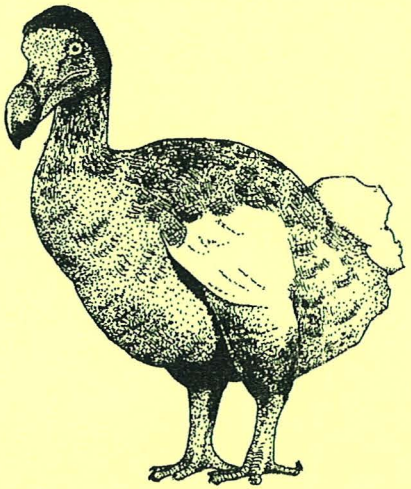
Natural Sciences
Conservation Group

Newsletter

Issue 18 **January, 2002**

ISSN 1462-978X

NATURAL SCIENCES CONSERVATION GROUP



2001 AGM
Fluid Preservation Meeting Report

The Society

The Natural Sciences Conservation Group promotes: research and exchange of ideas; advances in technical and ethical standards; the public profile of the conservation and preservation of natural science collections and objects; training; and publications.

Membership

The Group is keen to open its membership to all those involved in the care and conservation of natural science objects and encourages their active participation.

Annual Subscription

Students (UK only)	£8.00
UK personal	£10.00
Overseas personal	£12.00
Institution	£25.00

Newsletter

The Newsletter is a forum for articles, views and opinions on the care, conservation and curation of natural history and associated material. The Newsletter is produced three times per annum (January, May and September) and is free to all members.

Advertisements

1/4 page	£15.00
1/2 page	£25.00
Full page	£50.00

Instructions for Authors

Material should be type-written and double-spaced in A4 format and if possible accompanied by a text file or Word document on disk (Dos-formatted). The pages should be numbered and the position of any tables and/or figures should be indicated on the hard copy. The names of animal and plant species should be underlined and the authority name given in full for the first time used, thereafter they may be omitted. All references should be given in full. Articles and other items for inclusion should be submitted to the Editor at least three weeks before the publication date.

Opinions expressed in the Newsletter are not necessarily those shared by the NSCG Committee, the Editor or the membership at large.

Editorial

If ever there was a case of clearer evidence than this of persons acting in concert together, this case is that case.

Sir R. Mergarry, 1969

Welcome to Issue 18 of our Newsletter.

Dear Members,

This is last Newsletter I shall be editing. Its been about 3 years and several issues since I was given the task of editing, in which time I hope you've enjoyed the newsletter and found at least one or two articles of some interest.

I leave the post during the most exciting period of this groups history, with the possible and I hope probable merger between the BCG and NSCG. This will undoubtedly create an even more powerful lobby for natural history collections, and generate a new and improved society. The feelings of the membership from both groups is encouraging, with an overwhelming majority in favour of this merger. Let us hope that the future for our two organisations is as one.

Many thanks to those of you who have contributed to this and previous newsletters.

Cheers

D.

Contributions for Issue 19, May 2002

All articles, news and adverts for the next issue of the NSCG Newsletter should be sent to Paul Brown at the Address below

Paul A. Brown [Secretary NSCG], Department of Entomology, Natural History Museum, Cromwell Road, London SW7 5BD.
Tel: 0207 942 5196
Fax: 0207 942 5229
E-mail pab@ nhm.ac.uk

View from the Chair

At the 2001 NSCG AGM in Oxford, Howard Mendel proposed that a joint Working Group be established to consider the ramifications of a NSCG/BCG merger – such a group to include the Chairmen and Secretaries and to report back to the NSCG Membership at the NSCG AGM 2001. This was seconded by Helen Fothergill. Kate Andrew said that the chairs and secretaries should ask for volunteers and that this group report back to the next AGM.

With this remit, the chairs and secretaries met with the volunteer discussion group at The Natural History Museum, South Kensington on 26th July 2001. The meeting was chaired by Rob Huxley, with myself, Darren Mann, Simon Moore, Susan Cooke and Donna Young from NSCG committee and David Carter, Steve Thompson, Jo Hatton, and Nick Gordon from BCG committee (with Susan Cooke reporting back to GCG committee).

At this meeting, we discussed the benefits and drawbacks of merging NSCG with BCG and / or GCG. The decision of this meeting was to publish a 'straw-poll to the BCG and the NSCG memberships in order to gauge the views of both memberships on the subject. GCG was informed of the outcome and will continue to be informed of future developments.

Broadly similar questionnaires were sent out to both memberships, although the wording of the two surveys was slightly different after NSCG committee input. The clear result of both straw polls showed a majority (in NSCG 67%, out of a 50% return rate from the membership) to exploring further a merger with BCG to form a new group (without GCG at present).

The chairs and secretaries have met and discussed by email and have worked out the exact wording of Annual General Meeting proposals to be put to both Annual General Meetings this year.

The proposals are:-

- **PROPOSAL 1.** To merge Biological Curators Group and Natural Sciences Conservation Group to form a single organisation.

- **PROPOSAL 2.** Subject to both organisations voting in favour of the proposal to merge (above), the chairmen of the respective groups are directed to set up a joint committee to write a constitution for the combined organisation and recommend the mechanism for merging; to be presented to the Annual General Meetings in 2003 at a joint meeting (NSCG / BCG).

