks were collected during the Christos Bitas Oil Incident of October/November 1978 and these were then stored in a deep freeze trailer. A large proportion were skinned but as the current practice of the Department is to keep both the carcass and the skin, all carcasses are now in the deep freeze along with those specimens not yet cleansed and skinned. A further 600 specimens were received from a Cornish Oil spill in 1979 and it is envisaged that this type of material from particular localities can assist with detailed studies on the ecology of seabirds. Good series will better primary source material accepted by the department in the future and will require very large cold store facilities which can also, if required, be used for mammals, fish, amphibians and reptiles. The seabird studies have been published in a report, "The Collection, Storage, Cleaning and Research of Oiled Auk Corpses" and also a second on the scientific analyses of data is in preparation.

4. Bird Egg Collections

Three major collections constitute the majority of the bird eggs stored within the department. The A. F. Griffiths collection donated in 1927, contains a large collection of British bird eggs but also received was a good series of both nests and eggs. The second collection is also of British bird eggs and was bequeathed by Gregory Haines in 1946. This collection consists of two cabinets and is accompanied by notebooks which show the material was collected between 1890 and 1930. The third collection and the most important for environmental studies is the collection of eggs of Captain J. H. Howell. This includes 45 clutches of Peregrine Falcon eggs from the early 1900s, 50 Buzzard clutches and 11 Chough clutches, all fully documented. This collection was purchased in 1971 and has been used extensively for the study of birds of prey and pesticides. The department also purchased in 1971 an egg and a mount of the Great Auk, This specimen originally being part of the Vivian Hewitt Collection.

The many specimens received from the public have over the years been prepared as excellent display material and the museum possesses one of the finest collections of cases of British birds illustrating not only the breeding pair but also their nest and eggs or young. This work was undertaken by museum staff and forms still the basis of the systematic display.

5. The Mammal Collection

Very few of the mammal skins of the collections have come as a result of specific research projects, the series in the collection having been developed over a long period of time from material submitted by members of the public and occasionally researchers. The collection of Mustelid skins are extremely important. The most important of these being 90 skins and skulls of the Polecat *Mustela putorius* from a wide selection of Welsh sites. These are also supplemented by Polecat/Ferret material which has been the basis for several papers. 17 skins of feral mink *Mustella vison* which has escaped from mink farms and several from elsewhere in Wales have been established but far more could be sent to the National Museum. 95 skins of Stoat *Mustella erminea* mostly Welsh material and 54 skins and skulls of Weazel *Mustella nivalis* from Welsh sites combine with 11 skins of the Pine Marten *Martes martes* to form the Mustelid collection. 25 skins of the badger *Meles meles*, including 3 erythristic, are present from the collections, all but 2 from Wales. The small mammals are represented by the following numbers of skins:

32 skins of Bank Vole *Clethrionomys glareolus brittanicus* (16 preserved in spirit).

22 skins of Skomer Vole *Clethrionomys glareolus skomerensis* (1 preserved in spirit).

95 skins of Long-tailed Field Mouse *Apodemus sylvaticus* (7 preserved in spirit)

24 skins of Yellow-necked Field Mouse *Apodemus flavicollis* (2 preserved in spirit).

The only systematically sampled collection was received in 1964 from D. Saunders. This contains small rodent material, skins and skulls and ectoparasites of the following species:

Common Shrew *Sorex araneus* 213
Skomer Vole *Clethrionomys glareolus skomerensis* 79
Bank Vole *Clethrionomys glareolus brittanicus* 7
Long tailed Field Mouse *Apodemus sylvaticus* 5
House Mouse *Mus musculus domesticus* 3

The Chiroptera collection is much smaller than would be expected - all future material received will be stored in fluid preservative, as all these collections are used quite frequently for morphological and distributional studies. The department possesses a good collection of pelts from the fur trade and some 200 skins of rabbit bred to simulate rare pelts. This material was part of an important economic zoology collection developed during the 1920s and 1930s and will be used for a display in Trade in Endangered Species in conjunction with the Fauna Preservation Society later on this year.

A collection was received from Captain G. H. Douglas Pennant in the early 1900s. This consisted of a large number of game heads and mounted mammals which were previously used for display but which are now in storage. Some large mammals are still displayed including a Thylacine purchased in 1968.

6. The Osteological Collections

As with most osteological collections the large mammals are well represented mainly as articulated skeletons but there is a major shortfall in the smaller mammals and birds. Amphibians, reptiles and fish are also well represented as the basis of this collection and some of the others formed the teaching museum of the University College, Cardiff's Zoology Department before its transfer to the National Museum of Wales.

Very few comparative series of closely related species are present but a good collection exists of all the different breeds of dog and carnivores. Over 2,000 specimens, some full skeletons and others, just skulls are present in the collections which occupy at the moment a very large area making reference and retrieval extremely difficult. The collection is used primarily by archaeologists wishing to compare material from digs and to this end and for storage purposes most of the large articulated skeletons will be disarticulated over the next few years and new storage provided. It is hoped that the lack of skeletal material of the many common bird and mammal species can be rectified and to this end a macerator and degreaser was purchased two years ago but as yet is inoperative, due to stringent requirements involved in installment and operation.

7. Pleistocene Faunal Remains Collection

A great deal of research and fieldwork has been undertaken in the cave systems of Wales which is reflected in the pleistocene faunal remains held by the Zoology department at the National Museum. There are in total 193 boxes of remains from many different localities and these are stored at the present moment under the display cases in the main gallery. This again causes both conservation and retrieval difficulties and a review is being undertaken by conservators to assess the work required on the specimens and for restorage. The localities from where the material has been received are as follows:

LOCALITY	ACCESSION NO.
Little Garth Cave	20.359
Paviland Cave, Gower	24.94
Council of the Carmarthenshire Antiquarian Society (1,300 pieces), Coygan Cave Carmarthenshire	33.153
Craig-y-nos, Brecon	34.389
Coygan Cave, Carmarthenshire	34.390
Amroth, Pembrokeshire	31.363
	34.749
Segontium, Caerwent	37.699
Ty Isaf, Breconshire	39.190
Bacon Hole, Gower	44.85
Dyserth Castle	39.190
	45.179
North Wales	47.97
Llantwit Major	49.238
Spalding, Lincolnshire	53.358
Uskmouth, Monmouthshire	55.258
Various Welsh Sites	57.524
Spritsail Tor, Llangerydd, Gower	60.108
Caerwent	61.174
Gop Cave	61.381
Dinorben	62.111
Tyddyn Bleiddyn	68.414
Cefn Cave, Somerset	68.415
Twyn-llechfaen, Breconshire	68.469
Kenfig	78.59

The vertebrate collections, although not of great taxonomic importance when compared with the conchological collections or indeed, some of the entomological collections are used widely for faunistic data, identification, display and by schools. It is essential therefore that they be reorganised and restored and I hope that this brief introduction to the collections in the Department will serve until such time as the department has completed its detailed listing of the collections.

CYNTHIA M. MERRETT,
SENIOR MUSEUM ASSISTANT &

PETER J. MORGAN
KEEPER OF ZOOLOGY

Development and Status of the Royal Institution of South Wales

Herbarium at Swansea Museum

The Herbarium collection now in the possession of the Museum of the Royal Institution of South Wales comprises an interesting amalgamation of plant specimens, the earliest of which dates from about 1798, and spans a time period of up to about 1915. Many of the specimens are of local origin, although the rest of the British Isles are also fully represented and is augmented by a few European specimens. The mixed collection of about 2,500 specimens is not really as haphazard as it would first appear, and is at the present time in the process of being catalogued and reorganised.

In one of the first Museum Reports of the (then) Swansea Philosophical and Literary Institution (1836), regarding Botany, it was stated that "... the Museum as yet only possess a small but neatly arranged collection of mosses, found in the neighbourhood of Swansea"; these remain in the collection to the present. The already eminent Botanist, L. W. Dillwyn, was President of the Society and members included names such as M. Moggridge and J. W. G. Gutch.

In 1837, J. W. G. Gutch, a surgeon, became the Honorary Secretary of the Society, and from 1838 (when the Society became the Royal Institution of South Wales), also became the Honorary Curator of Botany. During this time he was preparing the basis for a flora of the South Wales area. In 1838-39 he donated a collection of "100 British Plants collected in the neighbourhood of Swansea". Of this first collection donated to the Herbarium of the Museum only forty or so remain (or at least, remain traceable). Several of the plants are listed in this 1844 paper; however, some plants appearing in the collection are not listed, but are labelled as being local.

The largest part of the collection in the possession of the Museum is the Motley-Bicheno Herbarium, comprising about 1,600 specimens. Apparently, this represents two collections which are now largely inseparable. Most of the specimens are in a sorry state, and after almost two hundred years many remain unmounted. The J. E. Bicheno donation to the Museum in 1839-40 was described as a "very extensive collection of Phanerogamous plants of Great Britain", with "numerous foreign specimens illustrative of the various genera", it was finally noted that in the "very valuable collection will be found many of our rarest plants". Mr. Bicheno was a magistrate living locally, and later became a Colonial Secretary in Hobart, though he retained Honorary Membership of the Institution. James Motley's contribution of plants, collected mainly in Glamorgan and Carmarthenshire, was supposed to have been made around 1840 (see R.I.S.W. Rep., 1902-03 and Carter, 1955) though a more direct record of this appears to be lacking. Possibly, also now included in the collection are a donation of 55 specimens from the Cheltenham and Malvern area from M. Moggridge, Honorary Curator of Botany from about 1841, and a much later addition by a Mrs. Fisher of 35 "chiefly local" plants. Among J. E. Bicheno's collection there are specimens provided by many famous and eminent botanists of the day including Joseph Woods, "Mr. Borrer", G. S. Gibson, C. C. Babington, Charles Prentice, G. Don, O. A. Moore, Leo H. Grindon, etc. as well as specimens from the many personal friends of Messrs. Motley and Bicheno, and probably also members of the Institution.

The next donation noted in the literature was that of "many valuable specimens of algae" from a Miss Watkins of Llandovery in 1902-1903 and, although unidentifiable by name, it is probably largely this collection that remains in the herbarium, rather than those presented by a Mr. Ralfe of Penzance, during a visit to Swansea where he collected from Mumbles "20 British algae and 18 British Fuci".

There are also several species of Chara which form part of the Bicheno collection.

The Reverend H. J. Riddelsdell moved to the Glamorgan area in 1897. He was chiefly based at Aberdare and Llandaff as the Sub-Warden of St. Michael's Theological College, though he was a frequent visitor to the R.I.S.W. where he examined the contents of the Motely-Bicheno Herbarium and eventually produced a paper, dealing with the "North of England plants in the Bicheno Herbarium in Swansea" (1902-1903). In the report that this appeared, the Honorary Secretary remarked on the desirability that a Botanist should "properly arrange" the specimens and to "look them over from time to time". It was the further desire of the Institution to repair the ravages of time wreaked on the Herbarium by replacement and extension of the existing collection. Riddelsdell became Honorary Curator of Botany in 1904, and in 1909 he presented his own collection of about 200 plants gathered between 1902-1907 to the R.I.S.W. Riddelsdell published 'A Flora of Glamorgan' in 1907; the principal districts in the paper are represented in the collection.

