

The Biology Curator

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Diary Dates

Launch of Collections at Risk Packs

27 October 1997, The Natural History Museum, London

Gentlemen and Players

22 November 1997, Meeting of the Malacological Society, Conchological Society and Society for the History of Natural History on the gradual professionalism of malacology during the early 20th century
Contact: Elizabeth Platts, Belmont, New Road, Littleton, Winchester, Hants. SO22 6QR

GCG AGM

27 November 1997, The Natural History Museum, London
Contact: Steve McLean, Hancock Museum. Tel: 0191 222 7418

Progress on Pest Control in Collections

2 December 1997, Natural History Museum, London
Contact: Phil Ackery, Dept. of Entomology, The Natural History Museum. Tel: 0171 938 9346

Entomological Collections: Entomology for Non-entomologists

24 February 1998, BCG meeting, Tullie House, Carlisle.
Details to follow.
Contact: Steve Hewitt, Committee Member

Insect Pests in Museums

17-18 March 1998, Natural History Museum, London
A two-day course covering pests and damage, pest identification, pest environments, pest monitoring and control and pest management amongst other topics.
Contact: Phil Ackery, Dept. of Entomology, Natural History Museum, Cromwell Road, London, SW7 5BD. Tel: 0171 938 9346

BCG AGM

30 April-2 May 1998, Royal Scottish Museum, Edinburgh
Contact: Steve Thompson. Tel: 01724 843533

A Survey of Ethanol Concentrations in the Collections at the Oxford University Museum of Natural History

*Jane Pickering, Assistant Curator
(Zoological Collections)*

Biological specimens have been preserved in ethanol since Robert Boyle first discovered that specimens could be preserved in "spirit of wine" in the mid-seventeenth century (Simmons, 1991). Recently there has been a (long overdue) growth in the study of the conservation of 'wet' collections, the effect of preservatives on the long-term preservation of specimens and other collection management issues associated with fluid collections (e.g. see Horie, 1989). However, as noted by Cato (1990), there is very little published data on the actual condition of collections at a given point in time. Such data is an essential part of determining the long-term effects of preservatives and management and maintenance procedures on specimens. Apart from Cato (1990) and Simmons and Waller (1994) there are a number of unpublished surveys of collections in North America (Waller, pers comm) and a paper given at the 1996 SPNHC conference by Lisa Palmer, National Museum of Natural History, Smithsonian Institution (Palmer, 1996).

The Oxford 'wet' collections include specimens of the majority of animal orders, from Protozoa to Chordata, and are housed in two basement storerooms, the Invertebrate and Vertebrate Spirit Stores. There are approximately 10,000 jars of invertebrate material and 5,000 jars of vertebrate material. The earliest material dates from the first decades of the

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Deadline: All items for next publication to reach Editors by 8th January 1998.

nineteenth century and approximately half the collection dates from that century. The specimens are all in either ethanol or formaldehyde; there is no history of the use of any other fluids in the collection apart from some specialised media for a few invertebrate specimens. Phenoxetol is now used for certain display specimens. Nearly all the specimens are in glass jars, almost all with glass lids.

The 'wet' collection is 'topped up' every summer; jars are 'topped up' with 70% ethanol or 5% formalin and a few jars, which have lost virtually all fluid, are obviously mouldy or have severe discolouration of the fluid, are refilled completely. Interviews with long-standing members of staff suggest this collection management practice has been in operation for at least 37 years and probably for many years before. Since 70% ethanol will tend to evaporate ethanol or absorb water (Simmons, 1992, Horie, 1994) this means that over time the percentage of ethanol in the jars falls. 'Topping up' jars with fresh ethanol does not correct problems of low ethanol concentration (Cato, 1990). However it was not known what proportion of jars had ethanol concentrations substantively below 70%. It was therefore decided to purchase equipment to accurately measure the ethanol concentrations in as many jars as possible. The purpose of this project was two-fold. Firstly it would provide a profile of the condition of the collection which would give an indication of the effectiveness of the current management practice. Secondly it would identify specific specimens which were currently preserved in weak concentrations of ethanol which would put their continued preservation at risk. Since it was not possible, with limited staff and financial resources, to replace all the fluid in all the jars at once this survey would enable phased replacement of ethanol, prioritising those jars with the lowest concentration first. Another incidental, but important, benefit of the project was that it enabled identification of specimens preserved in formaldehyde.

Methods & Materials

Measurement of density is the most convenient and common method of determining ethanol concentrations in simple ethanol-water solutions (Boase & Waller, 1994). The Museum purchased a DMA 35 Digital Density Meter in 1995 to enable the density of the solution in the jars to be measured accurately. The meter was filled with fluid from the middle of the jar, to avoid any sediment at the bottom of the jar which would invalidate the reading. The meter was filled twice before a reading was taken, to flush out any traces of the previously recorded solution; in addition, after each set of ten readings, it was washed out with distilled water. The fluid was not put back in the jar but was discarded. The density and temperature readings were recorded. The project was completed over the summers of 1995 (Invertebrate Spirit Store) and 1996 (Vertebrate Spirit Store).

A proportion of the jars had extremely well sealed lids with mixtures including gutta percha, bitumen, asphalt and lead. The documentation of recipes used in the Museum showed these jars had been sealed in the first half of this century. Since breaking these seals would have, in some cases, required breaking the jar and these specimens also showed no signs of evaporation, it was decided, in the

interests of the long-term preservation of these specimens, not to break these seals. These specimens were assumed to still be very close to 70% ethanol concentration.

The readings, of density and temperature, were then entered onto a computer in a form suitable to be analysed using a computer programme written by Tom Strang of the Canadian Conservation Institute in 1989. This programme, ETHANOL, converts the density and temperature readings into a percentage ethanol reading. After the conversion the results were scrutinised and readings under 40% and over 75% were remeasured. It was particularly important to check the low percentage readings as the density of low grade alcohols is close to that of formaldehyde solutions (Moore, 1994). In all but a few cases the readings did not change.

Results

Table 1. Summary of Data

	No. of readings	Percent- age of total no. of jars	Mean percent- age ethanol	Standard deviation from Mean	Median Percent- age ethanol	Percent- age of collection between 60- 75% ethanol
Invertebrate Spirit Store	2331	26	63.1	0.22	66.3	73
Vertebrate Spirit Store	2542	53	63.4	0.21	66.2	77

The results are summarised in Table 1 and Figures 1 and 2. The total number of readings taken was 4873. This represents approximately half the jars in the Vertebrate Spirit Store (the other half were mainly jars which could not be opened) and about one quarter of the jars in the Invertebrate Spirit Store (the other three quarters being split between jars containing formaldehyde and jars which could not be opened). Results for the two stores were very similar and there was no significant difference between them. The mean and median ethanol concentrations were, respectively, 63% and 66% ethanol concentration. Approximately three-quarters of the specimens were in ethanol concentrations between 60 and 75%. One tenth of the specimens measured were in less than 50% ethanol with a fifth of these in less than 30% ethanol. Those jars with very low percentage ethanol concentrations were usually those with low fluid levels and/or in which the fluid was badly discoloured.

Discussion

The results show a very healthy collection profile; the majority of the specimens are in concentrations of 60-70% ethanol. The overall collection profile is likely to be even better than the sample used in this study since the majority of those jars not measured showed extremely low evaporation rates. There are two particular reasons which may explain this. Firstly the stores have good environmental conditions for "wet" collections. Ideal environmental conditions for fluid-preserved material are given as 18°C and 50% relative humidity (MGC, 1992). Both the spirit stores in the Museum are basement stores and are thus dark, cool in summer and cold in winter; for this reason the relative humidity would, in the UK climate, be quite high. These conditions are good for lowering evaporation rates. Secondly

Figure 1 : Plot of the frequency count for the percentage ethanol for the Invertebrate Spirit Store

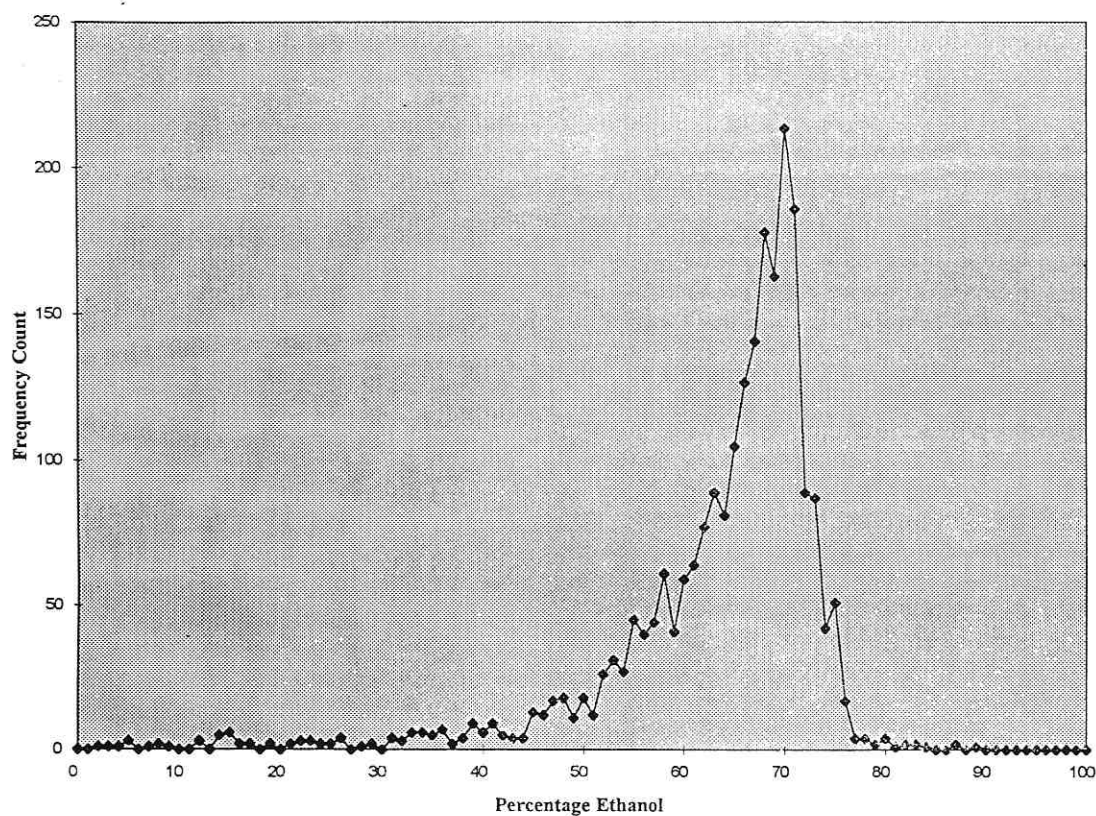
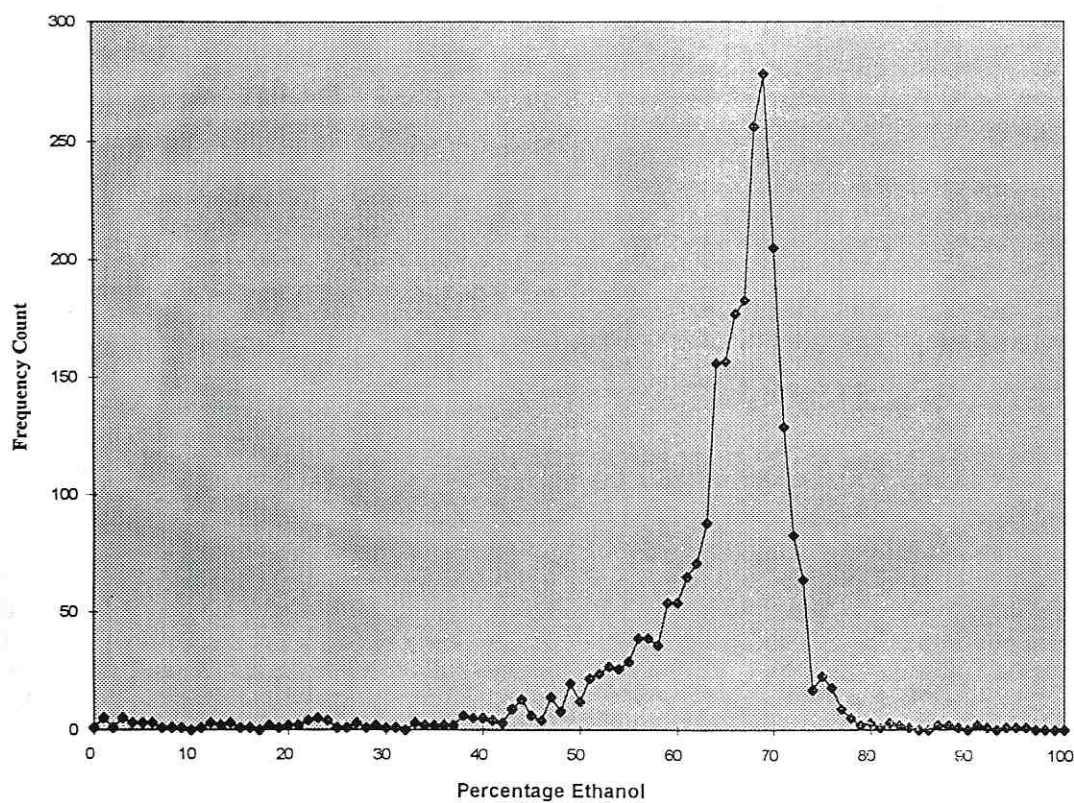