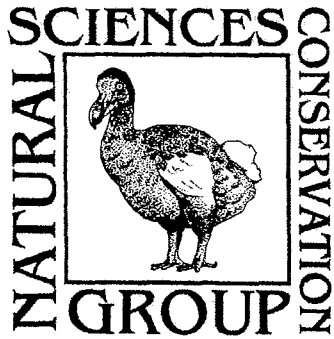
•

Please, if you have strong views on the subject, then write a letter to the membership for publication in The Newsletter and come to the AGM in Norwich to vote in April! The Newsletter is your vehicle to disseminate your views and whatever the form of the new society, your views as conservators will continue to be represented and valued both within the new association and in NCCR. I look forward to seeing you at the Norwich Conference!

Paul A. Brown, 12th February 2002

NSCG AGM

Conservation Implications of Moving Collections. Methods, Resources and Implications



This is a call for papers for the AGM Conference of the **NSCG**

At the Castle Museum, Norwich

Tuesday 16th and Wednesday 17th April 2001.

Paul A. Brown [Secretary NSCG]
Department of Entomology
Natural History Museum
Cromwell Road
LONDON SW7 5BD.

Tel: 0207 942 5196
Fax: 0207 942 5229
E-mail pab@ nhm.ac.uk

NOTICE TO ALL MEMBERS

ELECTION OF OFFICERS FOR THE NSCG COMMITTEE

NOMINATIONS ARE REQUIRED FOR THE POST OF EDITOR, AND TREASURER (3 YEAR TERM OF OFFICE).

NOMINATIONS ARE REQUIRED FOR THREE ORDINARY COMMITTEE POSTS, (2 YEAR TERM OF OFFICE).

Please send nominations (with names of nominator and seconder, both being NSCG members) to P.A. Brown at the address below by the tenth day before the AGM (I.e. by Friday 5th April, 2002). In the event of no nominations being received, nominations can be made from the floor (at the AGM) by two members eligible to vote [9.5 of the Constitution].

Paul A. Brown [Secretary NSCG]
Department of Entomology
Natural History Museum
Cromwell Road
LONDON SW7 5BD.

Tel: 0207 942 5196
Fax: 0207 942 5229
E-mail pab@ nhm.ac.uk

Annual General Meeting: Minutes

Venue: Oxford University Museum of Natural History.

12.45 pm, Thursday April 19th, 2001

1. Introduction and consideration of agenda

The agenda was then approved by all present. A topic listed for AOB consisted of Possibility of closer links with BCG and or GCG.

2. Apologies for absence.

Apologies of absence were received from William Lindsay and Maggie Reilly

3. Minutes of AGM on April 4th, 2000.

The minutes of last year's annual general meeting were presented. Darren Mann proposed and Amanda Sutherland seconded that they be accepted and signed. The minutes were duly signed by Bob Entwistle as being correct.

4. Matters arising from minutes.

There were no matters arising.

5. Chairs report.

Welcome to our 8th independent AGM, which will be my last as chairman. The only chairman I may add who has managed to last the full three-year term of office, which may indicate what a sad life I lead. We are also losing Adrian Doyle and Vicky Purewal. Next year we need a new editor as Darren stands down after his three year term of office. Can I appeal to the

membership to serve the group by becoming a committee member in whatever capacity. We all have an ever-increasing work-load but I personally look forward to my trips to Birmingham and London and other venues of our committee meetings. Over the last three years I have seen the membership grow which is partly due to a successful leafleting campaign.

We have started a programme of one-day seminars (two per year) on subjects with direct relevance to the membership. The first on Best Value may not have a direct relationship to Natural Science Conservation and was not as well attended as I would have expected, but is all too relevant to many of our members' recent work experiences. The second, organised by Adrian Doyle on Pyrite Decay, had a better attendance. It is hoped to keep these seminars informal and for them to be a combination of talks and practical sessions. Our next seminar will be on Fluid Preservation 'Do we really understand it' organised by Simon Moore which will occur in October-November. I want NSCG to do more than just have a conference once a year and publish The Newsletter.

On a more serious note, this year we have seen the closure of the North-West Museums Service with the loss of Conservator posts. According to the powers that be, the Service is to take a more 'strategic' approach whatever that may mean. In practice it means a lot of Conservators, including Natural Science Conservators, have lost the jobs and very little has been gained in return. These redundancies have not been the first as, over the last ten years, we have seen the loss of many conservation posts and a great erosion of the natural sciences skill base. Some of you may remember the closure of the South -East Museums Service natural Science Conservation Unit, 6-7 years ago. However the worrying thing is that not only have these people lost their jobs, but they have not been replaced and the posts have been deleted. Chris Collins ran a conservation course at Cambridge University until he recently emigrated to the USA. The course is not being continued and the labs have been closed pending a change of use. In 1993, seven natural sciences conservators travelled to Canada and the USA to study new development in the profession there and to bring their knowledge back to the UK. At a recent committee meeting, we realised that only two out of the seven award winners are currently employed in conservation.

A recent meeting of the UKIC Archaeology Section addressed the problems of job losses in conservation as a whole. The write up of the meeting is in the current issue of your Newsletter, and the general opinion of the speakers, was that conservation needs to publicise itself more. We need to get out among the public and tell them what it is we actually do. Archaeologists have done this with Time Team, but when did you last see a conservator on TV?

I was asked to become vice-chair of the National Council for Conservation and Restoration late last year, and I have put these issues before them at recent meetings. They are aware of the need to publicise the profession more, but it is also up to you as individuals to do your bit as well. If you are doing anything that might be interesting, then contact your local newspaper and try and get a slot on local radio or TV. The people who run these are usually crying out for stories. Let your employers and local councillors know what you are doing and make your name known. Unfortunately these days we must all play the political game even if we find it distasteful.