The report of the Honorary Curator of Botany (1912) stated that the Rev. Riddelsdell had been unable to complete his work of re-arranging and supplementing the Herbarium and that the collection required "overhauling". H. R. Wakefield was an active member of the Swansea Field Naturalists' Society from about 1908 onwards; not only an excellent botanist, but also a renowned entomologist, he occupied the Honorary Curatorships of both Botany and Entomology for some years. Much of the ground work for his collection was probably covered during the many forays and rambles of the Society in Glamorgan, especially in the Swansea area during the period 1910-1915. It was his ardent desire to see published a flora of the Swansea region. J. A. Webb (1924) attributed many of the 10,000 records in the Phanerogamic report to the pioneer work of Mr. Wakefield and his daughter Miss E. Wakefield. Wakefield left Swansea in 1936 after forty five years membership and participation within the R.I.S.W., and deposited with the Museum his collection of beautifully mounted botanical specimens.

It is an interesting historical note that each of the donations to the Museum of the Royal Institution has been directed towards the fulfilment of a complete botanical record of the locality for the benefit both of R.I.S.W. members and visitors, and though the collections are separable in time-span, quality and in the donors themselves, they are inexorably linked together by this one thread of continuity.

The Council of the Royal Institution of South Wales in 1838 were confidently expectant that "eventually, the herbarium and botanical catalogue of the Institution will form a very prominent feature in the Museum and Library", and thus provide a valuable basis for the botanical investigations of visitors to the locality.

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Lynne J. Lewis-Jones
Swansea Museum

THE ENTOMOLOGY COLLECTIONS AT BANGOR

The Department of Applied Zoology at the University College of North Wales, Bangor was established after the last war as the Department of Agricultural and Forest Zoology.

In the succeeding years the number of students at both undergraduate and postgraduate level has risen steadily as also has the variety of courses on offer. The teaching is mainly in the applied aspects of entomology and parasitology and a necessary development has been the acquisition of adequate teaching material backed by museum reference collections.

In 1970 the Department was able to take over a separate building with some room for expansion. For the first time it was possible to have a small one-room museum with display cupboards where parasitology specimens, plant damage and other material could be put on permanent display. An adjacent curator's room was big enough to house storeboxes and insect cabinets with security.

The functions of the Museum are seen as fourfold: to provide exhibits and material for teaching purposes; to provide exhibits of a more general interest which expand the background of direct teaching; the conserving of rare material and specimens of particular or unusual interest, especially Welsh material; and to build up a reference collection of as many groups of British insects as possible.

North Wales has never been an area with many amateur naturalists, and entomologists always seem to have been thin on the ground, as indeed they still are today. When perusing old entomological journals it becomes apparent that references to collecting in North Wales are almost entirely by visiting entomologists from England. They stayed at Penmaenmawr and Barmouth, or Llanberis in order to climb up Snowdon, and any specimens went home with them. So unlike some museums we have not been fortunate enough to have historical or important local collections donated to us in the past.

Despite this the insect collections have been built up considerably, especially over the last twenty years. Useful additions have been made when members of staff have visited other countries in the course of their research and also through contacts with other institutions at home and abroad. Students, both past and present, have donated specimens. Very little material has been purchased.

The nucleus of the insect collection was put together by Mr. J. Hobart just after the war, mainly from his own collecting and the addition of specimens donated by NAAS, Bangor. The forest entomologist R. Neil Chrystal (author of 'Insects of the British Woodlands') donated numerous wood specimens showing insect damage and some of the associated insects, including some of his research material from Cyprus. This section of the Museum has been greatly enlarged over the years and now consists of one of the most comprehensive collections in the country of wood-damage by insects. As well as British specimens there are numerous examples of tunnels and other damage caused by Coleoptera (Scolytidae, Cerambycidae, Curculionidae etc.), Isoptera, Hymenoptera, Lepidoptera etc. from overseas.

The insect collections are made up primarily of North Wales specimens, but field work by the Curator in many parts of Britain has added large number of species which do not occur in Wales. In this respect the field meetings arranged by Mr. A.E. Stubbs for the Diptera Recording Scheme are invaluable. The Curator is much indebted to other Dipterists and, more recently, Hymenopterists, for generous donations of named specimens which have greatly enhanced the coverage of these groups.

Within Wales the Welsh Biological Recording Group had a number of successful week-end meetings from 1971 to 1978. Much new material from Welsh localities was acquired and useful information built up about little known sites. It is much regretted that these meetings have been discontinued.

One of the few donations received in the past was a 20-drawer cabinet containing foreign Lepidoptera, bequeathed to University College Bangor by a retired engineer who lived in North Wales. Nothing is known of the background of the collection which was put together by Frederick Talfourd Jones (1874-1945) and many specimens lack data.

The E.S. Lewis collection of Lepidoptera was acquired after his death at St. Asaph in 1966. Comprising 110 drawers this comprehensive collection was put together over many years by the Rev. Lewis, mostly in North Wales parishes, but also in Staffordshire. Apart from slight fading the collection which represents 60 years work remains in excellent condition. All specimens bear data labels and the information is duplicated in meticulously kept notebooks. The microlepidoptera were re-arranged some years ago by Mr. H.N. Michaelis who made many additions from his own collection to fill empty spaces. There are now 22 drawers of micros, mostly from Wales but with valuable additions from elsewhere in Britain.

A more recent collection of macros consists of 48 drawers built up by the Curator over the last 20 years. Many, but by no means all, of the specimens have been collected in North Wales and all are carefully documented.

Two cabinets with a total of 20 drawers of Lepidoptera were donated to the Department some years ago by Mr. I.A. Edwardes-Evans of Colwyn Bay. These had been collected in North Wales by his son David who was killed in the last war. This collection is kept in the Museum where it can be consulted by students.

Most of the insect groups are now reasonably well represented, though there are still few Collembola, Thysanoptera and Homoptera. The aquatic groups are being built up but coverage of immature stages is scanty. There is a representative collection of Hemiptera Heteroptera, enhanced by K.C. Side before his death in 1979 with many species from the South of England.

The Coleopteran families are mostly well represented and occupy 24 large store boxes. The Carabidae were recently re-arranged in 6 drawers and all doubtful identifications checked by Dr. M.A. Luff.

The Hymenoptera are well covered in some groups, especially the Tenthredinidae, following the donation by H.N. Michaelis of his collection of sawflies, including some good material from Scotland. Apart from these 6 drawers, attempts are being made to improve the coverage of other families. The Formicidae consist chiefly of North Wales specimens and are mainly stored in alcohol.

Considerable attention has been given to the Diptera in the last 6 or 7 years and while some families are scarcely represented there is now a good coverage of Tipulidae (5 drawers), Brachycera (6), Syrphidae (4) and some of the Acalyptrates. The Calypterate families have patchy representation but it is hoped to add to these gradually.

There is a good collection of Neuroptera, mainly the result of field work by Mrs. M.J. Morgan in recent years, most of it being Welsh material. Some named lacewings could probably be made available to other Museums if requested, as specimens continue to be accumulated from light traps and other sources in connection with distribution mapping of the Neuroptera in Wales.

While being unwilling to make an estimate of the actual number of specimens in the collection, some indication of the holdings is that there are 312 cabinet drawers and 119 storeboxes. A considerable amount of material is also kept in spirit and this includes tropical species, larvae and immature stages of many groups, research material, duplicate material not required in the main collections and other Arthropoda. These last include some Arachnida, Myriapoda and Isopoda.

One 16-drawer cabinet of foreign insects, contains material from many parts of the world. Though many are unidentified, data labels indicate the country of origin etc. and specimens of Orthoptera, Coleoptera, Diptera etc. display the striking modifications, brilliant colours and size range to be seen in warmer regions.

A small collection of pressed leaves showing insect mines and other damage has been built up in recent years.

Apart from the actual material mentioned above, the other important feature of the Museum is the large file of record cards which become increasingly valuable as a research tool. Contained in 24 drawers, cards are filed under insect Orders sub-divided into vice-counties (i.e. using the Watsonian vice-county system). Virtually all known records from the six North Wales counties have been written on individual cards and this is continually added to and kept up to date. All past entomological literature (i.e. from the mid 19th century onwards) has been searched for published records and the relevant journals are perused regularly and any records extracted onto cards. This card index is being increasingly consulted by other workers from Universities, Museums, NCC and other bodies as well as individual collectors. There are estimated to be about 30,000 individual cards at the present time.

M. JOAN MORGAN, Curator

Department of Applied Zoology, University College of North Wales, Bangor, Gwynedd.

MOR & RIDICULOUS FO' KLORE

One of the more amusing incidents of a natural history nature (the others do not bear repeating) during a french holiday concerned spiders. On a tour around several chateaux of the Touraine, we were solemnly told in one that the roof timbers constructed of "Chestnut" had the useful property of repelling spiders. The vaulted ceiling was too high to check but we were equally adamantly assured by a different but equally charming guide that the oak beams of the next building were similarly endowed with the mystery repellent. However, there were multitudinous webs to be seen with the unaided eye in this example.

I thought perhaps Jean Henri Fabre's Life of the Spider might provide the source of this "well known fact" but cannot find any mention and I don't know of any other french naturalists who may have perpetuated such a story.

E.G.H.

HAFERFORD WEST (PEMBROKESHIRE MUSEUMS)

The curator, Mr. R. A. Kennedy informs us that the museum in Haverford West has reference material of molluscs, birds and mammals, birds' eggs, an herbarium and a small number of geological specimens. He would welcome visits from any natural history curator as Haverford West does not employ a biologist at the present time.

Tenby Museum

Tenby was founded in 1878 and has been voluntarily managed for the whole of its existence. The honorary curator, W. Harrison M.B.E., sent their current museum guide which indicates that there are at least display collections of birds, their eggs and mammals. The pride of the museum as a whole (although it covers fine art, local history and so on) must surely be the Lyons shell collection. The entries reproduced below illustrate the importance of this mollusc material.

SEA SHELLS

In two of the centre cases and in the drawers below is a selection of British shells from the extensive collection of marine molluscs formed by William Lyons (1766-1849). His collection, gathered from the shores of Pembrokeshire, South West England and South West Ireland, was one of the first additions to the Museum after its foundation in 1878. Two species of shells named after him are included in the display.

The shells commonly found on the beaches of Tenby are on view but some types have become scarce.

A smaller collection of non-marine mollusca may be examined in drawers, including one local species, *Helix pisana*, which is otherwise found only in Northern Italy.

from Tenby Museum Guide, p.12

LYONS COLLECTION. TENBY.

W. Lyons, of Tenby, one of the older conchologists who corresponded with Montagu and Captain Brown, is variously described. He is "Dr. Lyons" in an old Tenby Guide (1866) and "George Lyons, Esq., of Tenby, Wales" to Brown (14). His autograph can be seen in a copy of Lister's "Synopsis" at Tenby Museum.

Turbo crenatus (Linné) and *Turbo perforatus* (Perry) were among the shells sent by Lyons to Montagu in 1813, as then new to Tenby, quoting Montagu's labels from Exeter. This gives the earliest date. Later, Brown refers to Lyons as the collector of two of his new species, *Chiton discrepans* and *Turritella minor*, and two others, supposed to be new, his *Rissoa crystallina* (= *Hyala vitrea* Mont.) and *Hiatella striata*, which is the *Lyonsia norwegica* (Gmelin).