Figure 2 : Plot of the frequency count for the percentage ethanol for the Vertebrate Spirit Store



the collection is stored in all-glass jars most of which have ground-glass stoppers. Such jars have very effective seals, which is vitally important for reducing evaporation (Simmons and Waller, 1994) and perform well over long periods of time (Lincoln, 1989, Clark, 1992).

The results were remarkably similar for the two collections. In one sense this is not surprising, given that the collections are subject to the same maintenance regime and are housed in similar conditions. Although this was not measured, however, the usual size of jar in the two stores is different, with the jars in the vertebrate spirit store tending to be much larger. The results tentatively suggest that jar size and the type of specimen do not affect ethanol concentration.

There were a surprisingly high number of specimens (on average 17%) with ethanol concentrations above 70%, in particular between 70-75%. This is most likely to be the result of inaccurate measurement of the 'topping-up' solution. The 70% ethanol is made up from Industrial Methylated Spirit, supplied at 99%, using a glass hydrometer, using the same system employed in most museums described in Simmons and Waller (1994). Staff (pers. comm) also tended to err on the generous side because of the assumption that the ethanol concentration in the jars was likely to be lower than 70%. Those few specimens with extremely high alcohol concentrations are difficult to explain but, since such high concentrations are likely to be detrimental to the specimen, causing dehydration, they were replaced with 70% alcohol.

The specimens which are in ethanol concentrations below 50% are particularly at risk. It was noted that often these specimens had very low fluid levels and/or were badly discoloured and thus were likely to have been completely replaced in a normal year. This was not always the case, however, and specimens in ethanol concentrations of below 20% are at risk of decay (Stoddart 1989). Those specimens in concentrations below 30% were immediately re-spirited into 70% ethanol, through a series of stages as sudden large changes in ethanol concentration can cause dehydration and specimen distortion (Moore, 1989). The possible causes of low ethanol concentrations are evaporation, leaching of water from specimens and periodic topping up (Cato 1990); given the age of the specimens, it is likely to be evaporation and consequent topping up which are the major factors involved.

The results provide an interesting comparison with the survey carried out on the mammal collection in Texas described by Cato (1990). The Oxford project was more limited in scope than that of Cato but provides an interesting contrast to it as the collections measured are much older and more varied. Cato measured 400 jars of recent mammals, 90% of which were collected after 1960. The median ethanol concentration was 64%, the minimum value scored being 41% and the maximum 71%. Those jars with low ethanol concentrations (under 60%) made up just under one fifth of the number measured and generally had more specimens per jar and a smaller specimen to fluid ratio. This is similar to the results here; the median was 66%. The range of concentrations in the Oxford survey was much greater, but this would be expected given a much larger number of

readings and the greater age of the collection. Similarly, approximately one fifth of the jars measured in the Vertebrate Spirit Store had ethanol concentrations below 60%. The fact that this figure rises to one quarter for the invertebrate collections, which have more specimens per jar, lends cautious support to Cato's conclusions. Interestingly, Cato's assertion that older collections may show "more marked trends" in storage conditions is only borne out in one respect; that there is a more substantial 'tail' of specimens at low ethanol concentrations. The bulk of the collection shows a similar distribution.

The results discussed in Simmons and Waller (1994), for measurements of 62 jars, show a mean ethanol concentration of 59.1%, lower than that found in Oxford and by Cato. The range of measurements, from 40.1 to 74.1%, is similar to Cato, but again lacks the 'tail' found in the Oxford collections. This, again, is probably because a greater proportion of the collection was measured in Oxford plus the collection is much older. Work carried out by Palmer (1996) on 272 jars in the mammal collections at the National Museum of Natural History, Smithsonian Institution, gave a range of 39 - 94% ethanol concentration which is more in line with the Oxford results. Like Cato, she also concluded that those jars with more specimens and, in particular, with a low specimen to fluid ratio were most at risk of low ethanol concentration.

The study succeeded in its aims. Those specimens with very low (and very high) ethanol concentrations were identified and the programme to replace the fluid in these jars has started. The overall collection profile also gives an indication as to the effect of current collection management practice on the condition of the collection. Lincoln (1989) recommends a brief annual inspection of all 'wet' material, backed up by a 3-4 year cycle of comprehensive respiriting. These results suggest that if collections are stored in good environmental conditions, in suitable glass containers, comprehensive respiriting need not be done so frequently. Whilst the number of specimens in low ethanol concentrations supports the need for annual checks to ensure such specimens are dealt with, the proportion of these jars of the whole suggests comprehensive respiriting need only be done on a much longer time scale.

However, as Cato (1990) remarked, studies such as this one raise many questions. There is no information on acceptable risk levels for alcohol concentration or the degree to which specimens are harmed by, say, 65% ethanol. Different authors recommend ethanol concentrations of 60-75% (Simmons, 1992) but none of these recommendations are based on experimental data. Information on the condition of such specimens is needed, building on initial studies such as those described in Moore (1989). It would also be interesting to compare this profile with a similar collection stored in poor-quality environmental conditions to see the effect of storage conditions on ethanol concentration. If it is significant, there would be considerable long-term savings on staff time and fluid costs in improving those conditions.

Acknowledgements

I would like to thank Gary Brown, Malgorzata Atkinson and April Lahti for recording and computerising the data for this project. Also Rob Waller, John Simmons and Julian Carter for discussions on fluid collections.

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Suppliers

- DMA 35 Digital Density Meter
- Paar Scientific Ltd. 594 Kingston Road, Raynes Park, London. SW20 8DN. Tel : 0181 540 8553.
- Ethanol Concentration Conversion Programme
- Tom Strang, Canadian Conservation Institute, 1030 Innes Road. Ottawa, ON. K1A 0C8.

IMPORTANT - NEW EC REGULATION AFFECTING TAXIDERMISTRY

On 1st June 1997 the **Endangered Species (Import and Export) Act 1976** and **EC Regulations 3626/82 and 3418/83** were superseded by **EC regulation 338/97**. This new regulation is likely to affect most museums with natural history specimens.

The spirit of regulation 338/97 is : *'to protect species of wild fauna and flora and to guarantee their conservation by regulating trade therein'*.

We have, on behalf of BCG, been talking to the DoE about how the new regulation affects museums. Firstly it should be noted that the species covered by the regulations includes foreign species covered by CITES but also many European birds of prey and owls. Secondly it should be noted that it relates to material set up after 1947. So old taxidermy is not affected. The legislation basically covers the import and export of such specimens and also *"the purchase, offer to purchase, acquisition for commercial purposes, display to the public for commercial purposes, use for commercial gain and sale, keeping for sale, offering for sale or transporting for sale"*. Each individual specimen used in any of these ways needs an individual licence. A possible scenario for being in breach of this regulation would be the setting up of, say a barn owl, on display where the Museum charges admission. Also since *sale* includes hire, the loan of a specimen for which a charge is made e.g. school loans.

However it is possible for *"scientific institutions"* to register with the DoE to be exempt from the legislation. The DoE can issue a one-off certificate, covering all species, to a Museum which is involved in research and/or education which *"is aimed at the preservation and conservation of the species"*. Currently BCG are working with the DoE to try and see if MGC Registration can provide a short-cut to the provision of such a certificate and avoid long, tedious paperwork. In addition those institutions which regularly loan and/or exchange specimens for scientific research can apply for accreditation to use the new labelling system for such movement of specimens. This is likely to apply only to those scientific institutions already registered with the DoE (currently about 17), and other national and university museums.

The DoE are producing an advice sheet for museums which may be affected by this legislation. This will be sent

to members as soon as it is available. Below is a copy of a letter to the BCG Chair which states the current position. So at the moment don't panic! General exemptions for all museums are in place and you will be informed before they run out!

For more information or application forms for permits or certificates contact the CITES enquiries desk on 0117 987 8749. We are hoping a representative of the Department will come and speak at the BCG AGM in Edinburgh in April 1998.

Sam Hallett

BCG Committee, Bristol Museum

Jane Pickering

BCG Chair

LETTER TO BCG

**Department of the
Environment, Transport
and the Regions**

Bob Ford
Wildlife Licensing and
Registration
Ref 8/07
Tollgate House
Houlton Street
Bristol BS6 5AR

Dear Ms Pickering

EC REGULATION 338/97 - SALE AND DISPLAY OF MUSEUM SPECIMENS

1. I refer to your letter of 3 September to my colleague Ms Middleton about the above, which has been passed to me for reply.

2. As you may be aware, the sale of specimens listed in Annex A of the above Regulation is strictly controlled and museums will need an exemption from this Department if they wish to use or display such specimens for commercial purposes. However, special derogations from these prohibitions may be granted to such institutions where such specimens are being used for research or education purposes aimed at the conservation or preservation of the species concerned. Provision may also be made for the movement between certain registered scientists or institutions of non commercial loans, donations, and exchanges of herbarium specimens, preserved dried, or embedded museum specimens and live plant material for scientific study, using a special labelling system. The sale, etc of worked items acquired before 1 June 1947 is covered by a Community-wide derogation.

3. For the moment the commercial display of museum or herbarium specimens is covered by two general exemptions (GEX/18 and 19) which expire at the end of 1998. However, these will be reviewed at the end of this year and we will be writing to all the major institutions advising them what they need to do to apply for a certificate under these Regulations. Your assistance in forwarding this information to your members would therefore be much appreciated.

4. Detailed guidance on these matters is currently being prepared and I will forward this to you for information as soon as it is available. In the meantime if you have any further queries on this matter please do not hesitate to get in touch.

Yours sincerely

R A Ford

Global Wildlife Division

Footnote

The DOE have agreed that Registration will serve as a means of identifying museums able to hold exemption certificates . . . thank heavens . . . and further details will be published soon! So definitely do not panic.

Jane Pickering

Acquisition and Conservation Grants

What do a fossil starfish in York, an early geological map of the British Isles in Cornwall and a collection of lepidoptera in Luton have in common? The answer is that all three have benefited from the support of the MGC/Science Museum PRISM Grant Fund. PRISM can offer grants of up to £20,000 towards the cost of acquiring and/or conserving all kinds of industrial and scientific material, including biological, geological and palaeontological specimens, as well as archives and rare books.

The Fund is keen to encourage more applications from natural history collections, particularly for conservation projects. PRISM covers the whole of England and Wales. Museums that are registered with the Museums and Galleries Commission are automatically eligible for the Fund. Applications from other organisations, such as charitable trusts engaged in the preservation of historic material, record offices and archives can also be considered.