The NSCG will be asked, in the next two years, to take over the chair of the NCCR. The NCCR for all its faults, has become the national Voice of conservation in the UK. It is composed of representatives of virtually all conservation groups in the UK and Ireland and has become more influential since the demise of the Museums & Galleries Commission. It is pleasing to note that a small group like the NSCG is playing an active part in the conservation world at the highest levels, and that natural sciences issues are being heard at the highest level.

I would like to close by thanking everyone on the committee who I have worked with over the last three years as chair and before that as Secretary for all their support and hard work.

6. Secretary's Report.

There has been four committee meetings through the year with attendance of members as illustrated below in the attendance log. Lack of attendance is no reflection of lack of work done for NSCG! :-

	Voted	8.vi.00	19.x.00	24.ii.01	24.iv.01
Kate Andrew (Treasurer)	1999	-		-	-
Paul Brown (Secretary)	2000	-	-	-	-
Sue Cooke	2000	-			
Adrian Doyle	1999		-	-	-
Rob Entwistle (Chair)	1998	-	-	-	-
Simon Moore	2000	-	-	-	-
Sue Lewis	2000	-		-	-
Vicky Purewal	1999		-	-	
Maggie Reilly (Members.)	1999		-	-	
Darren Mann (Editor)	1999		-		
Gabriela MacKinnon	Ex.off.			-	-
Amanda Sutherland	2000	-			

7. Membership Secretary Report.

The year February 2000 to January 2001 closed with a total of 127 members. Our 127 members fall into the following categories:

96 UK personal members of which 6 are students
11 Overseas personal members
13 UK Institutional members
7 Overseas Institutional members

Compared with the 1999 where the Group had 103 members, there is a significant increase of 24 members in 2000. The bulk of the increase is in the UK personal members category. The NSCG leaflet was widely distributed last year so perhaps this increase reflects better advertising. We still have difficulty in recruiting and keeping overseas personal members and we believe that this is in the most part attributable to the problems in payment of subs. We cannot afford to underwrite the costs of foreign currency transactions so we ask to be paid in GBP. This has substantial costs for the subscriber. This situation remains without an obvious solution. We looked into paying subs using Visa but our turnover is too small for this to be viable.

8. Treasurer's report.

Kate Andrew presented the accounts. William Lindsay had studied and signed the accounts & Velson Horie had not yet seen them due to postal problems. We are not legally required to audit our accounts but it is good practice to do so. The accounts were read out.

Natural Sciences Conservation Group - Accounts for the year 1.2.00 to 31.1.01

Current Account - Midland Bank 1442341	
Balance 31.1.99	**£ 4869.17**
Income	
86 UK personal memberships @ £10.00	£860.00
7 UK student memberships @ £8.00	£56.00
8 Overseas personal @ £12.00	£96.00
(one overseas membership in advance)	£12.00
24 institutional membership @ £25.00	£600.00
Overpaid overseas sub	£3.00
Bank interest	£70.72
Sale of back issues of newsletter	£12.00
Overpaid bill	£16.00
Meeting income	
Debtor from previous year's trade fair	£70.00
9 Best value attendances	£175.00
Sub Total	£1970.72
Total income	£6839.89
Expenditure	
Newsletter production	£39.69
Leaflet distribution & inserts into Grapevine	£204.69
NCCR (formerly Conservation Forum) subscription	£100.00
Committee expenses	£209.00
Conference expenses	£476.43
Sub total	£1029.81
Balance at 31.01.00	**£5810.08**
Debtors	
2 best value meeting places	£35.00
Petty cash funds transferred into bank account	£14.01
Creditors	
Tea and coffee at Best Value meeting	£60.00
Petty cash funds	
Income	
Balance 31.1.99	£16.01
Best Value meeting 2 places paid in cash	£40.00
Expenditure	
Conference expenses	£42.00
Balance at 31.01.01	**£14.01**

This will be paid into the main account as there is little call for petty cash.

1 February 2001, K.J. Andrew, Treasurer Sent to W.Lindsay & V. Horie

9. Proposal to accept the accounts
Darren Mann proposed to accept the accounts seconded by Jo Hatton.

10 Editor's Report
The late January Issue is in the post, those members here can pick up their copy at the registration desk.

In the last twelve months three issues consisting of 96 pages have been published. I would like to thank all those who have contributed and reiterate the call for more input from the membership. I ask for the membership to contribute to the last chapters, 9: Physical Forces and 10: Custodial Neglect

Due to work commitments I have been unable to complete the much needed website, any member who feels that would like to get involved in groups website development, please come forward.

As I step down at the next AGM, we shall be in need of a new Editor. Any members that feel they would like to fulfil their birthright as an editor, please make yourselves known to a member of the committee.

11. Election to the Committee
Five posts have become vacant and five our names put forward prior to the AGM.

Nominations for Chair (vacated by Bob Entwistle):-
1. **Paul A Brown**
Proposed by :- Darren Mann Seconded by:- Julian Carter
Nomination for Secretary (vacated by Paul Brown):-
1. **Amanda Sutherland**
Proposed by :- Paul Brown Seconded by:- Adrian Doyle
Nomination for ordinary members:-
1. **Louise Cant**
Proposed by :- Gabriela MacKinnon Seconded by:- Paul A. Brown
2. **Rob Entwistle**
Proposed by :- Kate Andrew Seconded by:- Adrian Doyle
3. **Maggie Reilly**
Proposed by :- Kate Andrew Seconded by:- Paul A Brown

As no election was required the Secretary proposed and Jo Hatton seconded that the names put forward be accepted en block for election to the committee. The candidates were duly elected nem. con.