The Lyons Collection of shells was presented to Tenby Museum on 1st April, 1878, by Miss Lyons, and is exhibited there, as originally mounted, in a series of table-cases. He will be best remembered by the genus *Lyonsia*, dedicated to him by Turton, and by the var. *lyonsii* of *Calliostoma zizyphinum* (L.).

from Dean, J.D. (1936) Conchological Cabinets of the last century
J. Conch., 20(8); 230

THE NATURAL HISTORY COLLECTIONS AT NEWPORT MUSEUM AND ART GALLERY

The most important collection at Newport, locally, nationally and probably internationally, is the collection of material from the site of the Romano-British town of Caerwent. Regrettably, the natural history collections cannot match this - the only collection of local importance is Geological. This collection was started by R. Gregory Absalom, Ph.D., F.M.A., F.G.S., the Director of the Institution from 1946-1968, who gathered a range of representative rocks and minerals. The important local material being collected by Stephen Locke, B.Sc., F.G.S., A.M.A., Deputy Director from 1968-1972, now Director of the Royal Albert Memorial Museum, Exeter.

Two great benefactors of the natural history collections in Newport were the Misses M.L.F. and R.E.A. Laybourne who, in 1929, donated a large collection of mounted and cased birds and mammals and a case of birds' eggs which had been collected by their brother, Percy Laybourne, a local solicitor. Most of the material was local being collected over a period of some forty years. Much of the taxidermy was done by a local man called Griffin of Commercial Street, Newport, who later went to work for Roland Ward of London. In the late 1950s, many of the cases were broken up and the specimens removed to help form the new Schools Service loan collection. It is now, regrettably, not possible to specifically identify specimens which were originally in the Laybourne collection. Some of the cases remain intact, as does the case of birds' eggs.

In February 1951 Mrs. H.L. Dean presented us with 84 cases of conchological material representing the personal collection of her late husband, J. Davy Dean. Dean was born in Manchester in 1876 and was engaged for many years as a designer in stained glass. In 1918, after many active years as an amateur conchologist, he was appointed Assistant Keeper in the Department of Zoology at the National Museum of Wales, a post he held until his death in 1937. It seems likely that the collection was donated to us because Mrs. Dean was originally Miss Tassell of Newport. This collection was loaned to the National Museum of Wales in 1970 where it remains to this day. We still have some conchological material; a small collection of shells from Tenby was donated by a Mrs. Coulman in 1919. This was subsequently sorted, boxed and labelled by J. Davy Dean in 1927 - the collection bearing his unmistakeable hand.

Sixteen store boxes containing some nine thousand specimens of British Coleoptera were purchased in 1921 from a Mr. W. Bevins, Algakirk, Near Boston, Lincs. Although well labelled and set out, it appears to be a collation of material from a variety of sources collected from 1885-1915. Much of the material was collected in the Epping and Ongar areas.

There is a variety of other invertebrate specimens, mostly foreign, and purchased from Gerrards in the 1920s by the then Curator, W.A. Gunn.

Miss Blanch Clark of Vine Cottage, Usk, on 26 March 1930, presented to us the Herbarium of her late father, James Henry Clark of Woodbank House, Usk. Clark was born in Gloucester in 1818 and set up in business as a printer in Usk in 1834. In 1868 he produced "Sketches of Monmouthshire", one of many guides he wrote and printed, with an appendix which he later reprinted as a pamphlet entitled "The Flora of Monmouthshire". This was the first attempt to produce a complete flora of the county.

Since I was appointed in 1973 the policy has been not to collect specimens from the field to augment the collections. I considered that the proximity of such fine collections at the National Museum of Wales pre-

cluded such activity. Instead, in 1976, with the help of J.C.P., I established the Gwent Biological Records Centre here at the Museum and Art Gallery for the collation, collection and co-ordination of all natural history records for the county.

Bruce Campbell

Letter to the Editor

Dear Sir,

I was interested to read the reports of the April Study Meeting (B. C. G. Newsletter 2(7)) and I was sorry that I was unable to attend what must have been a most interesting weekend. However, I feel that the relevance of some of the topics discussed to everyday work in museums may not be fully appreciated.

In particular I note that Hugh McAllister, whose work I know well, and Tony Fletcher, both discussed the use of techniques which they use in their research, and I have the impression that this kind of work although of interest, is not thought to be of much use in museums. Certainly I do not know of many museums that use either cytological or chromatographic techniques regularly.

If museums are to be seriously interested in a interpretation of their local flora and fauna I believe museum staff must adapt a critical approach to ecology and taxonomy. In this country where our natural history is relatively so well-known a general appraisal, which can be done largely as a desk study, with a gloss of local information is simply not good enough. This means curators should acquire data for their biological record centers which reflects a critical study. The information relating to the ecology and distribution of organisms should be collected, therefore, at the finest taxonomic level possible. The subtleties and interests of a particular area can then be more readily demonstrated and explained. Often morphological characters are either difficult (e.g. in Ivy, Hedera helix s.l.) or impossible (e.g. Scurvy-grass, Cochlearia officinalis s.l.) to use. Other techniques are then important.

At least two of the papers demonstrated these points and I feel that museum curators should use these 'new' techniques much more readily.

E. F. Greenwood

B.C.G. PRIZE CROSSWORD (Newsletter Vol.2 No.6)

Well, no entries were received by the closing date. Actually no entries were received at all. (Was it really too difficult?) Anyway the tickets were already booked and it seemed a shame to let an all-expenses-paid holiday for two in the Greek Islands go to waste.

So Trisha and I had a lovely time!

The proposed new Wildlife and Countryside Bill and its implications for museums.

It is apparent from the discussions at the Biology Curators Group Leicester Study Weekend and from notes which have appeared in the BCG Newsletter that there is some confusion about the implications of the proposed Wildlife and Countryside Bill. The following note is intended to clarify the situation. It has been approved by the Guild of Taxidermists, the Biology Curators Group and the Department of the Environment.

Birds Eggs

With a limited number of specified exceptions at present it is an offence to take eggs except under licence. In order to comply with the European Community's Directive on the Conservation of Wild Birds the Government is proposing to make it an offence to be in possession or control of the egg of any wild bird with exceptions for the eggs of second schedule species and those taken under licence. Existing egg collections would not be directly affected but an owner, if charged with illegal taking, would want to be able to show that the eggs in the collection had been acquired before the Bill was enacted or had been taken from the wild under the Act's licensing provision.

In order to protect owners of collections against accusations of illegal taking discussions have taken place between the DOE and curators on the setting up of a voluntary registration scheme. The Department assures us it is not proposing that registration be compulsory though it has been said that there could be pressure in Parliament to make registration compulsory for eggs of Schedule 1 (especially protected) species and the registration scheme is being designed to cope with this eventuality.

Most museums existing documentation should be adequate but, if not, the documentation should be improved by the changes needed to meet the new requirements. It might also be desirable for the marking of eggs to be more permanent. However, widespread use of the standardised system would provide substantial information for scientific research and provide valuable data for conservation.

Bird Collections (mounted birds, bird skins, spirit material, skeletal material etc.)

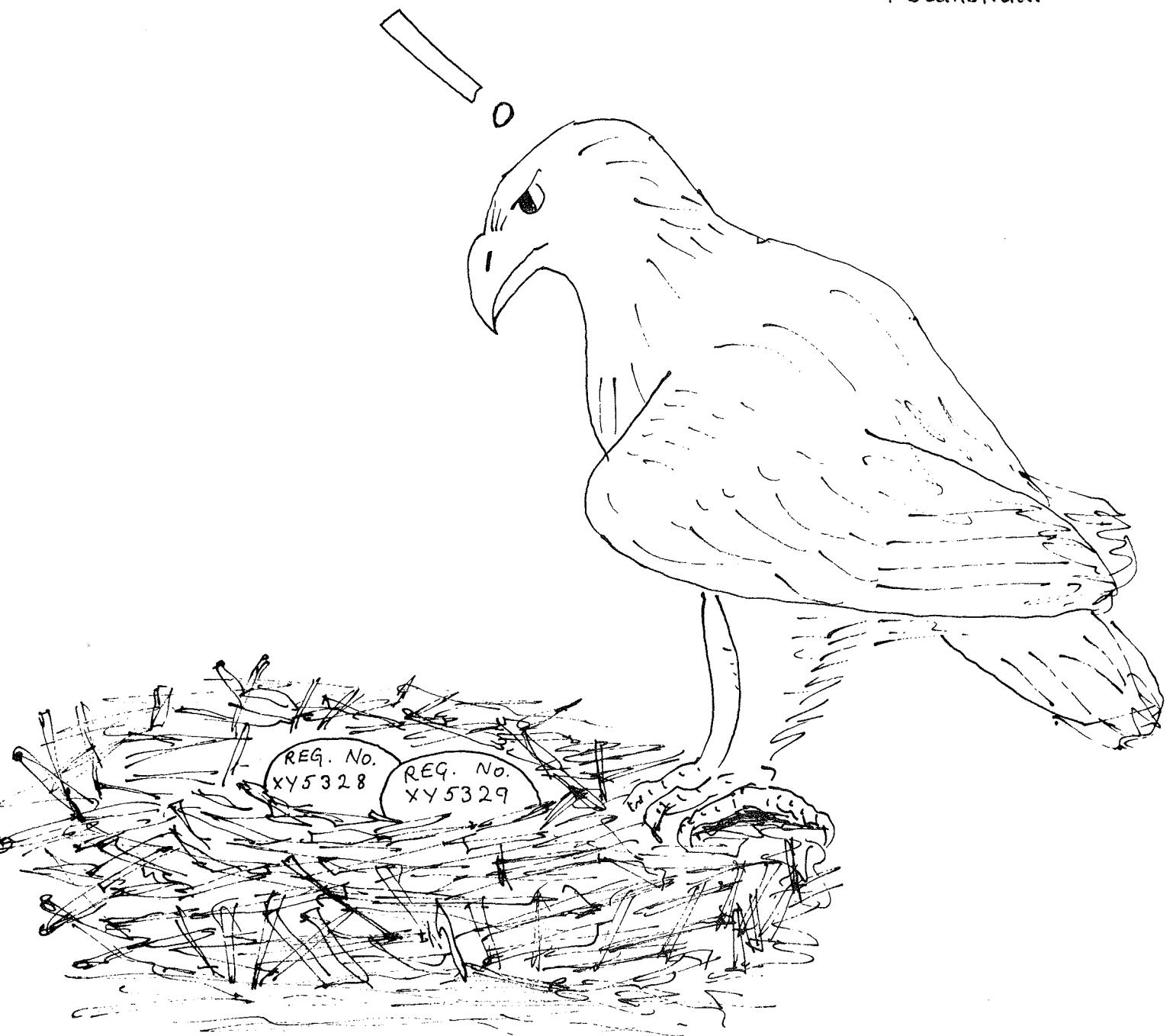
Existing bird protection legislation prohibits sale but there are a number of exceptions. The European Community's Directive requires that sale (which includes hire, barter and exchange), transport for sale, keeping for sale and offering for sale be prohibited in respect of dead specimens listed in Annex 11 of the Directive (game and wildfowl) or under strict control for specific purposes. Therefore without a specific legal provision taxidermists (and this term will, we understand, embrace all those who deal in preserved dead birds) would not be able to sell or trade in dead birds which they have preserved. The Government is proposing that taxidermists who expect to deal in birds extensively shall be allowed to be registered with the DOE in accordance with regulations to be made by the Secretary of State. This will entitle them to deal provided they keep records to satisfy official enquiries and mark by an approved means those birds that are sold. Failure to do so would be an offence and if convicted de-registration will result. The period of de-registration will be five years for an offence bearing a special

penalty, three years in respect of other offences or such lesser maximum as is provided in the Rehabilitation of Offenders Act 1974.