If you would like more details of the Fund, or if you think you have a project which would be eligible for support, please contact the Fund Manager, Simon Chaplin, or the Assistant Manager, Sam Evans, on 0171 938 8005, by email at s.chaplin@nmsi.ac.uk, or by post at the following address:

MGC/Science Museum PRISM Fund
Science Museum
Exhibition Road
London SW7 2DD

“What’s in the box?” Collection Access and Care — New Directions for the Millennium : Part I

BIOLOGY CURATORS GROUP AND THE NATURAL SCIENCE CONSERVATION GROUP : 16-17 APRIL 1997, NATIONAL MUSEUM AND GALLERY OF WALES, CARDIFF

A Cost/Benefit Approach to Collection Care

*May Cassar
Museums & Galleries Commission*

Museums and other collecting organisations inhabit a changing socio-economic environment: with rising costs, a sharper competitive environment and a squeeze on funding. A greater diversity of individuals is seeking to use collections in a variety of ways. Increased access to collections can sometimes be promoted as a way of justifying resources to support collection care. So questions of what to do with a collection, which items to preserve, how much and what to do to them, and who is involved in the decision are not just simple technical matters relating solely to preservation.

- How do we prepare to respond effectively to different demands that the changing priorities of an institution may make on a collection, so that an acceptable balance is maintained between access and care?
- How do we go about ensuring that all the issues which contribute to a balanced decision are being taken on board?

Collection care needs are more likely to be understood and resolved if they are debated and discussed within the context of the institution's aims and objectives. This broad setting brings together different people with different ideas for collection use and introduces more complex relationships than a simple one-to-one contact between the curator or conservator and the collection.

Given the understandable pre-occupation of museums with issues of survival such as threatened or real funding cuts, management may ignore collection care issues unless they are perceived as integral to the institution's overall plan. In fact, it is becoming more difficult for museums to commit money to anything that is not a core activity, even when it falls within its plan; this is particularly so for 'behind-the-scenes' work.

So it is vital that collection care issues are presented as an unalienable part of this plan. The priorities of collection care — no matter how urgent or important — cannot stand apart from the overall priorities of the museum; if they do, they are unlikely to attract support and may be sidelined indefinitely.

So how can resources for collection care be argued for, on an equal basis and at the same time that collection access is being planned? Prioritising resources involves a wide range

of internal and external interests. Care must be taken not to tilt the balance of the argument either too much in favour of access so that collections are exposed to unacceptable risk of damage, or too much in favour of collection care to the exclusion of collection use. The skill is to know when the right balance has been struck.

What arguments are usually employed to convince others of the need for action? We generally use technical arguments to persuade others of our point-of-view; we argue for more equipment, additional space, improved training, more staff etc. maybe ignoring the financial straits in which the institution might be in; we intone dire warning of deterioration caused by a poor environment; we write condition reports noting the extent of damage and we send them to whoever we think ought to read them. But is this approach convincing? How easy is it to digest and use a detailed technical report? Will it enable the problem to be prioritised? Will whoever receives the report have time to read it?

In order to overcome some of these problems a cost/benefit appraisal method can be used to provide shape and form to our arguments. This is necessary because others must be convinced of the need for investment; others are interested in collection use; others are making decisions on the allocation of resources; others may end up making collection care decisions and outside pressures may force our hand when we are unprepared.

A cost/benefit appraisal exercise consists of two parts: a financial appraisal of capital and revenue costs and a non-quantified assessment of benefits. The financial appraisal involves obtaining estimates for all the options being considered. For example if options for housing a collection are being considered these might include: cost of design work, surveys, building works, fitting out, consultancy fees, running and maintenance costs. But if only the costs are compared, it is almost inevitable that the option with the lowest price estimate will be selected. After all, why should we spend more than necessary?

There may be times when the benefits could justify a higher expenditure. But how can we tell the difference between justifiable expenditure and unnecessary waste? Some form of comparable measure of the benefits of each option, or options appraisal is needed.

This part of the appraisal enables potential benefits to be measured by assessing the extent to which the options fulfil the aims and objectives of the institution's plan. The emphasis given by management to individual aims and objectives may change from year to year and this will also affect funding priorities. So the relative importance of the aims and objectives must be clarified before an options appraisal is carried out.

The different options will have a different scale of benefits for a collection and its host institution. These benefits can be numerically scored. This is the outcome of the discussion on how well each option fulfils the individual aims and objectives of the plan. The exercise of comparing all the options with the museum's plan should involve a multidisciplinary team including curators, conservators, scientists, researchers, education officers, events managers, marketing personnel and building managers.

By comparing the estimated costs and benefits of each option, the option which appears to deliver the greatest benefit at the lowest costs emerges as the preferred solution. If a costly option emerges as the one likely to deliver the greatest benefit, its acceptance can be argued more convincingly, particularly if sensitivity analysis of the preferred solution has been carried out. This analysis will test the robustness of the proposal compared to other discarded options. These test consists of asking "what if.....?" questions, to see whether any change of circumstances might produce a change of the preferred option.

Conclusion

A cost/benefit appraisal method has a number of advantages:

- It can convince others of the need for appropriate levels of investment
- It involves others who may be more involved with collection use than collection care
- It involves those making decisions on how resources are allocated
- It involves others who may not deal with collections on a day to day basis but whose decisions may affect the survival of a collection.

Using Botanical Records to Interpret Changes in Frequency of British Plants

Timothy C. G. Rich

Department of Biodiversity and Systematic Biology,
National Museum and Gallery of Wales.

Introduction

Change in frequencies of botanical records can help us to understand what is happening to the British flora. This has applications in monitoring for conservation and environmental change. There are three main types of botanical records which can be used:

1. *Herbarium records.* These are the most important source of high-quality information as identification can be verified and there are often useful details annotated onto the sheets. There are a few problems with incorrect or inconsistent labelling, and there are relatively few recent specimens due to changes in attitude to collecting.
2. *Literature records in floras and journals.* These tend to be well-known and widely available, but the identification cannot be verified without voucher material and the records are often copied uncritically.
3. *Field records.* These are unpublished notes or records made on standard Biological Records Centre record cards. They tend to be poorly documented, cannot be verified and the original details are relatively

inaccessible, though the summary details are often available on computer. Since the 1960s these have been the main source of records.

Original sources should always be checked. Overall, botanical records tend to be incomplete, biased towards well-known sites, ambiguous, a small sample of the whole picture, and a fascinating challenge to put together. Analysis of the changes in number of records is further complicated by variations in recording effort, and in most cases it is only possible to assess the general trends from the data. The following four examples have been selected to illustrate how the data can be used and some of the problems.

Cotswold Pennycress (*Thlaspi perfoliatum*)

Records of this rare native species of the Cotswolds were compiled from a wide range of sources (Rich, Kitchen & Kitchen, 1989). After a careful conservative assessment of the records it has occurred in a total of 45 native and 37 introduced sites in Britain, but is now only known in nine native sites (80% decline).

Changes in the status of Cotswold Pennycress with time is difficult to interpret due to the inconsistency of botanical recording. When the total number of individual records per decade are plotted there are large fluctuations (Figure 1), which are probably explained better in terms of the recording behaviour of botanists rather than changes in frequency of Cotswold Pennycress. With the rise in activity of the Botanical Society of London in the 1830s and 1840s, there is an increase in the number of records, followed by a trough in the 1850s when the Society collapsed. Collecting by its successor, the Botanical Exchange Club, in the 1860s and 1870s again results in many records with a peak in 1880. The trough in the 1890s is less easy to explain, but the troughs in the 1920s and 1940s may be due to the depression and Second World War respectively. A further rise in the 1950s and 1960s can be attributed to recording enthusiasm resulting from the Botanical Society of the British Isles Maps Scheme, and the rises in 1980s and 1990s to the conservation work carried out on this plant. The number of records per se is thus a poor measure of the status of the plant.

This type of variation can be simplified by summarising the records by 10-km square and/or decade, and extrapolating between the first and last dates of records. Figure 2 shows the number of native 10-km squares from which the plant would be expected to be recorded per decade assuming continuous presence in the 10-km square from the date of the first record to the last. The rise to a peak in the 1860s reflects the increasing knowledge of the distribution of the plant at a 10-km square level, with two main periods of decline, between 1900 and 1920, and in the 1950s and 1960s. The latter is due to the agricultural revolution. Figure 2 gives a better picture of changes in the frequency of the plant than Figure 1.

Red-tipped Cudweed (*Filago lutescens*)

This rare species is difficult to identify and has been poorly researched in Britain. A detailed study was therefore undertaken using mainly verified herbarium material from 20 herbaria, resulting in over 400 records.

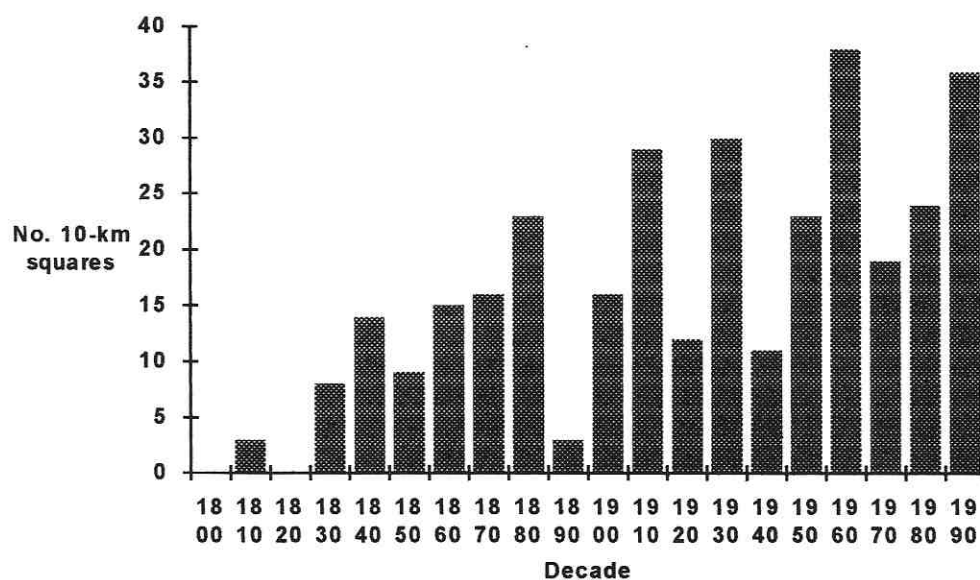
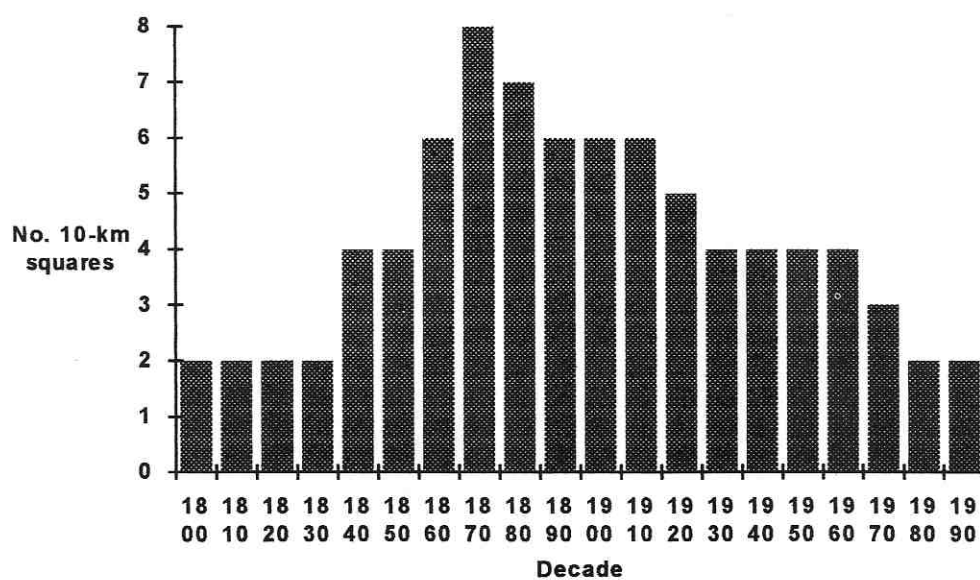
Figure 1. Total number of Cotswold Pennycress (*Thlaspi perfoliatum*) records per decade.Figure 2. Extrapolated number of native 10-km squares for Cotswold Pennycress (*Thlaspi perfoliatum*) per decade.