12. Election of Auditors

Kate Andrew nominated Velson Horie and William Lindsey to continue as auditors. This was agreed by the membership nem.con.

13. AOB.

Paul Brown brought to the attention of the membership that at the BCG AGM a proposal had been made to look into the possibility of closer associations or merger with BCG and GCG. The out come of the BCG AGM was to at least create a working group containing members from each group to discuss the possibility.

He described that there are two sorts of members: Professional conservator-restorers and the Hybrid conservators / curators / collections managers / researchers. This could generate potential problems with membership of NCCR. Paul Brown asked the floor 'do we want to be part of a SPNHC type organization and would this give us a bigger voice?' He drew a diagram to illustrate that NSCG has professional relationships with NCCR and UKIC and that GCG has relationship with the Geological Society, but that BCG has no other organization to have a relationship with. It was a concern that as the NSCG already has a national voice through NCCR we should think carefully about a merger as this could affect our status with NCCR. Amanda Sutherland pointed out this is especially a consideration as NSCG are to provide the next chair of NCCR. Simon Moore is about to become chair of the Professional Standards Board of NCCR and has agreed to find out if our status would be affected. Bob Entwistle suggested that we should first find out if the members want to merge. The NSCG membership be canvassed for working group members and/or ideas (perhaps via the newsletter or a separate mailing). It was then pointed out that only a discussion group has been suggested so far. Paul Brown suggested that we form a discussion group with BCG and find out if our status would be effected with NCCR. Steve Thompson, secretary of BCG, offered to set up a working party committee to discuss this issue. He called for volunteers from each group to form this committee and suggests a first meeting in June or July. Adrian Doyle asked what the current situation is

with UKIC. Bob Entwistle replied by saying they had approached us again recently to have closer ties. Amanda Sutherland said that UKIC members need to be accredited conservators. Kate Andrew said that there are only eight within NSCG. NSCG has no accreditation, so those which need to be accredited have gone via UKIC and that this need not be a problem in having closer ties with BCG.

Donna Young suggested that not only committee members are on the committee to discuss the future association with BCG and GCG. Bob Entwistle suggested we send something out with a newsletter to members asking if they want to be on the committee to discuss this. Donna Hughes and Simon Moore said they did. Amanda Sutherland proposed that we vote to seek volunteers for this committee by July and to give ourselves a one-year deadline so as not to call an extraordinary AGM. Steve Thompson said that there seemed to be a lot of enthusiasm to the idea and a working party wouldn't commit anyone to anything so was it necessary to take so long. Sue Cooke from the floor said that the GCG AGM was in December so we could contact them then about this. Members of GCG committee have shown less interest in having closer ties than has BCG. Howard Mendel proposed that we leave it to the chairman of each group to work out a timetable. Bob Entwistle proposed that the Chairs and secretary from each group get together to work out a discussion group and timetable. Kate Andrew said that the chairs and secretaries to ask for volunteers and then report to the next AGM. Nick Gordon and Helen Fothergill also contributed to the discussion. There was then some confusion as to voting on proposals that had been suggested. Howard Mendel proposed that a joint Working Group be established to consider the ramifications of an NSCG/BCG merger – such a group to include the Chairmen and Secretaries and to report back to the NSCG Membership at the NSCG AGM 2001. This was seconded by Helen Fothergill. There was a large majority for the proposal, 2 against and 1 abstention.

Close of Meeting. 1.30 pm

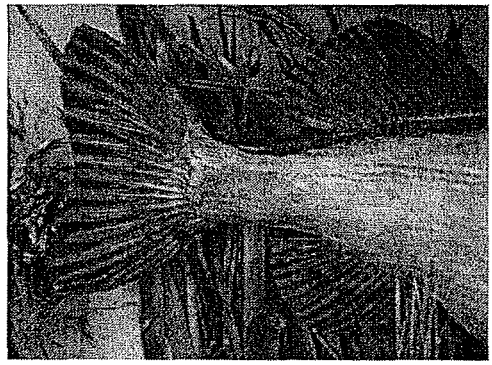
Paul A Brown

AGM TALKS

Museum Rescue
Saving de-accessioned and material for disposal.

Simon Moore, Hampshire County Museums, Chilcomb House, Chilcomb Lane, Winchester, SO23 8RD
E-mail: simon.moore@hants.gov.uk

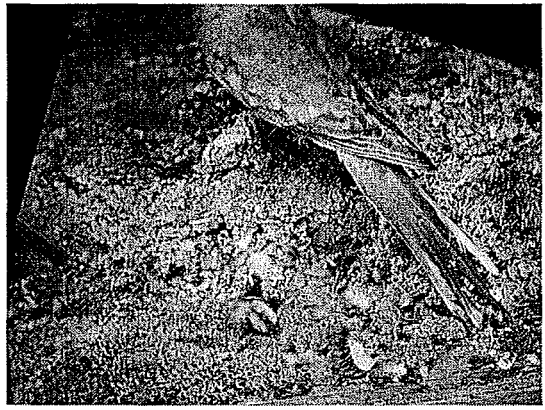
Museum curators, as we well know, are masters of the tactical gambit so that when some long-forgotten specimen emerges from an equally long-forgotten glory hole that is now required for storage, they come to the conservator with a line "I think that we ought to bin this" begging the reply "Oh no, I'm sure that I can do something to improve it". This neatly circumnavigates the conservator's outrage at being "far too busy" or "Who allowed it to get into this state?" Another ploy is to circulate other museums that have educational facilities, knowing that they will (usually) accept anything that's going. This also avoids the embarrassing task of contacting the relatives of deceased persons explaining how their once-treasured 'bequest/s' came to be de-accessioned and thrown away.