Documentation systems will need to be adequate to prove that the material obtained was killed otherwise than in contravention of the Act. It is possible that some museums will have to tighten up their documentation procedure and great care will have to be taken with documentation of material which is being processed (eg material stored in deep freeze) to ensure that the identity of individual specimens is maintained.

The DOE have suggested to the Guild of Taxidermists that they should act as agents for registration and this proposal has been accepted in principle. The Guild would issue markers that would be attached to each bird sold and taxidermists will be required to submit returns on the use to which each marker is put. Contrary to the suggestion in the BCG Newsletter (Vol 2 No 6 p 252) there is no question of collections being registered. The Guild is also proposing to introduce a Code of Practice for taxidermists.

Provision is being made in the Bill for the licensing of sale and this should cover those who choose not to seek registration. G. Stansfield.



POSTMAN'S KNOCK - AND HOW TO AVOID IT

Whether curators, keepers or assistants, we all have responsibility to care for and preserve the collections in our museums. This responsibility extends beyond our offices and stores, for wherever our specimens may be, we should take steps to ensure that they come to no harm. One way to protect them is to keep everything locked away, seldom looking at them and certainly never allowing them out of the building, let alone sending them off by post! Specimens will be preserved for posterity this way, but somehow posterity never comes. Instead obscurity and oblivion arrive, inevitably followed by *Anthrenus*.

Alternatively we can take the view that collections are there to be used and enjoyed by all. Moreover with one or two exceptions [extinctions] everything is replaceable, so we can solve all our storage problems with a schools' loan (stick-a-stamp-on-its-back) service. However some of us may feel the need to care for the material in our charge while recognising that lending specimens to specialists at home and abroad is necessary and indeed will enhance the value of the collections.

PRELIMINARIES

Damage, whether physical or biological, can occur at several stages when a specimen is posted. The damage can be minimised through correct packing and labelling. So, unless you have more faith in your clerical staff than yourself, do all your own packing and labelling. This will take some time (if done properly) but it is time well-spent if the specimens arrive safely.

Most specimens will undergo a return journey, so it is wise to check that the recipient is able to pack and label material correctly. Often he will use the same packing materials and it is helpful to include some ready-to-use labels for the return journey. In any case you will want to know whether the borrower will handle the material while in his care. The best way of doing this is to 'phone someone who has sent material to him previously. Sad facts which often have to be disguised in letters can be quite openly voiced on the 'phone. If there is any doubt as to competence, then seek a second opinion. It may be that you will have to turn down a request to borrow material, and (in extreme cases) will refuse permission to visit and see a collection. Especially beware of requests concerning items of commercial value such as birds' eggs, shells and butterflies.

PACKING

Biological specimens can be boxed, carded, dried, disarticulated, embalmed, embedded, enormous, mounted, papered, pickled, pinned, pressed, slide-mounted, stuffed or very, very small. All of them may suffer damage through their own activity (termed "rattling about") or from outside. Two levels of protection are thus needed. The first step is to ensure that the specimens are secure and unable to move about during their journey. This normally involves packing them in a small container which is then packed inside a larger box which withstands the exterior punishment.

Spirit: The first rule in packing spirit material is to use as small a container as possible. This is because liquids can be heavy and postage thus expensive. Also if any leakage occurs, it can be damaging for the specimen to be sloshed about in a near-oceanic volume of spirit. Use small, hard-glass tubes with well-fitting polythene or cork stoppers. Fill the tubes to just below the stopper. If they are any fuller, then heat-expansion of the fluid may cause the tops to blow. Use spirit-proof internal labels

which are not so small as to knock against delicate specimens. Very small items should be placed inside microvials within larger tubes which contain the label. Several tubes can be bagged in polythene and placed in a box or tin sufficiently large to contain them and enough absorbent material, such as absorbent cotton wool or sawdust. (This is a post office rule to prevent the leakage of liquids onto other parcels). Larger items in spirit can cause a weight problem. This can be overcome by packing them in several layers of polythene and then in absorbent material within a box. Screw-top polythene jars are also useful. Do not use polystyrene jars. These are easily cracked and are also subject to attack by various preservatives. Label the box with the name of the preservative so that more can be added if necessary on arrival.

Pinned insects: Most damage to pinned insects in the post is caused by one or more coming loose and bouncing among the other specimens, knocking wings, legs or antennae off and into a tidy heap in the corner. To prevent this, it is essential to use a substrate with suitable pin-gripping qualities. Expanded high-density polythene (Plastazote or Polyzote) is undoubtedly the best. New cork and compressed peat are alright. Old cork is suspect. Expanded polystyrene is quite useless. The specimens should be well-spaced (not touching) and cross-pinned if not too small. Cross-pinning involves the use of pins which are angled into the substrate on either side of the abdomen (or stage with micropinned specimens) so that the insect cannot swivel on its pin. Use cross-pins that are longer than the main pin. The pinning box should be constructed of stiff material (wood, tin or hard cardboard) and should be emphatically labelled "WARNING - SPECIMENS ARE CROSS-PINNED". (The excitement of the recipient on viewing the freshly-arrived specimens can easily lead to disabdomened insects). If, after all your trouble, any do work loose, there is a final safeguard. Pin a small quantity of teased-out cotton wool along one edge of the box. This is very effective at entangling escapees. Another item to remember is that your specimens are to be sent into a world full of hundry dermestids and tineids. Some 'anti-biodeterioration' measures are necessary. These can be simply sealing the box with adhesive tape, but to be really safe some insecticide should be included. The most effective agent is a small portion of dichlorvos-impregnated (Vapona) strip on a pin. But please label the lid of the box accordingly.

Carded insects: These should be treated as pinned insects, but push the card as close to the substrate as possible. Also do not cross-pin, but place a single vertical pin between each mount to stop them swinging round onto each other.

Papered and packeted material (Butterflies, lichens etc.): This should be packed snugly, but not tightly, into a tin or stiff cardboard box. Take particular care that papers are not going to open and specimens intermingle.

Loose, dry material (shells, bones etc.): Items should be wrapped individually in tissue or packed in layers of cotton wool within a stiff box (but beware snagging of wool on prickly objects). Small items should be packed in tubes with tissue. Make sure there will be no confusion over labelling.

Plaster or fibreglass models or casts: Although not biological material, they are still specimens and should be well cared for. Packing is best done in tissue or sawdust within a stiff box. Plastic-embedded specimens should be similarly treated.

Bird and mammal skins: These should be securely wrapped in tissue to ensure that the plumage/pelage is undamaged, and then placed in a stiff box. In

some cases it may be possible to use cardboard tubes for packing, but make sure the specimen cannot easily slide backwards and forwards, bending tail and beak alternately! Remarks about including insecticide in pinning boxes may apply equally here.

Bird and mammal mounts: In most cases it is unwise to rely upon the leg wires for support in the post and the mount should be carefully wrapped and packed in tissue within a stiff box.

Articulated skeletons: Tissue, sawdust, shredded paper - anything to prevent rattling and disarticulation should be used, again within a stiff box.

Outer packing: ALL THE ABOVE ARE ONLY METHODS OF INTERNAL PACKAGING. Boxes, tins or jars should now be protected from shock and other external damage by placing them in a larger cardboard box with suitable packing. The size of box and type of packing material depends on the size, weight and nature of the internal package. Light packages can be packed in fine wood wool or shredded paper. Heavier items must be packed in coarse wood wool or foam rubber. Polystyrene chips are not suitable! The reason for this is that, while they protect the contents from sharp implements and crushing forces, they will transmit knocks and shocks through to the internal package. The only occasion when they can be used is when the specimens are not prone to shock damage, e.g. large bones or shells.

(see Figure at end)

One exception to the rule of outer packaging is when a single small tube (containing spirit or dried material) is posted. Occasionally I pack this inside a small polythene or tin box with cotton wool and place this in a padded envelope, but for important specimens, the double-box method is safer.

Pressed plants: Herbarium specimens require plenty of stiff card protection. The cards should be larger than the herbarium sheets and should be well-taped around the edges.

Microscope slides: Because the specimen is surrounded by glass, it is quite well-packed already, but the slide must not rattle, touch other slides, nor be liable to breakage. A wooden, plastic, tin or very stiff card slide box can be used. It is placed inside a suitable box or in a padded envelope. Two words of warning are necessary. The first, rather obvious, point is that mounts which are not fully dried should not be posted. Also beware of card wallets which may open slightly and allow the slides to slip out of position.

Archives: Books, letters, photographs and transparencies can also be regarded as museum objects and should be afforded the same care when sent by post. Stiff cardboard packaging should be used for all but transparencies, which are usually sent in the box in which they arrived.

Outer wrapping: The outer box should be securely sealed with sticky tape and marked "OPEN THIS END". The whole should then be wrapped in brown paper which is itself sealed with tape. Finally tie a string around the package in at least two directions.

LABELLING

Several labels should be stuck on the outside of the package. The most important is the destination address. This should be on the top and at least one side of the package. Never trust gummed labels. Make sure they stay in place using sticky tape. Type or print the address in full and remember to

leave enough room for stamps.

The sender's name and address should also appear on the package, and I also include my telephone number. In addition the contents should be described. This should be intelligible to a post-office clerk in the middle of a bomb alert. Other general instructions may include "DO NOT BEND", "FRAGILE WITH CARE", "THIS WAY UP", "OPEN CAREFULLY" or "URGENT".

Other labels to go on the outside of the package include a customs label (the little green one) if the material is being sent abroad (including the Republic of Ireland). On this one must declare the nature and value of the contents. The usual entry is "DRIED INSECTS/WORMS IN PRESERVATIVE. FOR SCIENTIFIC RESEARCH. OF NO COMMERCIAL VALUE". I never know whether to fill in the boxes marked "gift" or "merchandise", so just leave them empty. In any case the package may be opened, so bear this in mind when packing, so that repacking by an unsympathetic French customs (Douane) officer is made easy and safe.