Figure 3. Distribution of Red-tipped Cudweed (*Filago lutescens*) in South-east England. ■ 1990 onwards. ● 1950-1989. ○ Pre-1950 and undated records.

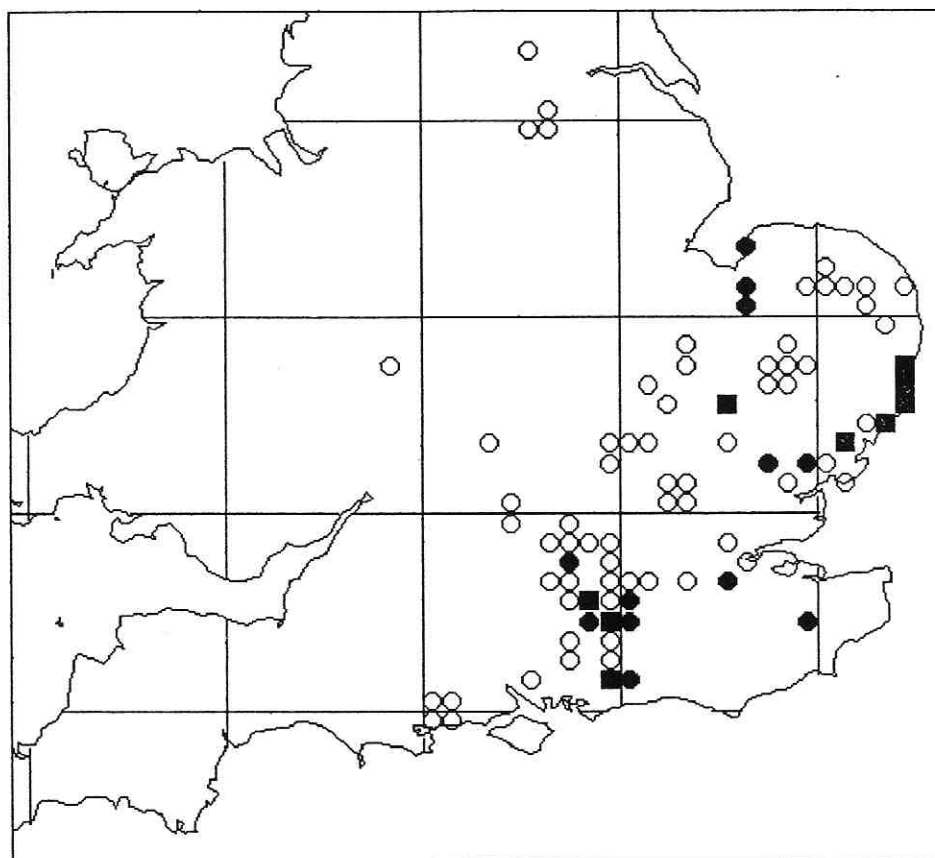
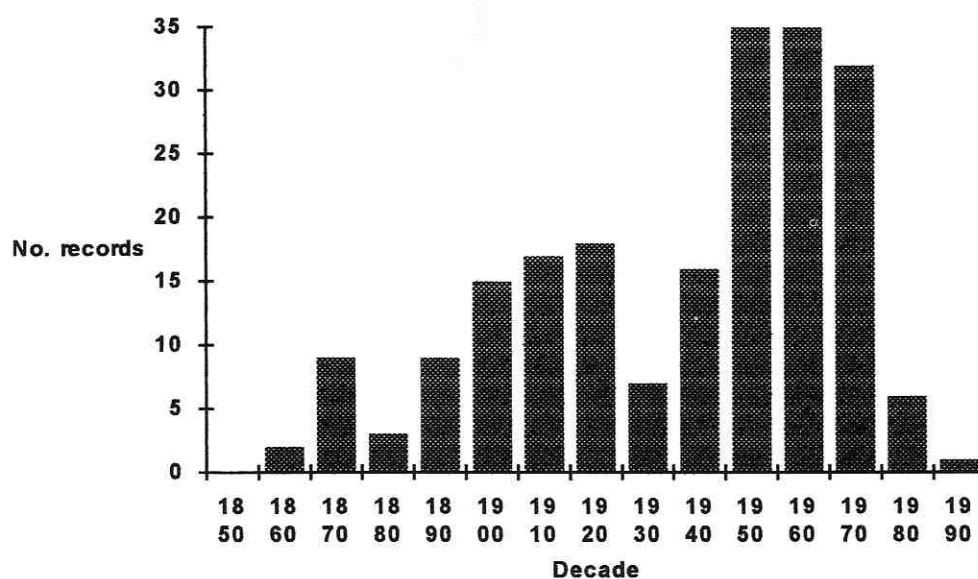


Figure 4. Total number of Ragweed (*Ambrosia artemisiifolia*) records per decade. Data for 1980 and 1990 are incomplete.



It has been recorded reliably in 86 10-km squares in south-east England and records for 11 squares have been rejected (Figure 3). The map in the Atlas of the British Flora (Perring & Walters, 1962) has only 53 correct 10-km square records (61% of Figure 3) and 6 errors (11%). Virtually all the records in Figure 3 available at the time the Atlas of the British Flora was compiled but were not researched. The more complete historical data has also resulted in it being categorised as 'vulnerable' in the forthcoming Vascular Plant Red Data Book rather than merely 'lower risk' (M. J. Wigginton, pers. comm. 1995).

It has been recorded in only 14 sites in ten 10-km squares since 1990. An analysis of the habitat information on the herbarium sheets shows that it has declined in arable field habitats, tracks and heathland (Table 1). These are due to changes in agricultural practices and reduced disturbance respectively. The dates of records show that much of the decline had taken place by the 1960s (data not presented).

Ragweed (*Ambrosia artemisiifolia*)

Ragweed pollen is the worst cause of hay fever in the world (Rich, 1994). In Britain, Ragweed is currently a rare introduction which does not persist as the climate is too cold for it to set viable seed. However, with global warming it could become established when the summer temperature is about 2°C warmer, with the potential to cause misery to millions of hay fever sufferers.

Ragweed has been regularly introduced to the British Isles from North America since the 1860s, often associated with rubbish tips, docks, farmland and bird seed. There was a large increase in records from the 1950s to 1970s (Figure 4), resulting in a Sunday Times report that Britain is about to suffer an imminent plague of Ragweed (Connor 1997). A detailed and sober investigation of the records had already suggested that this increase is a function of increased interest in alien plants and visits by botanists to rubbish tips rather than an imminent plague (Rich, 1994). Indeed, following the waste disposal regulations in the 1970s, rubbish tips have been covered with topsoil and no longer provide a habitat for the plant. At the current rate of climate warming of 0.2°C, Ragweed is unlikely to be a problem for a century.

Small Cow-wheat (*Melampyrum sylvaticum*) and Pyramidal Bugle (*Ajuga pyramidalis*)

These 'Nationally Scarce' plants of northern Britain have shown significant declines according to the maps presented by Stewart, Pearman & Preston (1994). Concern about the quality of the information on which they were based led Scottish Natural Heritage to commission a review of the ecology and distribution of each species, including the information on which the maps were based (Rich, FitzGerald & Kay, 1996).

A comparison of the number of herbarium records for each species in the Nationally Scarce Plants database with the detailed review is shown in Table 2; herbaria have clearly been under-utilised as a source of information. For Small Cow-wheat especially, this has resulted in many valid records being over-looked and some incorrect ones being included in the database (Rich, 1997).

Conclusions

Botanical records can be used to show changes in the British flora. The actual numbers of records vary depending on botanical activity throughout the country, and this recording effort also varies with species, locality and the method of recording. The resulting complex patterns of records require careful interpretation.

Herbaria provide a very important source of high-quality historical information. They provide dates, localities, sometimes other information such as habitats and, most importantly, reference material which can be verified. Surprisingly few botanists utilise herbaria, perhaps due to the effort involved in visiting or borrowing material. Computerised registers of specimens would probably help advertise that the information is available.

Acknowledgements

Thanks to the keepers of the herbaria ABRN, BM, BRIST, BRISTM, BTN, CGE, CHM, DZS, E, GL, GLR, GLAM, IPS, K, LANC, LIV, LSR, LTR, MANCH, MNE, NMW, NWH, OXF, PLH, RAMM, RNG, SLBI, TTN, US and WARMS for access to the collections through the years. The Filago work was funded by Plantlife, the Small Cow-wheat and Pyramidal Bugle by Scottish Natural heritage and the Ragweed work by Marion Merrell Dow Ltd.

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Please Note Change of Address

Jane Pickering (Chairperson)
The Museums of the Royal College of
Surgeons of England
35-43 Lincoln's Inn Fields
London, WC2A 3PN
Tele.: 0171 973 2188
Fax.: 0171 405 4438
email : jpickering@rcseng.ac.uk

Table 1. Habitats of Red-tipped Cudweed (*Filago lutescens*) in Britain compiled from records. Repeated records from the same site are not included. 114 records (43% of all historic records) have no habitat noted.

Habitat	Number (and %) of pre-1990 records	Number (%) post-1990 records
Fields or arable	65 (43%)	4 (29%)
Roadsides, lanes, paths, tracks	24 (16%)	3 (21%)
Gravel and sand pits	12 (8%)	2 (14%)
Commons and heathland	12 (8%)	1 (7%)
Sandy or gravelly ground	12 (8%)	1 (7%)
Fallow or stubble fields	7 (5%)	1 (7%)
Railways	6 (4%)	1 (7%)
Gardens	3 (2%)	
Woods (presumably on tracks)	2 (1%)	
Chalk pit	2 (1%)	
Meadow	1 (0.7%)	
Clay pit	1 (0.7%)	
Golf links	1 (0.7%)	
Rubbish tip	1 (0.7%)	
Market garden	1 (0.7%)	1 (7%)

Table 2. Number of records of Small Cow-wheat (*Melampyrum sylvaticum*) and Pyramidal Bugle (*Ajuga pyramidalis*) in herbaria in the Scarce Plants database compared with the total number in each herbarium.

	Small Cow-wheat		Pyramidal Bugle	
	No. records in scarce database	No. records in herbarium	No. records in scarce database	No. records in herbarium
BM	2	51	24	26
BRISTM	—	9	—	3
E	3	35	9	23
GL	1	5	—	3
GLAM	—	6	—	1
K	—	21	—	6
LIV	—	15	—	5
MANCH	—	10	—	9
OXF	—	15	1	6

Biostratigraphy and the Biological Curator

Christopher J. Cleal

Department of Biodiversity and Biological Systematics,
National Museums and Galleries of Wales.

Introduction

In an ideal world, this paper would be irrelevant to most readers of this journal. Palaeontological collections would be under the care of a qualified Earth science curator, who

would be familiar with the background and needs of biostratigraphy. However, we are not in such a world and there are many museums with palaeontological collections where the curator has a mainly biological background. Fossils are of course the remains of once living objects and so do not entirely fall outside of the remit of the life sciences. The reasons for curating a specimen of, say, a dinosaur fossil do not really differ significantly from why we curate a specimen of a modern lizard. However, biostratigraphy is an aspect of palaeontology for which curation plays a slightly different role and which will be briefly discussed in this paper.

What is biostratigraphy?