Many specimens are also just put up for grabs for the simple reason of storage paucity or they don't need quite so many mounted pike specimens to demonstrate species variation. Such an example came from Reading Museum a few years ago and those who came to the Liverpool conference in 1999 may remember this specimen and Patricia Martin who helped to conserve and restore it. Even the bow-front glass with its gilt border required re-lacquering BEFORE washing (otherwise the gold leaf has a nasty habit of floating away in a multitude of tiny pieces!) As usual *Anthrenus verbasci* larvae had been hard at work resulting in many large holes, especially to the fin rays and some of

the spiky teeth were missing. The fin ray gaps were papered using Japanese *Gampi* tissue with torn edges (not cut) so that they would blend in, glued with neutral pH PVA, which also provides a good fish skin texture when dry. Gluing wooden spikes onto the broken teeth stumps restored the missing teeth. The reed bed was tidied up and the fish was finished with a layer of button polish lacquer that imparts a slightly golden glow (Fig. 1).

Another application for Japanese tissue, this time using a finer grain and very lightweight *Kozo* velin tissue, was tested on the *Anthrenus*-munched wing of a Kingfisher. The paper was attached to the damaged area of each feather using a 50% aqueous solution of PVA and ensuring that the feather acquired its natural curvature during drying. Unfortunately, nearly half of the feathers for this bird's wing had been shredded beyond repair but once the feathers, re-mounted on the *kozo* tissue had been attached to the wing, the whole specimen looked much better.



Finally, a case was rescued from the upper landing of Clandon House, near Guildford, which contains about 60-70 Australian birds, which Lord Onslow had decided to use to brighten up his bathroom! The hugely fluctuating humidity had cause the cotton wadding in the birds' heads to expand forcing glass eyes out of sockets and onto the bottom of the case! As if this wasn't bad enough he (presumably and) accidentally kicked in a lower panel of the glass front, allowing the ingress of mice. Fortunately, the mice didn't enjoy the taste of the birds and only a few were really badly damaged (Fig.2). However, after some careful re-building of bird crania, wings and other body parts from the sea of feathers that littered the base of the case, together with the eyes that had to be re-inserted into the correct heads, the case was duly returned to the National Trust whose rapturous remarks vindicated the fact that conservation and restoration really can bridge the gap between the dustbin and re-display.

What to Keep?
The agony of choice in
Entomological Acquisitions and Disposals

Darren J. Mann, Hope Entomological Collections, Oxford University Museum of Natural History, Parks Road, Oxford, OX1 3PW

The text below is a brief synopsis of the talk given at the NSCG-BCG meeting.

The Oxford University Museum of Natural History follows the standard line in acquisitions policy, that is "The Museum recognises its responsibility, in acquiring material, to ensure adequate conservation, documentation and proper use of such material and take into account limitations on collecting imposed factors as inadequate staffing, storage and conservation resources."

Which in effect means we accept the following groups of specimens:

- Research collections of staff and students
- Collections that fill gaps in our holdings
- Nationally/Internationally important material (e.g. Type, cited or figured material)
- Oxford University expedition collections
- Important collections in terms of:
- Voucher specimens
- Extensive geographical coverage
- Good taxonomical coverage e.g. British Diptera
- Historical collections i.e. Victorian or older

Once a collection is accepted it goes through a series of procedures:

- Accessioned: both hard copy and on Database
- Frozen: to eliminate pests
- Stored in freezer room: 'safe-storage'
- Re-housed
- Labelled given accession labels and incorporated (where a main series exists)

- Tell someone: This is done in OUMNH via the WWW searchable database of collections held or through publishing short notes in relevant journals.

The importance of labelling
Labelling of specimens is an important part of curating a collection. It helps future users track the history of a particular specimen.

- Accession labels: Always!
- Type Labels: Always!
- Determination labels: If not present add "standing under *this species* in *someone's* collection, date"
- Voucher Labels: "First County Record of *this species*"

Publicise your new acquisitions
Tell the users through short notices in relevant journals, newsletters or via the web

- HEC collections prior 1986 published in hard copy
- HEC collections online: http://www.oum.ox.ac.uk/collson.htm

Accessions

- What we don't accept:
- Local material best deposited in the County Museum
- Collections without data
- Collections that have been over-enthusiastically 'cherry picked'
- Research collections of limited value beyond the scope of the study involved (a tricky one)
- More British butterflies and moths

A Recent Refusal
The HEC recently refused a research collection of a single family of butterflies that have been used in molecular systematics. The material had suffered destructive sampling techniques, so that the collection consisted of wings and fluid preserved body parts.

Reasons for refusal:

- Storage: a freezer would be needed to maintain the fluid preserved material
- Material of little value to the general lepidopterist community
- Small taxonomic group
- HEC already has an extensive collection of the family involved

Assessment of Donor Collections

- Is the Material of scientific value?
- Is the material of National or Local importance?
- Is it voucher material?
- Is it duplicate of material already held?
- Is this the best place for it?
- Collection quality:
    - Coverage
    - Preservation quality
    - Associated archives
    - Identification quality
    - Data level
- If you don't take it, who will?
- Costs

Assessment of Donor Collections: The Costs

Curation and conservation of a collection takes both time and money. Factors that should be taken into consideration when assessing a collection in terms of cost are:

- Cost of re-curation and/or conservation of specimens
- Cost of incorporation and housing of the collection
- Long-term costs

    Storage
    Pest checking and control thereafter
    Cataloguing

Getting Back the Cost?