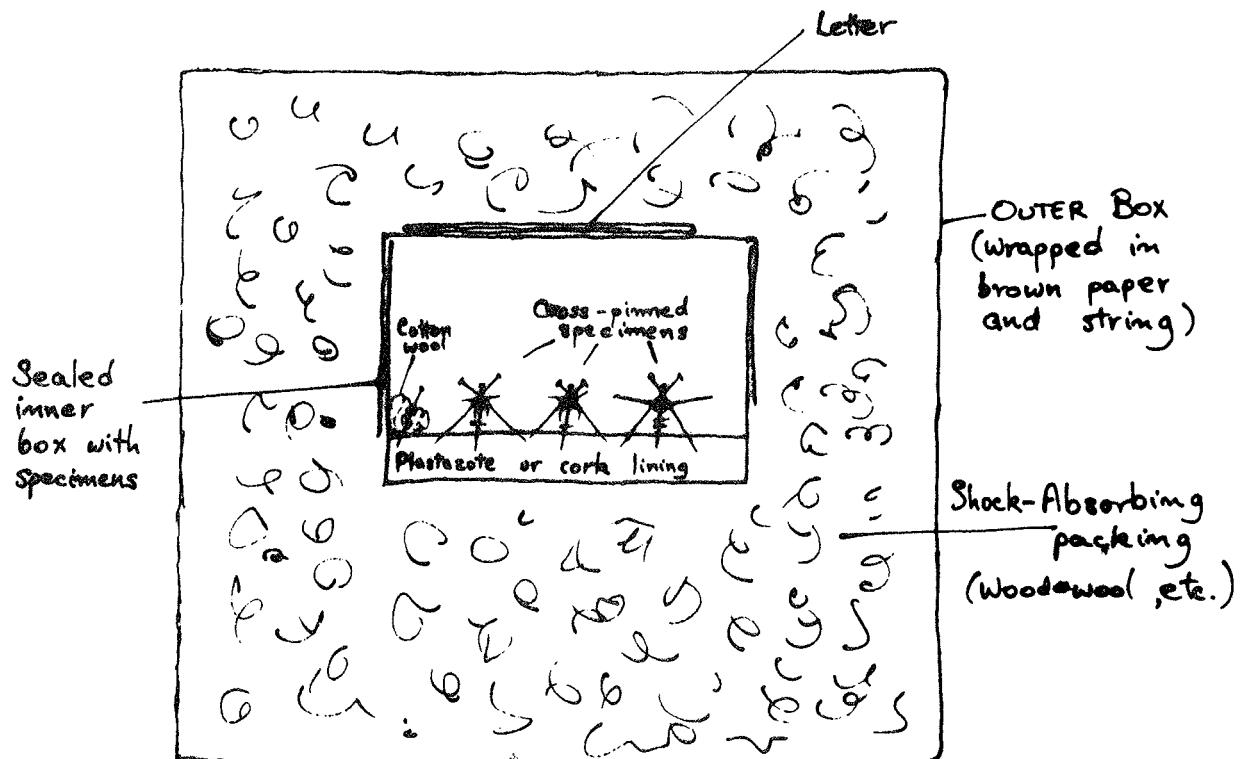
If the specimens are important, e.g. type specimens, it is advisable to send them by registered post. In this case the package must be sealed with wax or gum.

FINALLY

Do not forget to include your letter with the specimens, inside the outer box, preferably taped to the inner package. It is surprising how frequently a letter posted several days before the parcel can arrive several days after it. In most cases you will include a loans form with the specimens. This can be used to acknowledge safe receipt of the package, but often it is better to include a pre-stamped postcard to indicate that all is well. Also make two inventories of the material. One you can use to check the material when it is returned, while the recipient needs one to remind him what to send back.

All the above thoughts on posting apply equally well to sending specimens by other means - bus, Securicor, British Rail etc. Some of these may be more suitable, especially for larger items. However the best means of transporting material around the country is by hand and this is the method I use whenever possible. It is not without its dangers however leaving specimens in the pub or on the train and then there was the time when a storebox full of wasps tumbled gently down an escalator at South Kensington. No, they weren't cross-pinned!

Tony Irwin,
Castle Museum,
Norwich.



Package containing pinned insects.

BOOK NOTICE.

The papers from the conference which we jointly held with the Society for the Bibliography of Natural History on the History of Museums and Collections in Natural History have been published (J. Soc. Bib. Nat. Hist., 9(4); 365-670). This is an excellent collection of papers only lacking in that the paper by A. P. Harvey, being an historical review of natural history publishing in museums, which was not read because he was understood to be ill, is not included. I was disappointed that this was not read at the meeting and got on my hind legs at the time and said so, also enquiring as to whether or not the text would be included in the published proceedings to which the answer was in the affirmative. The other mild criticism is that nowhere in the volume are the BCG or the GCG mentioned as joint organisers and sponsors of the meeting. The price of the volume is £20.00 to non-members.

E.G.H.

Duck Decoys

Ian Morrison of Southport Museum replied to the effect that he had four decoys and there is also one at the Hancock Museum, Newcastle. This latter is currently on loan to the North of England Museums Service for exhibition purposes.

Meteorological Stations and Museums

How many museums still operate as official weather stations for the Meteorological Office? It is an interesting sideline which could have many beneficial uses to natural historians although I think there are considerably less met. stations now still run by museums than there used to be. At Bolton we are fortunate in having a keen custodian at Hall i'th' Wood Museum who does the day to day work. Records date back to 1883. The cost of running it comes to about £400 p.a., varying according to the degree of theft and vandalism at the station itself which is close to a housing estate.

It was tempting providence too much to mention in the last Newsletter the problems of dealing with collections after a man-made or natural disaster. If one includes as a coincidence "Stephen's Flood-tideings or après-mois le deluge" it was inevitable that Bolton suffered an extreme of precipitation as was widely reported in the national press and on radio and television, 5 June 1980. The galleries suffered roof leaks (this normally happens only when snow lies in the channels) and the Lecture Theatre is still inoperable because some as yet unidentified underground system (hopefully not the River Croal) was broached although fortunately no specimens or collections suffered any damage.

The deluge—3.37in of rain

BOLTON was deluged more frequent and prolonged than anyone could remember. The high water level recorded at Bolton's Hall i'th' Wood was second only to the record 4.7in which fell on July 18, 1904. Since the end of March thunder was louder and

place in Europe with only 0.83in of rain in nine weeks.

But yesterday's dramatic and destructive downpour almost certainly made it the wettest place

Local weather expert

Mr George Wood said

Colder air from the West

began to spread in

yesterday morning. It pushed up the very warm air and that brought violent convection in this area".

Mr Wood said that rainfall on yesterday's scale was likely to happen only once in 20 years.

Storm stories and

pictures, Pages 6 and 7.



Weather observer, Mr. John Winstanley, with yesterday's Bolton storm rainfall chart.

Bolton Evening News
Friday, 6th June 1980.

Problems with glass museum jars solved.

S.J.Moore,
Department of Zoology,
British Museum (Natural History),
Cromwell Road,
London SW7 5BD.

Abstract.

Old and current techniques have been modified to produce an efficient routine for curators whose spirit collections are displayed in sealed glass jars. Problems of mounting wet specimens to glass are overcome and a technique for preparing lids and mounting plates is described. A tidy and reliable sealing technique is revised.

A museum collection usually contains a large number of spirit preserved specimens that give museum workers an unending task of refilling where evaporation has taken place. To reduce evaporation, sealed containers are necessary and as spirit softens many plastics, glass display jars are coming back into widespread use. Many old jars will have been sealed by a variety of materials including bitumen for its fine black finish, or Stockholm tar and red lead (lead sesquioxide). Unfortunately both sealants are rather messy for the preparator to use, the latter is toxic. Although the seals look good, they are usually effective only for a limited number of years before they deteriorate, becoming brittle and flakey. Leaks result and if the jar is lying down, it may empty rapidly resulting in dried out and distorted specimens.

The methods described below have been developed for sealing jars in the comparative anatomy collection of the BM(NH). The formula for the gelatin sealant was found written in one of the museum's old day books. The celloidin specimen-mounting technique was passed on by word of mouth and has since been improved to be longer lasting and easier to apply than previously.

Rehydration of dried-out specimens. (Cleave & Ross 1947).

1. Carefully remove the dried specimen to a warm bath of 0.5% to 2% solution of tri-sodium phosphate in distilled water. (The concentration of the solution must be decided according to the size and nature of the specimen. Distilled water must be used as tap water forms gel particles with the phosphate).
2. Incubate at 30°C until the specimen is suitably soft for represervati-
on. As rehydration may occur within 10 minutes or several days; the specimen must be checked regularly.
3. Wash the specimen thoroughly in distilled water and then in tap water to remove all traces of the phosphate solution.
4. Immerse the specimen in Steedman's fixative for several days.
5. Rinse in water and transfer the specimen to Steedman's post-fixation preservative. If alcohol preservation is required, the specimen must be fixed and then gradually dehydrated from 30% alcohol to the desired grade leaving enough time in between each change for the specimen to have become saturated in that grade of alcohol.

Steedman's fixative.

5 ml of propylene phenoxetol is dissolved in
25 ml of propylene glycol. To the mixture add
25 ml of formalin and dissolve the mixture in
445 ml of distilled water.

For larger amounts:-

100 ml of propylene phenoxetol
500 ml of propylene glycol
500 ml of formalin (40% formaldehyde solution)

Dissolve 110 ml of this concentrate in 890 ml of distilled water -
pH 6.8-7.0, non-hardening, non-shrinking, slightly swelling of tissues.

Steedman's post-fixation preservative.

5 ml of propylene phenoxetol is dissolved in
50 ml of propylene glycol, mixture dissolved in
445 ml of distilled water.

If making a 1% aqueous solution of phenoxetol, ensure that the water is hot, not boiling. Stir in the phenoxetol until dissolved. The addition of phenoxetol to cold water causes the formation of an irreversible colloid. Phenoxetol is available from:- NIPA Laboratories Ltd., Treforest Industrial Estate, Cardiff, S.Glamorgan, WALES.

Mounting specimens.

At times, specimens become detached from their mounting plates making it necessary to remove the sealed lid and to re-attach the specimen. If it is small, fragile or there are many small specimens, they must be attached to the mounting plate without using thread.

To remove lids:

1. Remove the gelatin blob seal and "cork" from the filling hole with a blade. Wash the jar in warm water taking care not to lose any exterior labels.
2. Invert the jar into a shallow pan of warm water, allow the gelatin to hydrate (about 30 minutes). Return the jar to an upright position and carefully prise up the lid with a blunt scalpel by inserting the point into each corner.
3. Clean off old gelatin from the lid and edge of jar. Clean out the jar removing any unwanted objects and keeping interior labels.

To repair broken and detached small or soft specimens without thread:

Reagents required - 50-50 mixture of diethyl ether and isopropanol
"Necoloidine" (B.D.H.) diluted to 1% with above solvent)

1. Remove the specimens and mounting plate from the jar. Dry the plate and ensure that the specimens are not too moist.
2. Apply the ether-alcohol solvent to the specimens on the mounting plate. Arrange the specimens, or broken parts, as desired keeping them moist with solvent.
3. Carefully drip diluted celloidin (Necoloidine) around the specimen taking care not to breathe on the mixture or it will become opaque. Allow the mixture to dry until the surface has gelled (about 30 - 60 seconds at 20°C).
4. Slowly replace the plate and attached specimens into the jar filled with alcohol which will gel the celloidin to a colourless mastic film.
5. Leave overnight to check that the bond is firm before sealing the jar.

To make glass lids.