In biostratigraphy, the distribution of fossil species is used to correlate sequences of rock. The idea is that the species alive at any one place will change with time, through the effects of evolution. At a simplistic level, if a unit of rock in one locality contains the same suite of species as another unit of rock elsewhere, the two units are probably of about the same age. In practice, the exercise is rather more involved than this as environment can obviously significantly influence the composition of faunas and floras, and environmental change will often occur at different times in different places.

The normal practice is to establish the vertical stratigraphical ranges of the species through a rock sequence and to establish patterns, particularly in their appearances and disappearances. Using this pattern, the sequence is divided into units called Zones, which are usually named after one of the characteristic species. By comparing the sequence of zones between different areas, it is possible to establish what are called homotaxial correlations. These are not strictly time-correlations, as many different factors can affect the distribution of zones. However, by a judicious choice of species on which to base the zones, and by comparing homotaxial correlations between different groups of fossils and even with abiotic changes, such biostratigraphy can approach time correlation with a reasonable degree of confidence. It must be remembered that the resolution of time on a geological scale is coarse on a human time-frame; a few thousand years here or there is usually of little importance. Further discussions on the general background to biostratigraphy can be found in Doyle et al. (1994) and Cleal (in press).

The factual basis of biostratigraphy

Such a biostratigraphical model is clearly dependent on a vast array of identifications of fossils at different stratigraphical horizons. When data such as these are presented in a published form, it is obviously impossible to illustrate all of the specimens that have been studied. Usually all that is provided are lists and/or tables of species names. This would be all well and good if the taxonomy of the fossils was stable. But, in many groups, including my own of palaeobotany, the taxonomy is anything but stable and species have a habit of splitting or lumping or changing name, as more is learnt about them.

One option is of course to go back and re-collect from the original sites that were studied, but this is not always

possible. Many sites are temporary exposures, such as quarries, which are often seized on by local authorities as waste-fill sites. Even natural exposures are not always immune from destruction; coastal cliffs can be covered as part of coastal defence work, and river sections flooded by damming. Much biostratigraphical data comes from borehole cores, which can be re-drilled, but the cost is normally prohibitive.

Particularly when dealing with the older literature, it is vital that the original specimens are re-examined, as this is the only way of checking what the biostratigrapher was meaning when he or she used a name in a list. This is where the museum comes into its own. The collections stored in museums are normally the only link between a biostratigraphical model and the palaeontological reality on which it is based. It may mean large collections of such fossils need to be kept, which might make for practical problems, especially within smaller institutions. However, without these specimens, the entire biostratigraphical model loses its credibility.

Case histories — the David Davies and Emily Dix collections of plant fossils

David Davies was an agent and then colliery manager in South Wales during the early part of the 20th century (Thomas, 1986). His occupation gave him an almost unrivalled opportunity to collect vast numbers of plant fossils from the coalfield, which he did for much of his working life. His collection, which he donated to the National Museum of Wales, consisted of some 30,000 specimens and provides a magnificent record of the vegetational changes that took place in South Wales during the Westphalian Epoch (about 315–306 million years ago).

The plant biostratigraphy of the South Wales coalfield had been studied by several geologists and was widely recognized to be the most complete sequence of floras of this age from anywhere in Europe or North America. However, most studies had been based on relatively small collections and several outstanding problems remained, in particular the age of the topmost part of the sequence. These topmost rocks are mostly very poorly exposed and the opportunity to collect new material was limited. Emily Dix, who was a young palaeobotanist in the later years of Davies' life, had suggested that these beds were younger than the Westphalian, extending into the succeeding Stephanian Epoch (Dix 1934), but most geologists dismissed her conclusions partly because she did not have that many specimens for these upper beds.

Dix was aware of Davies' collection and mentioned part of it in her 1934 paper, but she did not refer to his material from the topmost beds in the succession, which was far more abundant than her own. However, when this problem was being re-examined in the middle 1970s, the evidence from the Davies collection was incorporated (Cleal 1978). At that time, large parts of the collection were still wrapped in newspaper and stored in old shoe boxes, but every specimen was carefully labelled, localized and numbered (it should be made clear that the collection has now been re-housed and is stored in Cardiff under excellent conditions!). The c. 10,000 specimens from the upper beds provided exactly what was

needed. The key index species were indeed in the uppermost beds, confirming that Dix was correct: the topmost beds are Stephanian in age. The collection in fact allowed a total revision of the biozonal classification for the rocks of this age, a scheme which has since been widely used in Europe and North America (Cleal, 1978, 1984; Zdzewski & Cleal, 1985; Wagner & Alvarez-Vázquez, 1991). Without the stewardship by the National Museum of Wales of Davies' extensive collection, our understanding of the vegetational changes occurring at that time, and of the exact dating of the South Wales Coal Measures, would have been significantly poorer.

It is not just large collections that can be important to biostratigraphy, though. An example where just a single specimen played a vital role in unravelling a biostratigraphical problem relates again to the work of Emily Dix. Although initially interested in the South Wales Coal Measures, she later extended her interests to the English Midlands. The problem here is that the top part of the sequence consists of red-beds that are very poor in fossils. Nevertheless, Dix and her colleagues did find some rare examples, which she briefly recorded in a short paper (Dix 1935). One of the species that she recorded was particularly important (*O. cf. schlotheimii* Brongniart) as it suggested that these rocks were in fact Permian rather than Late Carboniferous in age. If this was correct, it implied that there was probably a major break in the sequence of rocks, which in turn suggested a major bout of uplift and mountain-building (tectonics). This would have major consequences for understanding the geological evolution of this part of Britain, with a knock-on effect on the wider geological evolution of northern Europe.

These specimens were never figured. The situation became worse when Dix fell ill with a debilitating mental disorder, which prematurely terminated her career at the end of the 1940s. Her collection, which was then housed at Bedford College in London, was partly dispersed. Nevertheless, Dix's identification repeatedly found its way into the literature as justifying the very young age for these beds in Warwickshire.

A search was made for this specimen in the early 1990s, including the NMW, but with no success. The problem was then pursued through the pages of the Geological Curator, the journal of the Geological Curators' Group. In their 'Lost and Found' section, where such problems can be aired, a request was made for any information on this material. This elicited a letter from John Faithfull of the Hunterian Museum to the effect that they had discovered at least some of the specimens in question. Although their catalogue had been checked during the initial trawl for information, these specimens had been kept in the Hunterian Museum's secondary stores and so had not been included in their catalogue.

When examined, this specimen proved to have nothing to do with *O. schlotheimii*, but was probably a fragment of *Odontopteris cantabrica* Wagner frond, a species poorly known in Dix's day, but now known to occur rarely in the basal Stephanian of Britain, Spain and Nova Scotia. Without the stewardship of this material by the Hunterian, a vital piece of the story of the geological evolution of Britain

would have remained an enigma. The specimen in question is undoubtedly poorly preserved and might not be deemed to have much scientific merit. It is however identifiable and when put in its proper biostratigraphical context, provides a vital clue to this problem.

Concluding remarks

Museums play an essential role to play in most aspects of the Natural Sciences, but are especially important in biostratigraphy. As it is still the best means of correlating sedimentary rocks, biostratigraphy is central to the development of our understanding of the geological evolution of the planet. It also plays a vital role in many aspects of economic geology, such as exploration for resources such as oil, coal and gas. The more biologically orientated palaeontology studies normally include photographs of the key specimens. Such images are obviously not the same as the actual specimen, but at least they provide some direct insight into what a palaeontologist is describing and interpreting. Biostratigraphers in contrast usually only have published lists of identifications to work with, which on their own are not enough. They must be able to check the original specimens to confirm their identification, and whose conservation by Museums is therefore crucial.

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I would like to thank Victoria Purewal for inviting me to give this lecture at the BCG meeting at Cardiff. I am also grateful to her for reading through the manuscript and suggesting many improvements.

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A National Strategy for UK Systematic Biology Research

The UK Systematics Forum

Systematic biology, the comparative study of living and fossil organisms, underpins all other natural sciences. It is commonly accepted as being fundamental to the conservation of biodiversity, sustainable development and areas such as pest control, food production and health.

Systematics research is carried out at a large number and wide variety of institutions around the UK, including national, local authority and university museums, botanic gardens and zoos, culture collections, research institutes and universities, and it is funded by a correspondingly wide range of bodies. The structure and organisation of the community is such that a coordinated approach is not easily achieved. A national strategy for systematic biology research aims to strengthen UK systematics by demonstrating its importance and by establishing a community-wide commitment to working in collaboration and co-operating at policy level.

The UK Systematics Forum was set up in 1994 as part of the Government's response to the House of Lords' report on Systematic Biology Research¹. It was initially funded with the broad aim of promoting coordination and communication between the major collections holding institutions and the wider systematics community. In 1996, the Forum was awarded funding for a further period to develop the national strategy.

Aims and objectives of a national strategy

A national strategy for systematic biology research will help to:

- reaffirm the primary value of systematic biology research
- ensure that users' future needs are met effectively
- promote best possible use of available resources
- enhance co-operation and collaboration between institutions
- strengthen the case for funding
- create a powerful voice for UK systematics

As in many areas of public spending, resources are limited. The strategy therefore needs to demonstrate what the systematics community is doing to ensure that the best possible use is being made of existing resources as well as showing clear priorities for where new funding should be directed. By increasing collaboration between institutions and presenting a clear case for what additional resources could achieve, the strategy will help strengthen the case for funding and for systematics.

The national strategy document will set out:

- what systematics is and why it is needed;

¹ Systematic Biology Research, HL Paper 22-I, HMSO, 1992.

- what the main objectives and priorities for systematics research are;
- what is needed to achieve these objectives (in terms of training and education, information technology, networking, raising awareness and funding), and;
- how to implement the strategy.

Finally it will set out what the systematics community is committed to doing towards the strategy and make recommendations for action by others.

Developing the strategy

The strategy is being developed by a process of gathering information — on user needs, UK expertise, and institutions' collections policies — pooling expertise to draft a series of objectives, targets and action points; and then further shaping these into a strategy through a process of consultation with the wider systematics community, user groups and policy makers.

A survey of user needs was carried out by a market research group who interviewed a number of users from a wide variety of sectors; commercial, conservation, funding bodies, government departments, research, environmental consultancy and publishing. A summary of their report can be found on the Forum's Home Pages at (<http://www.nhm.ac.uk/uksf>). Many of the findings of the survey were to be expected although it has clearly demonstrated the common misunderstanding of what systematics is, even among other scientists.

The Forum aimed to complete the first draft national strategy by the end of August '97. This draft will form the framework for debate at a series of meetings to be held as part of the consultation process. Systematists registered on the database of UK expertise and user groups will be invited to regional meetings to discuss and input to the Strategy. Funding bodies and other user groups will be invited to a series of three seminars being held at The Natural History Museum, the Royal Botanic Gardens' Kew and Edinburgh, to raise awareness of the issues and build support for the Strategy. Specialist groups, such as BCG and GCG will also be invited to submit comments on the draft document.

Input from these groups will feed into the final document and be presented to the Directors of the major collections-holding institutions in December '97. The final document will be launched in March 1998 and be followed by a plan to implement the Strategy during the remainder of the year. During this time the Forum will also be looking for an institution to take over funding and hosting the Forum during its perceived future role in overseeing the implementation of the Strategy.

A National Strategy will only succeed if it is developed with consensus from the systematics community and policy makers. Anybody wishing to contribute to the developing document is therefore encouraged to attend the regional meetings.

For further information on these or other Forum activities please contact E. Watson at UK Systematics Forum, c/o The Natural History Museum, Cromwell Rd, London, SW7 5BD (e-mail: ew@nhm.ac.uk) or view the Forum's Home Pages at: <http://www.nhm.ac.uk/uksf>.

Inter-Departmental Curatorial Exchanges at the Natural History Museum, London

Julia Pope and Karen Webb***

** Collections Management Division, Department of Entomology, the Natural History Museum.*

*** Curation Division, Department of Botany, the Natural History Museum, London.*

Abstract

Curator exchanges can be an economical and practical way of sharing skills and experience. Decreases in funding coupled with the emergence of museum standards initiatives such as the Museums & Galleries Commission (MGC)'s Registration Scheme means that improved communication between and within museums is a particularly important issue. This paper describes a curator exchange between the Departments of Botany and Entomology in The Natural History Museum, London, and discusses some of the benefits and problems.