The majority of collections come with some furniture, by selling this we

recoup some of the costs involved in re-curation and storage. However, the donor must be told of this and a photographic record of the furniture should be archived.

Cherry Picking:
The removal of specimen(s) from a collection by an individual or museum for the incorporation into their holdings, without taking the collection in its entirety.

For	Against
'Best' material kept safe	Documentation (lack thereof)
Reduction of duplication	Specimen 'traceability'
Gap filling	Donor resentment?
Reduction in costs	Ethical reasons

Recent HEC Acquisitions
D.M. Ackland British Pipunculid collection *The perfect Gift*:

- Museum standard mounted specimens
- Good coverage (70% of UK species, including several species new to the collection)
- Good identification, 300 specimens (approx.)
- Donor to accession and incorporate into collection
- Costs:
    - Staff time: none
    - Storage: none, incorporation into main collection, some expansion needed

L. D'Arcy Bornean collection: *The un-factor*

- Un-identified, Un-sorted, Un-mounted spirit stored samples (x100)
- *ca.* 2,000 specimens
- *ca.* 50% of the material is new to the collections
- Costs (to sort, mount, store material) £0.75/specimen

This price does not include the cost of determination and the postage costs to the relevant experts. However, the collection was with full data including ecological information on the habitats and has since been used by higher degree students for projects.

Disposals

First and foremost you must follow the Disposal Policy of your institute. Choosing what to dispose of can be difficult:

- Material without data
- Damaged specimens beyond repair
- Historical 'junk'
- Student Projects
- Un-reliable data

What about provenance?

In the case of un-labelled material it is often possible to associate a collector and so on with just the method of mounting or even the type of pin used. Inscribed numbers on specimen mounts or labels may refer to notebooks or checklist and old desiderata lists. If in doubt seek advise, always err on the side of caution...

Entomological donations tend to be accessioned in 'lots', due to the quantity of specimens involved. Therefore, in most cases individual specimens do not have an individual accession number. This makes small disposals within a single collection relatively easy. Unfortunately this rarely gets documented, and thus data is lost. Always document in as far as possible the material that is to be disposed of and form an archive of:

- Photograph of material (now with digital, even cheaper)
- Labels (gives examples of handwriting)
- Examples of mounting techniques
- Example of pins used

What to do now.....

Once you have exhausted all of the above, the next stage is to 'dispose' of the material. In such cases it often possible to find another 'user' of unwanted material. Alternative uses:

- Teaching
- Artists
- Displays
- Hands-on material
- Offer to someone else

Finally... The skip: after exhausting all other possibilities

Fluid Preservation
Report from the One Day Seminar

Hosted by Hampshire County Museums Service
Sponsored by Stölzle-Oberglas

A brief history of fluid preservation, with some basic facts about it, including labels and inks.

Simon Moore, Hampshire County Museums, Chilcomb House, Chilcomb Lane, Winchester, SO23 8RD
E-mail: simon.moore@hants.gov.uk

Evidence of fluid preservation can be traced back to early civilisations – even by the time of the Elder Pliny, a spider pickled in a glass of wine was supposed to induce a death-like sleep!

Apart from pickling spiders, toads and people throughout its long history, alcohol (as Spirits of Wine) was recorded by Boyle as being used as a fluid preservative in 1662, along with spirits of sal ammoniac and brine. By the time of Ruysch in his *Thesaurus Animalium* of 1710, all sorts of amazing and slightly gruesome objects were being preserved in alcohol and the jars prettified with Florentine Paper. Levi Vincent's *Elenchus Tabularum* of 1719 shows a museum gallery with rows of pig's bladder-sealed jars containing fantastic creatures, as they would then have appeared.

The Russian chemist Butlerov isolated formaldehyde in the mid 19th century but it was not until 1893 that its antiseptic effect was realised on animal tissues. During the early to mid 20th century a rapidly-growing plethora of compounded specialised fixatives and preservatives appeared for preserving cell contents to specialised tissue by-products such as amyloid, and colour preservation techniques were put forward in the mid 20s by Kaiserling and later by Wentworth. By the mid 50s Owen and Steedman were investigating the use of the embalming agent phenoxetol as a pre-

serving agent; this work being further advanced by Steedman in 1976 with his work on marine zooplankton preservation.

Since then we have had time to take stock of the effects, both good and bad, of these embalming preservatives but generally, and with the discovery that DNA is best fixed by alcohol, we seem to have come full circle resulting in many collections now being transferred back into that fluid.

Despite all the information on the subject, many still don't understand fully the terms fixation and preservation. Fixation is the initial 'dunking', if you like, of freshly-dead tissue into a fixing agent or fixative to prevent autolysis and other undesirable chemical changes from occurring by rendering chemical stability to the fixed tissue/s. Denser or larger tissues will require injection with fixative so that they are also perfused, from the inside out, as well as *vice-versa* particularly if the fixation penetration rate is slow (as with formalin). Fixatives act by either coagulating protein or by creating a more stable cross-linkage and should be osmotically balanced with the tissues they are fixing to prevent osmotic shock, which causes tissue rupture, shrinkage and distortion.

Most tissues are roughly, osmotically similar to water, therefore an aqueous fixative is best. Samples that are to be DNA extracted, however, are fixed in absolute alcohol. The osmotic shock may distort the tissues but not the DNA. Conversely, formaldehyde will chemically alter DNA structure but will not cause osmotic shock to fresh gross tissue samples.