1. Dip a glass cutter into a flux of 20% camphor in xylene. This will reduce friction during cutting and will produce a cleaner cut.
2. Hold the cutter perpendicular to the glass and make a single firm stroke across it. Take care not to run over the edge of the glass as it will chip. For cuts of more than several inches, a straight edge must be used.
3. Tap the glass from underneath the cut groove until a fracture line appears and runs along the length of the cut. The glass will either break free or may be slapped across the edge of a bench, holding one end in a cloth. (This is useful for thicker pieces of glass).
4. Rub the corners and cut edges with an old oilstone until the glass is safe to handle.
5. Using a grinding mixture of medium carborundum powder in watered-down glycerol, rub the lid against this on a plate-glass lapping plate, using a circular motion until a smooth ground-glass surface is obtained. The key of the ground glass helps to provide a good seal.

To drill holes in lids and mounting plates.

1. A worn-out triangular cross-section file is sawn into two inch lengths and one end is sharpened into a tetrahedral point using a grindstone. Heat each bit in a bunsen flame until it glows cherry red (correct tempering temperature) and plunge it into cold water. A well-tempered bit will last for well over 20 holes.
2. Mark the glass with a writing diamond to locate the position of the hole.
3. Moisten the area marked on the glass with some camphor-xylene flux and hand drill straight into the glass, applying the mildest pressure, to establish the hole centre. Rotate the drill handle in a circle, whilst drilling, at ever increasing angles so that a conical pit is formed in the glass. Occasionally return the drill to the vertical and keep the area moistened with flux.
4. The progress of the hole can be observed through the edge of the glass. Eventually a light click will be felt or heard. Do not apply any pressure to the drill as this stage is approached or the glass will break.
5. Turn the glass over and drill vertically onto the hole to remove the sharp edges. Wash the glass.

Sealing of jars using gelatin sealant.

1. Weigh out 112g of gelatin sheet and soak it in water overnight to hydrate it.
2. Dry the hydrated sheets in a cloth to remove excess water, then measure out: 24 ml of glycerol & 12 ml of glacial acetic acid.
3. Heat the gelatin gently in a fume cupboard until it has melted. Stir it to prevent burning and add the acetic acid and glycerol already mixed together. Remove the heat and continue stirring until well mixed. Pour out the mixture onto a metal tray and allow it to set.

4. Cut the gelatin into squares and store in air-tight jars with a few crystals of menthol or thymol to prevent the growth of moulds.
5. Heat the glass lid in water until steaming but not boiling.
6. At the same time, melt the gelatin in a hot-water jacketed beaker. Apply the molten gelatin fairly generously to the outer edge of the jar.
7. Remove the lid from the hot water, dry it quickly and place the ground surface onto the setting gelatin ensuring that the filling hole is at the front (for convenience when filling).
8. Press down gently on the lid and then more firmly. Brush in extra gelatin where gaps appear in the seal, so that an even all-round seal is attained. Beware of applying too much gelatin as it may run down inside the jar and form an undesirable white mastic streamer with the alcohol.
9. Apply weights to the lid and leave for 24 hours. Metal weights heated in hot water can be useful for keeping the seal soft for longer so that no air remains trapped in it.
10. Remove the weights and check the seal over several days. An effective seal has a frosted appearance after this time.
11. Fill the jar using a hypodermic syringe to the desired level. Apply a piece of poly-propylene rod to fill the hole in the lid and cut it off flush with a sharp blade. Seal over this with a blob of molten gelatin and allow it to harden overnight.

Bibliography.

EDWARDS J.J. & EDWARDS M.J. (1959) Medical Museum Technology.

Oxford University Press, London.

References.

CLEAVE H.J. & ROSS J.A. (1947) A method for reclaiming zoological specimens. *Science* 105, 318.

STEEDMAN H.F. (1976) Zooplankton fixation & preservation. Unesco Press, Paris.

Collections & Information

Sought

Sherborn's "Where is the _____ Collection ? contains five enigmatic entries relating to Perth Museum. These are

Black J E	Brit. Coleopt	In Perth Mus	received in 1926
Bowhill J W	Brit. Coleopt	In Perth Mus	received in 1931
Greville R K	Coleopt	In Perth Mus	received 1856
Hislop R	Brit. Coleopt	In Perth Mus	received 1931
Wilson _____	Ins.	In Perth Mus	in 'shocking state' received in 1868

Sherborn gave no information on his sources and none of the above could be identified as discrete collections in Perth today. A recent chat with Ted Pelham - Clinton at the Royal Scottish Museum produced the revelation that all of these collections had in fact been donated directly to the Royal Scottish Museum and thus, had absolutely no connection with Perth !

This note is submitted in order to set the record straight and to show one the many uses to which up to date regional registers of collections can be put.

Does anyone have any idea where Sherborn obtained his information ?

Michael A Taylor,
Keeper of Natural Sciences,
Perth Museum & Art Gallery.

Sherborn's book has several entries which give no bibliographical sources and we can only assume that these were by word of mouth. The consistency with which these five collections are wrongly located is odd.

INTRODUCTION

This book contains facts accumulated over sixty years in answer to enquiries: "Where is the _____ Collection?" It is not exhaustive; that were too much to expect and almost an impossibility, but it contains a vast deal of information now brought together and should be of service to enquirers. The original MS has been on my table at the British Museum (Natural History) and of daily use to the Staff or others and in its present form is made widely available to all who need it.

The late Dr Walter Horn published in 1926 a similar work dealing with all the collections of Insects noted by him, and Woodward and Sherborn in their *Catalogue of British Fossil Vertebrata*, 1890, gave a sketch in their Introduction of many British collections which had passed under their observation. Remaining notes have been collected from various sources and persons too numerous to mention, as it is necessary to keep down the bulk of such a volume for handy reference.

A few abbreviations are needful:

- Ath.* = *The Athenaeum*, London, 1828- .
B.M. with very few exceptions = *Brit. Mus. (Nat. Hist.)*.
Gent. Mag. = *Gentleman's Magazine*, London, 1731- .
Mus. J. = *The Museums Journal*, 1901- .
Nature = *Nature*, London, 1869- .
N. & Q. = *Notes and Queries*, London, 1849- .

All of these can be found in any library. Other references have been quoted as fully as necessary.

C. DAVIES SHERBORN
(1940)

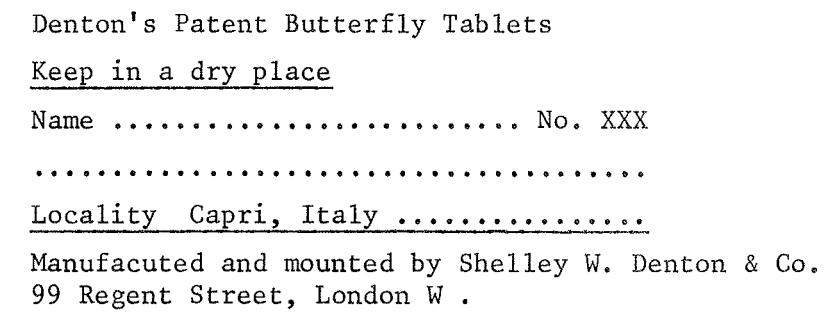
Keep taking the tablets?

I am looking for background information on 'Denton's Patent Butterfly Tablets'. These may sound like a medicine for jaded lepidopterists but they are in fact individually mounted butterflies (and moths). It is presumably the mounting method that forms the 'tablet'.

Each specimen is enclosed in a glass topped box, sealed with white paper tape. Sizes range from 27mm x 21mm x 15mm (for 'micros') to 137mm x 108mm x 15mm (for hawkmoths). The unusual feature of the mounts is the method used to support the specimens. Each specimen rests on a curved, white background which has a central depression to fit the body. The wing tips are pressed against the glass by this background, so that the specimen is held firmly.

All the specimens are numbered on the glass front, and the larger specimens also bear a label on the back of the mount. The numbers on the Horniman specimens fall in the range from 46 to 4718, though we have only around 300 specimens. The numbers probably refer to a catalogue, as different mounts of the same species carry the same number.

The labels bear the following inscription:-



None are named, and the location is always Capri.

I would be interested to hear from other museums with Butterfly Tablets. It would be very useful if the catalogue could be traced - why do all the specimens come from Capri? The actual 'tablet' construction is also a puzzle. The white background substance could be plaster, but the 'tablets' feel too light. I suppose one could dissect a 'tablet' to find out, but ours are all in good condition and I am reluctant to vandalise them.

Whatever the secret of their construction, the Butterfly Tablets seem to be solid and sturdy mounts. It occurs to me that this type of mount might well prove useful in Museum Education Sections. Perhaps Butterfly Tablets will enjoy a new popularity in the 1980s.

Ex-Horniman Museum Specimens

In the immediate post-war period (mainly 1947-8) the Horniman Museum disposed of many of its larger mounted specimens. 'Disposed of' in this context may simply be a polite term for destroyed. However it is possible that some of them found good homes elsewhere, and we would like to trace them.

Most of the missing specimens were fairly chunky, so they are unlikely to be in storage anywhere. I hold out very little hope for the lion 'destroyed by order of committee', but the 'disposed of' list includes Caribou, Virginia deer and a group of Rocky Mountain goats. The largest specimen 'disposed of' was a Polar Bear, shown with a dead seal.

We do possess a bizarre photograph of this last group, with two charming Edwardian children sitting on the back of the bear. The children were the offspring of a member of staff and the photograph was taken just before the bear was enclosed in a glass case.

In addition to the specimens listed as 'destroyed' or 'disposed of' we have others that are simply missing, including a Brown bear and a Grizzly bear head. The most likely explanation is infestation followed by destruction, but their fate is not recorded. Any information, however sad, would be welcome.

Commemorative Token

The Ethnography Department of the Horniman Museum have a commemorative token which appears to refer to the early taxidermist Thomas Hall. The inscriptions read as follows: side 1 Sir Jeffrey Dunstan. Mayor of Garratt (plus a human figure)

side 2 The 1st artist in Europe for preserving birds and beasts T. Hall, City Rd, nr Finsbury Sq. London 1795.

Any ideas on the background to this token will be welcome.

J. Cooper Collection

The Cooper Collection was purchased by my predecessor in 1974 from a third party. The collection includes a wide range of disarticulated skeletons of small mammals, plus some larger skulls. The labels on the specimens indicate that they were collected and prepared during the late 1950s to mid 1960s. I would be most interested to learn the background to this very useful collection.

Penny Wheatcroft,
Horniman Museum.

A COLLECTION OF MOSSES MADE BY JOHN NOWELL (1802-1867)

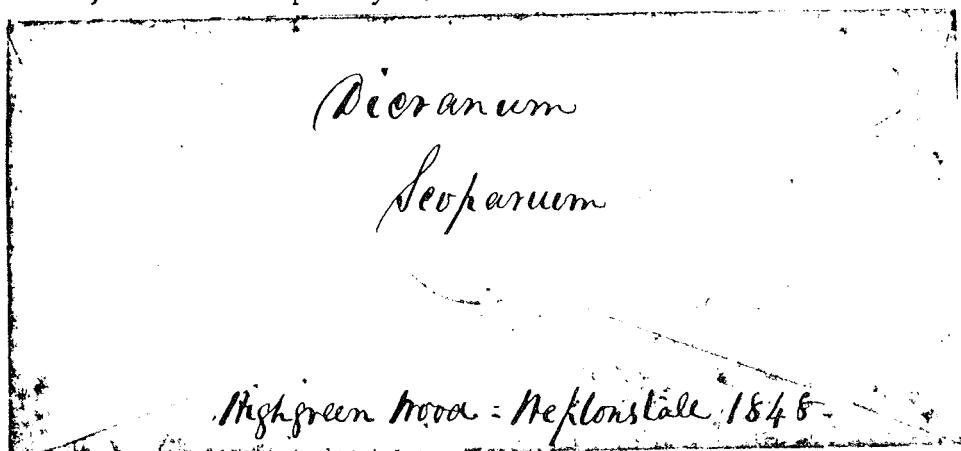
In 1968 the Hancock Museum received a gift of 210 specimens of mosses in packets made by an unknown collector in the middle years of the last century.