Background

The exchange described here is part of a curation training programme at the Natural History Museum, London. In the Museum, curators have exchanged within groups in the same department, between museums, and now between departments. In the Entomology Department, curators have spent some of their time expanding their knowledge and skills by working with new groups of insects. In July 1993, a curator from the Museum's Botany Department went to work in the Missouri Botanical Garden and the New York Botanical Garden for a month. The arrangement was reciprocal and a return exchange is expected. This paper describes a trial exchange between the Departments of Botany and Entomology.

Details

This exchange involved the participants working half of their time in each department over a six month period between November 1996 and May 1997. It was not a direct job swap. A variety of projects were designed to present the two participants with unfamiliar techniques and procedures.

Botany (Julia Pope)

In Botany, the exchange tasks covered a variety of curatorial activities including laying out, laying in, plant mounting, re-curation and databasing. The process of laying out specimens requires some understanding of the main characteristics of plant groups and the most effective ways of displaying them. Actually mounting the plants was useful in terms of learning about the techniques and materials involved.

Various herbarium arrangements are employed; the algae arranged alphabetically within major groups, the ferns and flowering plants according to various publications and lists. Laying in specimens in different parts of the collection

provided hands-on experience of these various herbarium arrangements.

Specimens to be sent on loan are bar-coded and databased. Although the Entomology Department's collections management system is also Paradox based, databasing in Botany was still a learning experience allowing familiarisation with plant characteristics, the collectors and their handwriting.

Entomology (Karen Webb)

Three main tasks were carried out in Entomology. The first was the re-curation of three genera of Owl butterflies (*Nymphalidae*, *Brassolinae*). Handling butterflies with forceps is a world away from boiling indestructible diatoms in acid. Several new skills were learnt whilst this task was carried out, including a limited amount about butterfly taxonomy since the re-curation was brought about as a result of a published revision. This was a finite and challenging task which brought about a considerable sense of achievement on completion.

The second task involved contributing towards a condition survey of some 5,000 butterfly accession drawers housed in a compactor unit. This vast resource had not been previously indexed at any level. The surveying process included indexing the collections to various levels of recoverability, cleaning the drawers and assigning a condition level. The survey was based upon the system used on the insect collections at the National Museum of Natural History, United States (McGinley 1992).

Registration with the MGC requires a rolling programme of condition surveys across the museum's collections. The exchange gave hands on surveying experience working closely with curators who were familiar with the surveying methods. This skill will be required by at least one member of staff in each department, in order to meet the requirements of museum registration.

The third task — the amalgamation of data from two sets of file cards onto one electronic database for the skipper butterflies (*Hesperiidae*) — emphasised the need for accuracy.

Benefits to the Museum

The exchange programme has benefited the Museum by helping to increase communication both internally and between the museum and other institutions. The programme has allowed curators to share skills, experiences, problems and solutions. From a personal point of view, the exchanges have given the participants the opportunity to expand their knowledge, and so potentially to develop their careers.

Problems

Considering the number of staff who have been involved with the exchange, remarkably few problems arose. The main difficulty was pressure on time. As the exchange was set up, two and a half days each week were to be spent in the host department. Ongoing commitments in our home departments meant that the time actually spent on the exchange was rather less. We believe that such an exchange would be more effective if full, rather than part time. This

would eliminate the intrusion of ongoing job commitments. Also, if each exchangee shadowed their counterpart in the host department before swapping roles later in the exchange, intrusion on other members of staff in the host department would be minimised. The authors emphasise that all members of staff were very helpful during their exchange!

Although research and curation are separate divisions in both departments, the research staff had some input into the exchange. Some researchers needed convincing that the exchange would benefit the collections. The suggestion was made that the curators involved might profitably spend the exchange time on actually learning about their specialist groups. We found that exchanges benefit the collections directly, especially in terms of condition, accessibility and simply that another person in the world understands the machinations of botanical and entomological curation.

Conclusion

As participants in this ground breaking exercise in the Natural History Museum, we would recommend that at the start of any future comparable project, the exchangees should have clearly defined objectives. The job plan can then be tailored according to individual needs, so it might involve finite projects that emphasise a narrow specialisation, or general curatorial tasks that provide a broad overview of the host department. In a vote carried out after an internal seminar on the subject, the majority of staff expressed support for such exchanges.

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IT - Access and Training

Nick Goff,

North Somerset Museum Service

I would like to talk about a project instigated by the Museum Training Institute that explored an important area for everyone in museums: Information Technology and its use.

We all know that IT is here to stay. It has percolated into all aspects of the commercial world. The CBI has identified IT skills as one of the key skills for effective organisations. It won't be long before facility in using a computer is considered a basic office skill, just as operating the telephone is now. We are no longer dependent on specialist telephonists.

Yet 45% of adults have not used IT. For many people their only contact with IT is in their workplace. Which means that, without some way of breaking into the world of IT, those who are not computer-literate and comfortable with the technology are caught in a Catch 22: lacking skills to get work and not having work to get skills. And as technology moves on apace they get left further behind.

Training in IT is one way to break out of this trap.

The project MTI put together, called Technology Foresight, was one of many submitted to the Department for Education and Employment for funding under the UK Technology Foresight Programme. The majority of projects that received funding were related to academic or scientific developments, such as halibut farming and flatter television screens. MTI's proposal, to look at improving the use of IT in the museum sector, and the training implications of that, was the only one relating to our sector, and the only one to address "quality of life" issues.

So what happened? A series of workshops was run, by MDA, around the country for museum workers, to give a flavour of the ways IT could be used in museums. This went far beyond just computerising the documentation. Each workshop included a session on writing a World Wide Web page. The workshops also provided information for an analysis of training needs in IT. A report on the state of IT in the museum sector was commissioned. A forum of key individuals took place to bring together decision-makers in the museum sector, delegates from workshops, representatives from the training sector, from computing and academic worlds and from similar sectors such as libraries.

What has emerged is that the place and role of IT in museums is changing. We are moving on from collecting data about objects to making information available, in the form of modified and interpreted data, as a product, and often in a distributed way beyond the walls of the museum. There is also a pressure to make this information re-usable and able to be shared. In other words, IT can be a very powerful tool to help museums meet their aims, especially to improve access to collections and the information about them. Already there are pilot schemes running and useful models from other sectors.

But, to make the most of the opportunities, there is a need to ensure that appropriate training is available, at the appropriate level.

The results of the training needs analysis and the conclusions from the forum will be drawn together into a final report. This in turn is informing MTI's National Training Strategy. As a result the museum sector will have a much clearer idea of how to keep its head above water in the rising sea of new technology.

But possibly most importantly, Technology Foresight could unlock additional challenge funding that can make a real impact on the IT training needs across the museum sector, and in partnership with other sectors.

Hidden Treasures

M.H. Lazarus,

Department of Biodiversity and Systematic Biology National
Museum and Gallery of Wales, Cardiff.

In 1989, the Conservation Project at the National Museums and Galleries of Wales was set up for an initial 2 year period eventually being extended to 5 years. Each department was assigned a conservator to be responsible for general care and condition of their collections. One of our tasks in the Botany Department was to tackle the storeroom

which was known to hold slumbering treasures of prints and drawings but, due to the lack of staff and time, had remained, like *Sleeping Beauty*, unawakened.

The collection, currently totalling 9,095 includes important items such as *Banks' Florilegium*, a large collection of black and white engravings of *Flora Danica*, the Drinkwater Collection (a delightful group of 385 drawings in gouache of British plants), the Crowley Collection (a charming set of watercolours carried out by the family of sisters and aunts in Alton, Hampshire in the 1920s), 21 Nature prints by Bradbury and Evans in 1854, the Towers Collection and some recent work executed by Dale Evans (winner of the Jill Smythies Award for Botanical Illustration, 1991, The Linnean Society of London) who was employed in 1983 by the Museum to produce posters, notelets and cards. However, one of the largest single components of our holding is what we refer to as the Cymmrodorion Collection which contains an interesting and wide-ranging group of drawings. From the conservation point of view, a standard form was taken and adapted for our collection of photographs, lantern slides, wax models, wood sections and prints and drawings. In fact, although kept in old, heavy, wooden boxes (some badly damaged), the collection was in surprisingly good condition but was in need of cleaning, re-mounting onto acid-free mountboard and re-housing into acid-free solander boxes and kept in a cool, dry, stable environment.

Historical background

In 1939, the Honourable Society of Cymmrodorion — a learned group of scholars dedicated to promoting all things Welsh in the Arts and Sciences — donated to the Museum, a large collection of botanical prints believed to have been formed by Welsh sculptor, Joseph Edwards (1814 - 82).

These 760 prints revealed treasures untold: each box contained new delights. Previously they had been accessed scientifically by genus and species but now new eyes saw them with the additional exciting dimension of exquisite draughtsmanship and historical importance in the analysis of the evolution of the relationship of art and science in the history of botany.

Within the total of 36 boxes, many of the milestones in botanical history are portrayed by a selection of the most talented botanical illustrators of the seventeenth and eighteenth centuries. This article tells the story behind the artists and their works.

Georg Dionysius Ehret (1708-70)

Plantae Selectae (1772) by Georg Dionysius Ehret was one of the great European botanical iconographies, published towards the beginning of a 100 year period which might well be regarded as the golden age of European botanical drawing. It bears witness to the coming together of three vital elements: a superb artist, engravings of the highest quality by Haid, and an enlightened and wealthy patron.

Dr. Christoph Jakob Trew (1695-1769), an eminent physician and botanist from Nuremberg, was the patron who insisted that Ehret, in accordance with Linnaeus's system of classification (1737-38), should emphasise the 'sexual character' of each plant i.e. the parts of the flower. Between

1750 and the early 19th century, roots virtually disappeared from botanical art, appearing only if they were of medicinal or of economic significance. The over-emphasis of the flower reached its apex in the doomed Temple of Flora by Thornton. The engravings of the pineapple and papaya included in this publication would be the first sight that people in Europe had of the exotic fruit brought back by the voyages of discovery. In Linnaeus's home outside Uppsala, he papered the walls with Ehret's hand-coloured engravings, at least five of which we have in our collection of twenty-nine.

Pierre-Joseph Redouté (1759-1840)

Although appointed draughtsman and painter to the Cabinet of Marie-Antoinette, Pierre-Joseph Redouté managed to survive the French Revolution in 1792. Under the patronage of Josephine (Napoleon's first wife) he became famous for the two splendid works on the flowers of the gardens of the Malmaison — 'Les Roses' and 'Les Liliacés'. On a visit to England, Redouté came across the process of stipple engraving (etching by dots instead of lines) which gave particularly subtle tonal shades. Returning to France, he perfected the method and claimed to have invented this process of colour printing from a single plate, defending himself ably in an ensuing court case.

In *Traite des Arbres et Arbrustes* (1800-19), an early work of Redouté, the engravings have not been retouched by hand, which perhaps lessens the impact, but clearly demonstrates the technique of stipple engraving. It was difficult to have a dried specimen of succulents so botanists had to rely on illustrations such as in Redouté's *Plantae Historia Succulentarum* (1799-1829)

We have 40 illustrations from the above publications.

William Hooker (1785-1865) and Walter Hood Fitch (1817-92)

While Sir William Hooker was holding the Chair of Botany in Glasgow, he came across a young apprentice called Walter Hood Fitch, who worked for a firm of calico designers. Fitch's training suited him very well for botanical illustration and Hooker, who was in desperate need of an accomplished draughtsman, brought Fitch to London with him when he was appointed Director of the Royal Gardens at Kew. Fitch became an expert lithographer as is amply displayed in the drawings from *Rhododendrons from Sikkim-Himalaya* (1849-51). He soon became the sole illustrator for the *Botanical Magazine* (1854) until 1877 when he quarrelled with Sir Joseph Hooker (Sir William's second son and successor.)