So far I have only mentioned formalin and alcohol as fixing agents. Bear in mind that formalin is roughly a 40% solution of formaldehyde gas in water so that a 10% solution of formalin, the normal fixing strength, contains 4% formaldehyde. There are other fixatives including osmium tetroxide buffered with sodium cacodylate, which is excellent for cell contents and is used for transmission electron microscopy but can also be used as a gross fixative for such small organisms as hydromedusae that are then transferred to an alcohol preservative. The internal organs are stained black by the fixative but are in a much better state of preservation than those treated with more conventional fixatives. 2 examples showing hydromedusae fixed in the late 1880s were compared with similar specimens from the same period and showed how much better looking were those

fixed by the osmium tetroxide technique. Osmium, however, tends to make Health & Safety Officers rather twitchy due to its high toxicity and it is very COSHH regulated!
Preservatives are agents that continue the work of the fixative but without altering the state of the fixed tissue. Phenoxetol and propylene glycol preservatives have, over time, been found to swell some tissues so that Steedman's PFP (post fixation preservative) and 1% aqueous phenoxetol can cause swelling and have been found to be ineffective as preservatives for densely-muscled animals (such as larger fish). The preservative has difficulty in maintaining the depth of penetration that was originally achieved by the fixative. This naturally indicates to achieving as near perfection as possible with fixation before transferring to a preservative.

Bearing this in mind there has appeared on the market a preservative known as Opresol which is a mixture of 2-phenoxyethanol and diethylene glycol – a similar preservative to Steedman's PFP. It seems to work very well on invertebrates, especially small crustaceans and small vertebrates. Specimens were shown at the seminar preserved since 1986 and still in a good state. The advantages of these preservatives are that they are relatively non-toxic, compared to many others, and don't upset the mucous membranes, they are also non-flammable and slow to evaporate (if at all!), although they do have a tendency to seep by capillary action, leaving jars clumsily-handled jars with a sticky surface which can affect external labels causing them to flake and disintegrate in time. Inks can also become faded to illegibility.

Labels, however, should NEVER be attached externally to such jars as not only will they become damaged in time - fading, mildew, crumbling (especially if the paper is acidic), eroded by handling or they will fall off as the adhesive dries out. They also tend to hide a multitude of sins inside the jar, such as lipid leaching, fluid contamination, falling fluid levels! Labels must be placed inside jars. When getting such labels printed you must order them well in advance since they must be left to dry out for at least 6 months or else the ink will bleed into the fluid and turn it (and the specimen) blue! At the Hampshire CC Museums Service I use Goatskin Parchment (Arjo Wiggins) since it is the most durable of immersion papers. There are still labels in the Arachnid section collection at the Natural History Museum written by my own fair hand in Indian Ink back in 1968

which are still perfect. Many conference posters, papers and talks have centred around using computer printer-generated labels and since the days of 'alphabet soup' in the bottom of jars, and other such disasters, there have been developments and improvements in this field. I still handwrite my labels in Indian Ink until these newer techniques have proved their test of time.

References:

Kaiserling, C. 1922. Ruckblicke auf Theorie und Praxis der Farbigen Konservierung. *Virchows Archiv fur pathologische und Anatomie und Physiologie* A, **237**: 467-474.

Owen G. & Steedman H.F. 1956. Preservation of animal tissue with a note on staining solutions. *The Journal of the Quekett Microscopical Club* **97**: 319-321.

Steedman, H.F. 1976. *Zooplankton Fixation and Preservation.* UNESCO Press, Paris.

Wentworth, J.E. A new method of preserving museum specimens in their natural colours. *Journal of Technical Methods* **18**: 53-55.

Histological Effects of fixation and long-term preservation. Are preservatives beneficial or not?

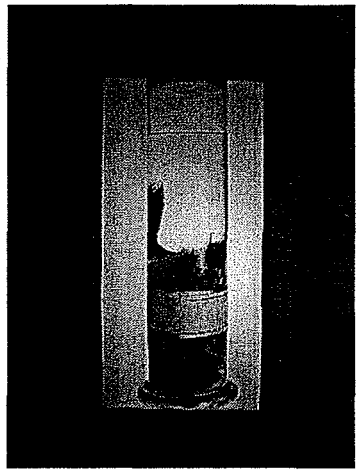
Simon Moore, Hampshire County Museums, Chilcomb House, Chilcomb Lane, Winchester, SO23 8RD
E-mail: simon.moore@hants.gov.uk

Having gained a better understanding about the workings of fixatives on tissues, we are faced with the dilemma of using preservatives. Some tissues will start to deteriorate over the long term if stored in preservative - can lead to swelling, fragility or loss of fixative state due to poor penetration if specimen is densely muscled; or if stored permanently in fixative. This is particularly exacerbated if the chemical nature of the storage solu-

tion starts to alter over time. This can be caused by:

- Neglect - too many jars to be maintained and inspected by too low staffing levels.
- Temperature – causing evaporation that can lead to dilution and through chemical change (both of these are especially relevant to alcohol which 'self dilutes' and can break down into CO2 and water!).
- Humidity levels – which can lead to growth of moulds both on and inside the jar even if the alcohol is diluted only to about 35%!
- Lipid leaching – always a problem with vertebrates, especially cetaceans and other mammals. Formalin only preserves lipids and alcohols dissolve them so that lipids can leach out into fixative/preservative solutions and contaminate them.