From evidence of handwriting and data on the packets I have been able to prove that the collection was made by John Nowell of Todmorden (1802-1867). For this interesting discovery I am indebted for help received from Dr. Derek Foster of Macclesfield and Mr. T. L. Blockeel of Leeds and others.

Included with Nowell's specimens in this collection are 41 packets of mosses collected by some collector from similar localities. This unknown collector was probably a friend of Nowell's who collected with him or possibly exchanged specimens with him. So far I have made some enquiries concerning Abraham Stansfield (sen.) who wrote the "Flora of Todmorden" and of William Sutcliffe of Heptonstall whose collection went to the Halifax Museum but the results suggest that they were not the collectors of the specimens in question.

The writing on one of the packets of the unknown collector is reproduced in case any reader might be able to supply information or suggestions concerning possible origin.

Albert G. Long, D.Sc.,
Hancock Museum, Newcastle-upon-Tyne.



HMS Sylvia - research vessel

At Bolton Museum among the usual conglomeration of foraminifera microscope slides are a few from the HMS Sylvia. Knowing nothing about foraminifera perhaps does not help but nowhere can I find any satisfying references to what, where and why this research vessel was active. The slides are as follows:

124 - between 5 December 1872 and 3 January 1873 on a route off the coast of East Africa between Seychelles and Durban. Exact latitudes and longitudes are given with depths and surface/bottom temperatures.

4 - 29 June 1886 Cape Finistere.

The BM(NH) list of drawings and manuscripts (*Bull BM(NH), Historical Series, 4(2); 1971; page 190*) gives that they have a copy of an "Account of the Soundings in the Red Sea by HMS Sylvia, 1972".

The ship itself listed as a wooden screw sloop, 865 tons; 185 x 28½ feet; 2 x 68 pounders; 2 x 32 pounders, built at Woolwich and completed on 20 March 1866, was sold in 1890. (Colledge, J. J. (1969) *Ships of the Royal Navy: An historical index*, volume 1).

No doubt the activities of HMS Sylvia were overshadowed by those of Discovery and Alert on their Arctic expeditions. It would still be nice to know if this material has some special interest, whether or not any of the results were published, etc. Nobody seems interested in old micro-preps of protozoa or diatoms these days or at least in eleven years in museums I have never had one enquiry relating to them. This lot of slides is part of an accession left to the museum by W. W. Midgley, the first curator of the museum (then called the Chadwick Museum and situated in Queens Park, Bolton) and his handwriting is on the labels.

(There are also 27 Crustacea but without data, ex HMS Sylvia, some of which are marked *Pontella* nov.sp. apparently on the basis that there were none like it in the Challenger reports).

Found

HUDLESTON, Wilfred Hudleston (1828-1909)

Although unable to locate any of Hudleston's ornithological collections in North East England, a volume entitled The Dove Marine Laboratory commemorating the erection of that establishment was located, which includes an account of the life of its benefactor. The book has three main sections:

'A history of the Dove family and their descendants in Connection with Cullercoats, Northumberland' by W. H. Hudleston.

'An account of the Dove Marine Laboratory and its structural details' by J. J. Lish (the architect).

'History and purpose of the laboratory' by Professor Alexander Meek.

To this is appended an obituary of Wilfred Hudleston, written by J. J. Lish. Hudleston had died the year before the volume was published (by Andrew Reid & Co. of Newcastle) in 1910. A portrait of Hudleston, reproduced by permission of the Royal Society, is used as a frontispiece. The following is a precis of information gleaned from the obituary.

He was born in York on 2 June 1828, the eldest son of Dr. John Simpson of Knaresborough, who married Elizabeth Ward, heiress of the Hudlestons of Cumberland, and who by letters patent assumed the name of Hudleston in 1867. However, he first made his name as W. H. Simpson, ornithologist, visiting Scandinavia and Lapland in 1855 with Professor Alfred Newton (1) of Cambridge and Mr. John Wolley (2). He explored the 'eastern atlas' with Canon Tristram (3) and Osbert Salvin (4) and made ornithological collections in Greece, Turkey and Algeria. From 1850 to 1862 he travelled extensively in Europe and North Africa.

He attended St. John's College, Cambridge, gaining a B.A. in 1850 and an M.A. in 1853. He studied law, being called to the bar in 1853, although he never practised. In 1858 he helped to found the British Ornithological Society. From 1862 to 1867 he studied at Edinburgh under Playfair (5) and Stephenson MacAdam, and then followed a period at the Royal College of Chemistry in London under Hofmann (6), Valentin (7) and Frankland (8). The year 1867

seems to have been a turning point in his life, when he began to pursue geology under the name Hudleston, indeed he was made a Fellow of the Geological Society in that year. He was made an F.R.S. in 1884 and in 1897 received the Wollaston Gold Medal of the Geological Society, principally for his monograph on the Inferior Oolite Gastropods. His collection associated with this work - 'many thousands of specimens carefully labelled and arranged, the types being all specially marked' was donated to the Sedgewick Museum, Cambridge. At the time of his death he was engaged in sorting Dorset fossils at the Dorset County Museum (he was a Vice-President) and presented choice specimens from his collection to the Museum.

No reference exists to the ornithological collections and their fate. Hudleston's connections with N. E. England are tenuous ones, and his main spheres of activity link him closely with London (he resided for many years at 8 Stanhope Gardens, Kensington), Yorkshire (he was President of the Yorkshire Naturalists Union and the Malton Field Naturalists Society) and South West England (he was President of the Devonshire Association for the Advancement of Science and the Dorset Natural History and Antiquarian Field Club, and resided at West Holme, Wareham, Dorset). Perhaps it is in Museums in these regions that Hudleston's ornithological collections will be located?

William Hudleston was a descendant of the Dove family of Cullercoats, and was the owner of the site of the original wooden structure used by Armstrong College for marine studies, which was destroyed by fire on 28 March 1904. When approached by the College about the construction of a more permanent laboratory on the site Hudleston generously gave £4,000 for the building and the construction of a new quay wall. The Dove Marine Laboratory was officially opened by the Duke of Northumberland on 29 September 1908. A red granite tablet records the following 'Erected AD 1908 by Wilfred H. Hudleston MA FRS for the furtherance of Marine Biology and as a memorial of his ancestress Eleanor Dove'.

NOTES

1. Alfred Newton (1829-1907) Professor of Zoology and Comparative Anatomy at the University of Cambridge 1866-1907
2. Wolley's egg collection was donated to Cambridge University and was described by Newton in 'Ootheca Wolleyana' (1864)
3. Canon Henry Baker Tristram (1822-1906) Bird collection at Liverpool, egg collection BM(NH)
4. Osbert Salvin (1835-1898) Strickland Curator, University of Cambridge 1874-1882
5. Lyon Playfair (1818-1898) Professor of Chemistry, Edinburgh 1858-1869.
6. Presumably August Wilhelm Hofmann
7. William George Valentin (1829-1879)
8. Sir Edward Frankland (1825-1899)

Peter Davis
Sunderland Museum

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This register is an updated version of the computer-produced version of April 1979 which was limited to sixty copies. There are over 1000 corrections of typographical or factual error, over 100 new entries and a geographical index is included.

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Dear

AN INVENTORY OF LOCAL AND REGIONAL BIOLOGICAL RECORDS CENTRES IN THE
BRITISH ISLES

The national Biological Records Centre at Monks Wood (BRC), in collaboration with the Biology Curators Group (BCG), is seeking to compile an inventory of local and regional Biological Records Centres in the British Isles. Once the inventory has been compiled it is hoped that progress will be made towards greater co-operation between the National Biological Recording Schemes (co-ordinated by BRC), the Biological Records Centre at Monks Wood, the local Biological Records Centres and other interested organisations.

The attached questionnaire has been compiled on behalf of BCG and BRC by Paul Harding and Eric Greenwood. We should be very grateful if the questionnaire could be completed and returned as soon as possible, using the enclosed prepaid envelope. It is hoped that the results of this survey will be published in a summarised form but replies to questions may be treated in confidence if requested.

We look forward to receiving your completed questionnaire in the near future.

Yours sincerely

Paul T Harding
Biological Records Centre

E F Greenwood
Biology Curators Group

INVENTORY OF LOCAL AND REGIONAL BIOLOGICAL RECORDS CENTRES

Q U E S T I O N N A I R E

Please try to answer every question. If a question is not applicable, write N/A. In the case of YES/NO answers, please delete what is not applicable. If there is insufficient space on the questionnaire for your answer, use a separate sheet and number your answer appropriately. A simplified list of taxonomic groups is appended; this is numbered for use in reply to questions 21-36.

1. NAME OF CENTRE
 2. FULL POSTAL ADDRESS OF CENTRE
 3. TELEPHONE NUMBER
 4. WHAT GEOGRAPHICAL AREA IS COVERED BY THE CENTRE?
 5. WHEN WAS THE CENTRE SET UP?
 6. IS THE CENTRE CURRENTLY OPERATIONAL? (i.e. regularly staffed, receiving records and providing users with a service) YES/NO
 7. IF THE CENTRE IS STILL BEING PLANNED, STATE WHEN IT IS EXPECTED TO BECOME FULLY OPERATIONAL.
 8. IF THE CENTRE IS NO LONGER OPERATIONAL, WHEN DID IT CEASE TO OPERATE?
 9. IF THE CENTRE IS EXPECTED TO CEASE OPERATING IN THE NEAR FUTURE, STATE WHEN.
 10. PRESENT NUMBER OF PERMANENT STAFF: FULL TIME /PART TIME
 11. PRESENT NUMBER OF TEMPORARY STAFF: FULL TIME /PART TIME
 12. PRESENT NUMBER OF REGULAR VOLUNTARY STAFF: FULL TIME
PART TIME

13. IS THE RUNNING OF THE CENTRE ITEMISED IN THE JOB DESCRIPTION OF THE PERMANENT STAFF? YES/NO TEMPORARY STAFF? YES/NO
14. STATE THE SOURCE OF THE FUNDING OF THE CENTRE AND PERMANENT STAFF
15. STATE THE SOURCE OF THE FUNDING OF THE TEMPORARY STAFF
16. WHEN IS THE PERIOD OF EMPLOYMENT OF THE PRESENT TEMPORARY STAFF EXPECTED TO END?
17. ARE REPLACEMENTS/ RENEWALS / EXTENSIONS OF THE EMPLOYMENTS OF TEMPORARY STAFF EXPECTED? YES/NO
18. IF 'YES' TO QUESTION 17, GIVE DETAILS OF SOURCE OF FUNDING.
19. FORMAT OF DATA HELD:
- 19.1. SPECIES RECORDS - YES/NO. Approx. no. of records
 - 19.2. SITE FILES - YES/NO. Approx. no. of records
 - 19.3. GRID SQUARE RECORDS/FILES - YES/NO. (Specify units used)
 - 19.4. OTHER (specify below)
20. HANDLING OF DATA - give details where relevant:
- 20.1. MANUAL ONLY - YES/NO
 - 20.2. MECHANICAL SORTING - YES/NO
 - 20.3. MINI-COMPUTER - YES/NO
 - 20.4. ACCESS TO COMPUTER - YES/NO
 - 20.5. OTHER (specify below)