Sir Joseph Dalton Hooker, a renowned scientist with an excellent reputation as a taxonomist and plant geographer, set off for India in 1847. In the foothills of the Himalayas, he found many splendid rhododendrons. Hooker sent home rather thin sketches with seeds and dried specimens and his father organised the publication of *Rhododendrons from Sikkim-Himalaya* by employing Fitch. The artist was said to have had marvellous powers of visualising plants as they had lived and of retaining their image in his memory. Joseph Hooker wrote 'It has been one of my purest sources of gratification to find that the fruits of my own Himalayan

journeyshave afforded to Mr. Fitch the means of executing...a series of drawings that have been pronounced as of unrivalled excellence in an artistic point of view.'

From Lindley's *Collectiana botanica* (1821-26), the *Catasetum hookeri* collected by William Sanson in Brazil was sent to W.J. Hooker in Suffolk in 1818, placed in the stove (heated greenhouse) there where it blossomed soon after and Hooker made a drawing which he sent to his friend John Lindley in London who published it four years later in *Collectiana Botanica*. The species was named by Lindley after Hooker.

From the above publications, we hold nineteen drawings.

Elizabeth Blackwell (- 1758)

In 1995, the department was successful in acquiring the two volumes of the *Curious Herbal* (1737-39) to add to our collection of 26 loose drawings by Elizabeth Blackwell. This herbal was undertaken to redeem Elizabeth Blackwell's husband from debtor's prison. She took lodgings near the Chelsea Physic Garden in Swan Walk in order to obtain fresh flowers and, encouraged by Sir Hans Sloane and various eminent members of the medical profession, she drew, engraved and coloured the 500 plates herself. Her husband, a languages scholar, translated the common names for her. On completion of the first copy, Elizabeth was allowed to present, in person, a copy to the College of Physicians who were so impressed with her work that they gave her an 'ample testimonial, in writing, of their approbation of her work.'

This herbal is important for the use of keyed details making the link between text images by labelling and distinguishing flower, fruit and seed. This was not done in earlier herbals (i.e. Gerard's). Blanche Henrey states Blackwell's *Curious Herbal* has the most comprehensive collection of figures of medical plants in any British book until the publication of Wm. Woodville's *Medical Botany* (1790-5). Perhaps this partly explains its great popularity. Botanically correct but amateurish in execution, it was expanded and re-published with Eisenberg's engravings by C.J. Trew, Ehret's patron, and named *Herbarium Blackwellianum* (1754-73).

James Sowerby (1757-1822)

James Sowerby, a knowledgeable scientist and talented artist, co-operated with Sir J.E. Smith, a Norwich botanist, to produce *Icones Pictae Plantarum Rariorum* (1790-93) displaying the rare plants grown in English gardens. This small, delicately engraved and hand-coloured flora was never completed. We have eight fine examples of Sowerby's work from this publication.

Robert John Thornton (1768?-1873)

The Temple of Flora (1799), an impressive, folio-sized book attempted to illustrate, explain and promote the Linnean method but in fact was closer to the florilegium tradition of emphasising the beauty of the plant rather than the scientific content. There was little value scientifically in this sumptuous book and, contrary to normal botanical practice, Thornton set the plant portraits (of which we have seven originals) against romantic landscapes. For example,

Thornton has set the Night-blowing Cereus (called *Cactus grandiflorus* by Thornton), a native of Jamaica and Cuba, in a very English moonlit background which makes a dramatic but rather incongruous picture. In his efforts to make this 'the most magnificent botanical publication ever produced', Thornton enlisted eminent painters and engravers to execute his original and unique conception. Sadly, this gorgeous book ruined Thornton financially. Although modern critics treat Thornton almost as a figure of fun because of his rather flowery and overblown prose, it must be remembered that it was popular at that time.

John Sibthorp (1758-96) and James Edward Smith (1759-1828)

Ferdinand Bauer (1760-1826)

In A.D.512, the classical Greek scholar, Dioscorides who was a doctor in the Roman army, wrote the most influential herbal for fifteen centuries called *De Materia Medica*. As a result of his interest in the plants recorded by Dioscorides, John Sibthorp, Sherardian Professor at Oxford arrived in Vienna in 1784 to study the manuscript in the National Library. There he met Ferdinand Bauer, a remarkable botanical illustrator, and persuaded him to join in his botanical tour of discovery round Greece. *Flora Graeca* (1806-40) is the result of this labour. It consists of 10 large folio volumes, comprising 966 plates after drawings by Bauer. In 1811, Thomas Martyn, Cambridge Professor of Botany, spoke of the *Flora Graeca* by saying "In short, the whole execution of the work is deserving of the highest praise"

Sir J.E. Smith (1759-1828), an eminent doctor of medicine and also the man responsible for bringing the collections and library of Carl Linnaeus to England in 1784, edited some of the volumes of *Flora Graeca* before his death in 1828.

William Roxburgh (1751-1815)

Plants of the coast of Coromandel (1795-1819) is another of the botanical books produced as a result of the scientific investigation of foreign lands. It is an important work relating to Indian botany which Roxburgh studied on several voyages to India and during his appointment as assistant surgeon on the East India Company's Madras establishment. To quote Professor Stearn, "Wm. Roxburgh spent more than thirty years of his life in India, an eminent botanist and a meticulous if rather arid artist his *Plants of the coast of Coromandel*, must rank among the most impressive publications of the age, though his plates, which were engraved from some of his large collection of drawings by native Indian artists, are often rather marred by a heavy and wiry outline." We have copies of eleven of these illustrations.

It has to be said that the collection has been fairly stable for the last 57 years and in our efforts to care for and conserve it, we may cause damage by handling and moving the drawings. In order to avoid over-handling, we have instigated a rolling programme with the Photography Department to supply us with slides and photos of the original work. The collection has been entered into the computerised Collections Management System (C.M.S.) to

make data easily available. The preparation for a major exhibition in October 1997, mean even more disruption with mounting, framing and exposure to light but it is time our exquisite and illuminating collection was brought back to life: we must take care our kiss is not the kiss of death.

Accreditation for Local Record Centres

Bill Butcher

Somerset Environmental Record Centre, July 1997

Comments on Steve Garland's (Bolton Museum & Art Gallery) suggestions for LRC accreditation, as published in The Biology Curator, 6, July 1996 and NW Recorder User Group Newsletter 1996.

General Comments

The emphasis of a successful Local Records Centre must be on providing a high standard of service to users, rather than collecting information for its own sake. This means that the centre's policies should be "user-led" rather than "provider-led". My main concern is that the suggestions that Steve Garland makes for accreditation appear to be rather "provider-led".

It is imperative to avoid over-burdening ourselves with resource-intensive administrative systems that could tie LRCs up in unnecessary bureaucracy and make it impossible to provide a fast, up-to-date and reliable service for users. The danger is that, while each suggestion may seem to be harmless and desirable in itself, taken together the requirements may be impossible within realistic available resources.

There are many aspects of accreditation that are omitted from SG's paper. In my view accreditation should also cover subjects such as management structure (for example, a commitment to local partnership working; statutory agencies, NGOs and local authorities should all be represented) and priorities for data collection, processing and provision (e.g. a commitment to using methods that will contribute to surveillance and monitoring of local and national biodiversity action targets). It may be necessary for management of key datasets to be obligatory. The words "habitat" and "site" do not appear in the paper.

Part of the problem with SG's paper is that some of the terms are used ambiguously. For example, is "collecting" in item 1 referring to information collecting or specimen collecting? (both phrases are used later).

Comments on specific numbered points

My principal concerns are these:

8. Security. As written this would close every LRC down. There are several aspects of confidentiality to be considered — wildlife abuse risk, landowner sensitivities, data provider sensitivities and intellectual property rights. LRCs cannot

operate by referring back to data providers before allowing access to records, so data provider sensitivities must be kept to a minimum, although of course respected. Data providers must trust the LRC to operate within the constraints of an agreed confidentiality policy. The most valid reason for keeping a (very small) proportion of records confidential, in most circumstances, is not data provider sensitivity but risk of wildlife abuse (rare bird nesting sites etc).

9. Voucher specimens. I have few problems with this as written, although it requires very careful thought. Any strengthening of this aspect (e.g. requiring LRCs to hold collections of their own, or requiring voucher specimens to be collected in certain types of project) would be strongly resisted. The proposed policy does rather beg the question as to whether museums and recognised research institutes have the desire and resources to receive voucher specimens. Furthermore, where should the onus of validation lie?

12. Archives. I have not seen BS-5454 so can't comment fully. I would be concerned that the standard might not be directly relevant to biological records and might generate unreasonable administrative burdens on the LRC.

13. Staff. I don't understand the wording of this. If it is saying that an LRC could operate with a geologist and a part-time administrator, I beg to differ. The minimum staff requirements of LRCs are those required to deliver a full service to local partner organisations and the public, and to meet the requirement of the National Biodiversity Network. In my view (and that of the CCBR report — *Biological Recording in the UK 1995*) this minimum requirement is 3 full-time staff.

Other comments of lesser concern are:

5. Access to Records. Allowing visitors to access any data held on disk would be extremely difficult to operate in practice and raise serious concerns among providers of data to the LRC.

6. National Recording Schemes. Forwarding of data to national species recording schemes is certainly desirable but must be accompanied by systems for the national BRC to supply data to LRCs. The periodicity may need to be more frequent than annual.

14. Legality of data collection. We must be extremely careful with words on this subject. I am not sure whether there is an accepted definition of "illegal". We should avoid the thorny issue of the receipt of data collected by third parties from public rights of way or by technical trespass. LRC policies should specify protocols only for data collection by in-house staff and commissioned surveys.

16. Data Recording Facilities. I don't know what is meant by "data recording facilities". I agree with the principle that an LRC should cover all taxonomic groups (and all habitats, and all sites across the full geographical range that the LRC covers, including the marine environment, where relevant, for that matter).

The National Biodiversity Network

Since my last report, things have been progressing. Three Pilot Projects have been chosen. These are funded by the Wildlife Trust Partnership's Esme Fairburn Trust grant. They are in Cheshire, Powys & the Brecon Beacons National Park and North East Scotland. Small groups in each of the three countries met to examine all of the bids and produced shortlists for the Local Advisory Group to consider. These shortlists included a preferred option in each case. These preferred options were those chosen and endorsed by the LAG. The four posts have been advertised (a Project Manager and three Support Officers) with a closing date of 13 November. The Manager will be based in Lincoln whereas the three Support Officers will be based at the respective project sites.

As part of the project a study has been commissioned to run from November to February to develop Operational Standards and Good Practice Guidelines. This will review existing information, including all the information submitted as part of past national surveys. It will then focus on a small number of existing LRCs to see how they operate. The information will then be available for further discussion. As a BCG representative I want to ensure that effective use is made of existing biological recording expertise. We have been running records centres for over twenty years, so the accumulated experience is considerable.

The end products of this will be

- an assessment of the scale of involvement and the range of people involved within individual LRCs
- an evaluation of existing procedures and services provided
- examples of case studies for use by pilot LRCs
- a database of existing LRCs and organisations carrying out similar functions at a local level
- evaluation of value of existing work and recommendations to LAG on the next steps.

The results will feed into the pilot project development plan process and be a foundation for the development of Accreditation Standards.

The Lottery Bid

A bid has been put together for consideration by the Heritage Lottery Fund for a National Biodiversity Network, roughly along the lines of the original Millennium Bid. Bolton, Ipswich, Leicestershire, Bristol and Nottingham Museums financed the cost of Dave Mellor being involved on the group authoring the bid. This enabled BCG to be involved, which was previously impossible due to the time commitments of all other BCG members who are involved. This must be an important consideration when thinking about the Association mentioned below.