21. CONTROL OF QUALITY OF DATA

21.1. ARE RECORDS ASSESSED FOR RELIABILITY BY RELEVANT EXPERTS? YES/NO

21.2. IF 'YES' TO QUESTION 21.1, HOW ARE RECORDS ASSESSED? (specify below)

21.3. HOW MANY TAXONOMIC GROUPS ARE SERVED BY A LOCAL EXPERT (e.g. a county recorder?)

21.4. ARE VOUCHER SPECIMENS RETAINED IN A LOCAL MUSEUM TO SUPPORT SOME/ALL RECORDS? YES/NO

21.5. IF 'YES' TO QUESTION 21.4, SPECIFY THE MUSEUM (below)

22. MAIN SOURCES OF DATA (number 1 to 6 in order of importance)

LOCAL NATURALISTS AND SOCIETIES

RECORDS CENTRE STAFF

NATIONAL BIOLOGICAL RECORDING SCHEMES

BIOLOGICAL RECORDS CENTRE (Monks Wood)

LOCAL MUSEUMS

PUBLISHED SOURCES

OTHER (specify below)

23. PAST RECORDS

23.1. HAVE RECORDS BEEN ABSTRACTED FROM PUBLISHED SOURCES? YES/NO

23.1.1. IF 'YES', BACK TO WHAT DATE? (specify below)

23.1.2. IF 'YES', FOR WHICH TAXONOMIC GROUPS? (specify below)

23.2. HAVE RECORDS BEEN ABSTRACTED FROM LOCAL COLLECTIONS IN MUSEUMS? YES/NO

23.2.1. IF 'YES', BACK TO WHAT DATE? (specify below)

23.2.2. IF 'YES', FOR WHICH TAXONOMIC GROUPS? (specify below)

23. PAST RECORDS (continued)

23.3. HAVE LOCAL NATURALISTS SUPPLIED DETAILS OF PAST RECORDS?
YES/NO

23.3.1. IF 'YES', BACK TO WHAT DATE? (specify below)

23.3.2. IF 'YES', FOR WHICH TAXONOMIC GROUPS? (specify below)

24. INPUT OF DATA

24.1. HOW MANY SPECIES RECORDS WERE RECEIVED IN 1979?

24.2. HOW MANY SITE FILES WERE ADDED TO IN 1979?

24.3. HOW MANY SITE FILES CONTAIN AT LEAST ONE COMPREHENSIVE
LIST FOR ONE TAXONOMIC GROUP?

24.4. HOW MANY SITE FILES CONTAIN A FULL ECOLOGICAL SITE
DESCRIPTION?

25. HAVE THE ORGANISERS OF THE NATIONAL BIOLOGICAL RECORDING SCHEMES
BEEN APPROACHED TO SUPPLY RECORDS? YES/NO

26. IF 'YES' TO 25, FOR WHICH TAXONOMIC GROUPS? (If all, state ALL,
but do not list. Please list if only some have been approached.)

27. IF 'YES' TO 25, WHICH SUPPLIED DATA? (specify below)

28. IF SOME SUPPLIED DATA, WERE THE DATA IN A FORM WHICH WAS OF USE
TO THE CENTRE? YES/NO

29. IF 'NO' TO 28, GIVE BRIEF DETAILS OF PROBLEMS (below)

30. HAS THE NATIONAL BIOLOGICAL RECORDS CENTRE (BRC) AT MONKS WOOD
BEEN VISITED AND RECORDS ABSTRACTED? YES/NO

31. IF 'YES' TO 30, FOR WHICH TAXONOMIC GROUPS? (specify below)

32. IF 'NO' TO 30, WOULD YOU CONSIDER VISITING BRC AT MONKS WOOD
TO ABSTRACT RECORDS? YES/NO

33. ARE RECORDS SENT TO BRC ON A REGULAR BASIS? YES/NO

34. IF 'YES' TO 33, FOR WHICH TAXONOMIC GROUPS? (specify below)

35. ARE RECORDS SENT TO THE ORGANISERS OF THE NATIONAL BIOLOGICAL
RECORDING SCHEMES ON A REGULAR BASIS? YES/NO

36. IF 'YES' TO 35, FOR WHICH TAXONOMIC GROUPS? (specify below)

37. USERS OF THE RECORDS CENTRE

37.1.	LOCAL AUTHORITY PLANNERS AND ECOLOGISTS	Frequent/Regular/Occasional/Never
37.2.	LOCAL WATER AUTHORITY	Frequent/Regular/Occasional/Never
37.3.	COUNTY NATURALISTS' TRUST	Frequent/Regular/Occasional/Never
37.4.	NATURE CONSERVANCY COUNCIL	Frequent/Regular/Occasional/Never
37.5.	NATIONAL TRUST	Frequent/Regular/Occasional/Never
37.6.	LOCAL NATURAL HISTORY SOCIETIES	Frequent/Regular/Occasional/Never
37.7.	LOCAL NATURALISTS	Frequent/Regular/Occasional/Never
37.8.	OTHERS (specify below)	

38. ACCESS TO DATA HELD BY THE CENTRE (please tick where applicable)

OPEN ACCESS TO ALL ENQUIRERS
SELECTIVE ACCESS TO SOME ENQUIRERS ONLY
CLOSED TO ALL EXCEPT OFFICIAL USERS
LANDOWNERS HAVE OPEN ACCESS TO DATA RELATING
TO THEIR OWN PROPERTY

39. ARE RESPONSES TO REQUESTS FOR INFORMATION PRESENTED IN AN
INTERPRETED FORM? (please tick where applicable)

ALWAYS
SOMETIMES
NEVER

40. CAN A SITE BE EVALUATED IN RELATION TO OTHER SITES FOR A USER:

- 40.1. IN THE COUNTY - YES/NO
40.2. IN THE SURROUNDING REGION - YES/NO

41. TOTAL NUMBER OF ENQUIRIES FOR DATA DEALT WITH IN THE LAST
12-MONTH PERIOD

42. IS CONTACT MAINTAINED WITH LOCAL DATA CENTRES FOR OTHER
DISCIPLINES? (please tick where applicable)

LOCAL HISTORY
ARCHAEOLOGY
INDUSTRIAL ARCHAEOLOGY
GEOLOGY
OTHER (specify below)

43. DOES THE CENTRE PRODUCE A REGULAR/OCCASIONAL NEWSLETTER FOR
CIRCULATION TO CONTRIBUTORS OF DATA? YES/NO

44. PLEASE ATTACH A LIST OF REPORTS AND PUBLICATIONS PRODUCED BY
THE CENTRE (including a list of reports submitted to users)

APPENDIX - SIMPLIFIED LIST OF TAXONOMIC GROUPS

1. Fungi
2. Lichens
3. Algae
4. Bryophytes (Mosses & Liverworts)
5. Vascular plants
6. Protozoa
7. Other lower invertebrates - specify
8. Annelids (Worms & Leeches)
 - ARACHNIDA
 - 9. Spiders
 - 10. Pseudoscorpions
 - 11. Opiliones (Harvestmen)
 - 12. Mites and ticks
 - CRUSTACEA
 - 13. Marine
 - 14. Freshwater
 - 15. Terrestrial (Woodlice)
 - 16. Diplopoda (Millipedes)
 - 17. Chilopoda (Centipedes)
 - INSECTS
 - 18. Orthoptera (Grasshoppers & Crickets)
 - 19. Odonata (Dragonflies)
 - 20. Hemiptera (True bugs, aphids, leafhoppers)
 - 21. Neuroptera (Lacewings)
 - 22. Trichoptera (Caddisflies)
 - Lepidoptera
 - 23. Butterflies
 - 24. Macro-moths
 - 25. Micro-moths
 - 26. Coleoptera (Beetles)
 - 27. Hymenoptera (Ants, bees, wasps)
 - 28. Diptera (Flies)
 - 29. Other insects (specify)

Committee

At the Annual General Meeting, Leicester, 12 April 1980, the officers and committee were elected as follows:

Chairman

Eric Greenwood
Merseyside County Museums
William Brown Street
Liverpool, L3 8EN
051 207 0001

Secretary

Geoff Stansfield
Dept. of Mus. Studies
152 Upper New Walk
Leicester, LE1 7QA
0533 28273

Production Editor

Peter Davis
Sunderland Museum
Borough Road
Sunderland, SR1 1PP
0783 41235

Treasurer/Membership Sec.

John Matthias
Leicester Museum
96 New Walk
Leicester, LE1 6TD
0533 554100

Museum Association

Liaison Officer
Janet Chamberlain
Portsmouth City Mus.,
Museum Road
Portsmouth, PO1 2LJ
0705 811527

Editor

Geoff Hancock
Bolton Museum
Le Mans Crescent
Bolton, BL1 1SA
0204 22311

Members of Committee

Peter Morgan
National Mus. of Wales
Cathays Park
Cardiff, CF1 3NP
0222 26241

Mike Hounsome
Manchester Museum
Oxford Road
Manchester, M13 9PL
061 272 3333

Martin Brendell
British Museum (NH)
Cromwell Road
London, SW7 5BD
01 589 6323

Howard Mendel
Ipswich Museum
High Street
Ipswich, IP1 3QH
0473 213761

Kelvin Boot
Royal Albert Mem. Mus.,
Queen Street
Exeter, EX4 3RX
0392 56724

Co-opted Members

Dave Erwin
Ulster Museum
Botanic Gardens
Belfast, BT9 5AB
0232 668251

Michael Taylor
Museum & Art Gallery
George Street
Perth
0738 32488

Ray Ingle
British Museum (NH)
Cromwell Road
London, SW7 5BD
01 589 6323

Bari Logan
Royal College of Surgeons
Lincoln's Inn Fields
London, WC2A 3PN
01 405 3474

James Bateman
County Museum
Fletchers House
Woodstock, OX7 1SN
0993 811456

APOLLO.

ÆSCULAPIVS.

GENITIVS

METHRI
DATES

A NIEVVE HERBALLE,
OR HISTORIE OF PLANTES.

wherin is contayned

the vvhole discourse and per-
fect description of all sortes of Herbes
and Plantes: their diuers & sundry kindes:
their straunge Figures, Fashions, and Shapes:
their Names / Natures / Operations / and Ver-
tues: and that not onely of thole whiche are
here growyng in this our Countrey of
Englaunde, but of all others also of
forrayne Realmes / commonly
yed in Physicke.

First set foorth in the Doutche or Almaigne
tongue, by that learned D. Rembert Do-
doens, Physition to the Emperour:
And nowe first translated out of
French into English, by Hen-

ry Lyte Esquier.

AT LONDON.

by me Gerard Dewes, dwelling in
Pawles Churchyarde at the signe
of the Swanne.

CC.

1578.

ARTEMISIA.

LYSIMACHVS

HESPERIDVM HORTI