Association of Local Records Centres

A proposal has been developed to form an Association of Local Records Centres. This is a part of the NBN proposals, but it is hoped to create this body sooner rather than later! You should be contacted during the next few weeks if you

run a records centre for your views about such a body. This is not a replacement for BCG or NFBR. It may be a body of only institutional members and it may have to consider the sort of membership fees that enable it to pay for representation on NBN committees and working parties. Please DO RESPOND to this because it will shape the future development of the NBN Network.

Steve Garland, BCG Biological Recording Cell

Bolton Museum, Art Gallery & Aquarium

Tel: 01204 522311 ex 2211

01204 370461 2211 (direct)

Fax: 01204 391352

Email: bolmg@gn.apc.org (general)

and bolnathist@gn.apc.org

Cell 'members' (i.e. the people who help me with all this)

Derek Lott, Leicestershire Museums 0116 265 6790

Howard Mendel, Ipswich Museum 01473 213761

Graham Walley, Nottingham Museums 0115 915 3900

Keith Bloor, Stoke Museum 01782 202173

Nick Moyes, Derby Museum 01332 255586

Ray Barnett, Bristol Museum 0117 922 3571

Dave Mellor, Paisley 0141 889 2317

Derek Whiteley, Sheffield Museums 01142 768588

Kate Andrew, Ludlow Museum 01584 873857

Nick Gordon, Buckinghamshire Museums 01296 696012

Biology Curators Group Study Trip Paris, 7-10th November, 1996

The assembled throng of biology curators at Waterloo were soon herded aboard Eurostar and after clunking through the Kent countryside and a brief 20 minutes in the tunnel emerged in France, which looked remarkably like the English countryside we had left behind but going past at greater speed.

Arrival at Gare Du Nord in Paris was complicated by what turned out to be a bomb scare, which passed most people by, and as the hotel was only a few hundred metres from the station many people elected to walk. The Hotel Orange was located in a side street just off Lafayette not far from Montmartre and memories of the crush at Waterloo station were revisited as everyone acquired their keys in the compact and bijou hotel reception. After clothes were unpacked and hotel facilities explored people set off for food, sightseeing and possibly the odd beer or two. Our little group had a pleasant meal in a Turkish restaurant once we had translated the Turkish into French menu into English, all with barely a French 'O' Level between us.

Next morning tales of Paris nightlife, bars and ballet were swapped over breakfast and maps consulted to sort out routes to the Muséum National D'Histoire Naturelle.

Navigating the Paris Metro proved much less trouble than the London Underground, and a few trains and a short walk later we arrived at the Jardin des Plantes and the Museum. The museum itself is set in a large public garden complete with tropical glass house and zoo. Set outside the main entrance to the museum were two large display cases offering a taster for 'Meteors', the temporary exhibition inside. One case contained a large meteor weighing several tons on open access, and the other a large American car which had been hit on the boot by a meteor about half the size of a football, which had unsurprisingly meted out some hefty damage to said cars boot.

Not having been on the previous Paris trip the interior of the museum was a real surprise. Inside the museum is essentially a large hall which reminded me of a very large impressive Victorian railway station, with mezzanine floors running round the walls. It was also quite dark but certainly did not feel gloomy or oppressive. A brief introductory talk was then given by Genevieve Meurges and a colleague about the history of the museum and the development of the current galleries while stood in front of two very impressive skeletons of whales. Then into the museum proper to view the new displays with some people taking a guided tour and others opting to view independently.

The ground floor continued the oceanic theme set by the whale skeletons with some very impressive marine displays. Traditional dioramas had been eschewed in favour of a more minimalist display technique with much use of glass and perspex to mount and display specimens. Like the rest of the museum it was quite dark but very effective use of spotlights and fibre optics illuminated the specimens well and the overall effect was quite atmospheric. Spirit specimens of jellyfish and other soft bodied marine animals were displayed particularly well on a blue background, with each specimen illuminated by individual micro-spots. One impressive technique was achieved by attaching specimens from the back onto glass panels which were lit from the bottom using different coloured light filters to create an underwater effect. Marine plants and algae were displayed in a similar way sandwiched between perspex and glass sheets. Diagrams and scales were often ground into the glass giving it an interpretative use as well as acting as a barrier such as with the marine plants and invertebrates display graded from littoral to a depth of 200 metres, with specimens placed at

REQUEST FOR INFORMATION

Per Alstrom is trying to trace the holotype of *Seicurus b. burkii* (Yellow-eyed Flycatcher Warbler). It was originally lodged in the Army Medical Department, Chatham, UK but a search there has proved unsuccessful. If you can help with further information please contact:

Per Alstrom email: per.alstrom@liszt.zool.gu.se
Holmenbacken 21
443 38 Lerum
SWEDEN

the appropriate level. Much use was made of IT type exhibits with video sequences and many touch screens. On the next level was the 'Caravane Africaine', which was a long parade of African mammals led by a large bull elephant followed by hippos, rhinos, giraffes, aardvarks and a vast assemblage of other mammals. The animals were displayed on a plain wooden floor at the same level as the visitor with minimal interpretation and no 'realistic' diorama and this worked very well! Dotted around the exhibits were numerous touchscreens (all working) on various subjects such as different habitat types found in France. All had language options including English and German and were very intuitive and easy to use, as I found out when initially trying one in French having missed the language option screen. Also dotted around the building were benches which were used more and more as people moved round the deceptively large mezzanine floors. One nice feature of the benches were more in-depth labels expanding on elements of the exhibition on drop-in slats in the middle of the benches, again in a number of languages.

Next came the tour of the underground spirit stores, the *Zootheque*. Moving from the superb exhibitions to the stores was a bit of a shock. The free, open well presented space of the gallery was replaced by a labyrinth of passageways of unsealed concrete which left a fine layer of concrete dust over everything. The stores were also at the same level as the Seine and this has caused problems with relative humidity levels and mould has been a problem. In the store rooms themselves the bulk of the collections were stored on roller racking though overcrowding was still a problem. While much more could be stored in the (large) space available the disadvantage of this was clearly illustrated when the racks were moved in the fish store and the specimens could be seen banging into the sides of their jars. Some specimens were suspended by glass floats which elicited lots of 'ooh look glass floats, that's clever' type comments. Visits were also made to the mollusc and bird stores (complete with a large outstretched wing waiting to be crushed by racking, ouch!). After getting slightly lost in the maze of passageways and criss-crossing other groups of BCG members a break for lunch was called.

In the afternoon the next tour was of the 'Microzoo' of soil arthropods. The Microzoo was housed in a strange roman temple type building in the Menagerie. After a brief talk on the ideas behind the Microzoo we were split into groups to look at the various 'stations'. Off the main chamber of the building were a number of rooms covering different subjects, each of which contained identical microscope stations and blowups of photomicrograph and electron microscope photos. The viewer sat at the microscope and put on a headset and again there was a choice of language of French or English. Each station was fully automated and the taped commentary told you how to use the microscope and what to look for in each of the viewed samples. Subjects covered included soil arthropods, invertebrates in food (illustrated by some cheese alive with cheese mites) and meadow invertebrate fauna. The microscopes were excellent quality and the stations easy to use but many of the specimens were totally bleached white by the high intensity illumination and a number of the stations not working. While a good concept and the design of

the stations impressive, many people felt that a lot of money had been spent with limited effect. After a quick whirl round the Zoo, cut short due to the weather it was back to the museum for a final look before an extended stay in the excellent museum shop and then back to the hotel.

The final day was left free for sightseeing, where the usual art galleries, museums and the ubiquitous Eiffel Tower were visited. The next day it was back to the Gare du Nord and high speed run though the French countryside, a lorry fire-free dash through the tunnel and a slower run through the English countryside back to London. Once again the trip was a great success, especially to see how other museums cope with the many of the problems faced by our own museums and collections, as well as the excellent new displays from which many ideas were no doubt generated. Finally thanks must go to Kathie Way for organising another superb study trip.

Nick Gordon, Saffron Walden Museum.

GROUP FOR MEDICAL HISTORY COLLECTIONS FORMED

The London of Health and Medicine and the Thackray Medical Museum, Leeds organised a very successful meeting on Thursday 9th October 1997 to discuss the formation of a group interested in Medical History Collections.

The meeting took place at the newly opened Thackray Museum. The meeting was attended by over forty people from a variety of backgrounds - including Curators, Librarians and Archivists. Speakers came from the London Museums of Health and Medicine, the Science Museum and the Science and Industry Collections Group. The meeting overwhelmingly endorsed the need for an annual meeting and some form of directory or contact list to provide opportunities for people in this field to network. A steering group was set up to organise the first meeting.

The Group is not a replacement for or an extension of the London Museums of Health and Medicine (which will continue to exist), but is an informal group which will meet infrequently, but at least once a year, and which will help those interested in Medical History Collections to exchange and share ideas and information.

Contact: Emma Bond,
British Red Cross Museum
9, Grosvenor Crescent
LONDON, SW1X 7EJ
Tel: 0171 201 5400

NEWS FROM SHEFFIELD

After several years of uncertainty and turmoil the way ahead seems to be coming clearer. No doubt rumours and horror stories are circulating amongst the BCG grapevines. Well some big changes are on the way so I'll tell you what I know because they may have an impact on some of you in the future.

Trustification We are to be trustified in April 1998 [so soon] Sheffield City Museum & Mappin Art Gallery [merged three years ago] will be run together with the Ruskin Gallery and the Graves Gallery as an independent "Cultural Trust" grant aided by the City Council. Shadow board members include Sir Hugh Sykes and Lord Dainton amongst others. We have verbal assurance that collections and buildings will remain in Local Authority ownership, but staff and functions will be moved to the Trust. The new Millennium Gallery in the heart of the city now has the green light and will also join the Trust in due course.

Stabilisation Funding from the new Stabilisation Lottery Fund has now been approved to come on line in April 1998. 1.2 million pounds spread over three years will fund improvements in exhibitions, marketing, shop and cafe, events, small building projects; and some additional staff. There is no allocation to natural history as such but access and collection care should benefit from the general upward spiral.

Ecology Unit The City Ecology Unit, formed at the museum in 1986, is now administered by Leisure Services Directorate, although for the time being Jean Glasscock and Lucy Heath are still based in offices at the museum. Sheffield Biological Records Centre is run jointly with the CEU. Jean provides a site-based service and the museum provides a species-based service, and communications between the two are good. The CEU will not be "trustified" next year.

New Store Movement of collections to a new remote store continues. Some of you will know the Annexe-that old cramped house across the road from the museum which has been the biology store for too many years. Well, gradually we are moving collections out to more modern and spacious accommodation. The herbarium is the latest collection to move to very smart surroundings. Much of the restoration and re-housing work has been grant-aided by Yorkshire and Humberside Museums Council.

The Weston Project We are working with a successful lottery team from Leisure Services on a big multi-million pound bid to the HLF for massive capital improvements to the City Museum & Mappin and surrounding Victorian parks. This team has just secured a 6 million pound award to restore Sheffield Botanical Gardens. Part of the Weston Project involves completely rebuilding and redesigning the museum interior, galleries, storage areas, roof, you name it!

Well that brings you more or less up to date. The Natural History Centre attracted 16,000 visitors in 6 months, and a mini-version is being run by Nina Standing at weekends and holidays. Paul, Gaynor, and I have survived the savage cuts and work goes on!

Derek Whiteley

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Editors: Patricia Francis and Kathryn Berry

Contributions should be sent to: The Editors, Biology Curator's Group, Natural History Section, Bolton Museum and Art Gallery, Le Mans Crescent, Bolton BL1 1SE. Tel: 01204 522311 Ext. 2197. Fax: 01204 391352.

E-Mail: bolmg@gn.apc.org. *(If possible please send on disc using Word for Windows or ASCII-file with hard copy).*

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Chairman: Jane Pickering Tel: 01865 272962

Secretary: Steve Thompson Tel: 01724 843533

Treasurer/Membership Secretary: Kathie Way Tel: 0171 938 8892

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