Examples were shown concerning this latter problem, illustrating stained lipids *in situ* in a stained frozen section of rat liver and the lipocytes emptied through solution of the lipid content after rinsing in alcohol. A pickled stoat was also shown immersed in a murky brown solution of contaminated alcohol with a pH reading of about 3 (due to oxidation of the lipids to fatty acids) and how, upon cleaning and two fluid changes, the specimen's skeleton had become decalcified by the acidic solution so that it lay on the bottom of the jar in a crumpled heap.



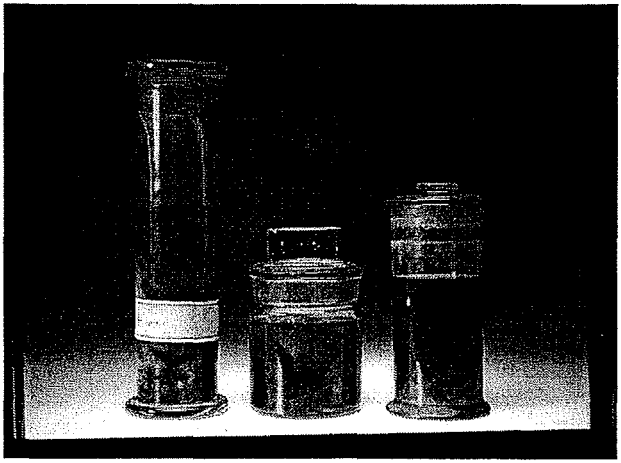
Faced with these problems we looked at how tissues were affected histologically at a microscopic level using samples of rat liver sections and stained with Haematoxylin (blue nuclei) and Eosin (pink cytoplasm and connective tissue). Several slides were examined showing how this balance was achieved and how, over one or two years, this balance of staining, as well as the preservation of the tissue, compared with those which had undergone osmotic shock (direct fixation in alcohol) or where the balance of staining had deteriorated over a year or two (nuclei becoming stained with Eosin pink), showed a marked deterioration in the preserva-

tion of the gross tissue.

In conclusion, Steedman's fixative and 10% formalin were found to give the best fixation results and that Steedman's PFP gave the best result providing that the tissue had been well fixed.

In conclusion, I still believe that preservatives should not be ignored. Many gross tissues benefit from them, however, be aware of a possible increase in swelling and over-fragility which, regrettably will require tissues to be replaced into fixative solutions. A question, as always, of time, shrinking budgets and staffing levels!

All of this may lead you to support the infamous controversy started by a certain deputy director at the Natural History Museum who circulated the idea that fluid collections were too expensive and troublesome to maintain so why not database all the required facts about these specimens and then bin the lot! (N.B. The author does NOT agree with this!)



Fixation: an overview

Julian Carter, Conservation Officer, National Museums and Galleries of Wales, Cathays Park, Cardiff CF10 3NP
E-mail: julian.carter@nmgw.ac.uk

Fixation and preservation are commonly used terms when dealing with fluid preserved material. The terms are used separately or as synonyms, but in general we can consider the terms as;

- Fixation is aimed to arrest the physical and chemical changes that would occur upon the death a biological tissue, and consequently preserve its gross form.
- Preservation is considered to be the method of preserving the fixed state of the specimen by protecting from decay and deterioration, giving the specimen a 'normal' appearance and affording mechanical protection.

So why the need to carry out fixation? It is important to remember that biological tissues are a whole range of reactive chemicals that are held in status by the regulatory control mechanisms of the living organism. On death these processes break down and autolytic decay occurs. Chemically treating biological tissue can prevent autolysis and coagulate cell contents into insoluble substances. A secondary function of fixation is to sterilise the specimen and thus prevent biological decay of the specimen. The process of fixation is extremely important in many research areas, notably histological studies, electron microscopy and immunocytochemistry.

Ideally fixation should preserve a specimen so that it remains unchanged. However in reality this is not possible. To prevent biological tissues from degradation some significant chemical changes need to occur. The result is that these reactions can cause significant chemical change with subsequent effects such as colour change, and shrinkage or swelling on the morphological form of the fixed specimen. It is also important to remember that fixation is only effective with certain chemical compounds in biological tissue, causing incomplete fixation of all the cellular components.

Fixative treatments can be considered as two types;

- 'True' fixatives involve the formation of chemical cross-links. These

chemical reactions tend to be directed at proteins due to the abundance of chemical groups available for such reactions e.g. amines; amides; carboxyl's; hydroxyls etc.

- 'Pseudo' fixatives involve the coagulation or denaturation of the molecules that form the biological tissue. With proteins this involves an unwinding or disordering of the steric structure, altering patterns of steric bonding.

A whole range of fixative chemicals and 'recipes' exist, especially for use in specialist studies (see further reading). As natural science collection conservators we are only likely to come across a few of these fixative chemicals and their associated recipes. By far the most commonly used fixative is the aldehyde formaldehyde, HCHO. This is a non-functional aldehyde that is considered to act as a polymeric fixative that converts protein into an insoluble macromolecular network. Other aldehyde fixatives are also available such as Glutaraldehyde and Acrolein. These are bifunctional aldehydes and are more effective as histological fixatives. However formaldehyde remains the better 'general purpose' fixative due to its small molecular size and subsequent better rates of infusion into the specimen.

Formaldehyde fixation reactions tend to focus on the production of inter and intra-molecular crosslinks, especially with protein molecules as these have the largest number of side groups such as amines and amides etc. It is with such groups that formaldehyde can effectively form crosslinks with. Other cellular components are also potentially fixed but to a lesser extent. Nucleic acids can have crosslinks induced with histones, nucleoproteins and other cellular components, whilst unsaturated fatty acids tend to be converted to glycols and then to other, irreversible products. Lipids are thus lost or become highly modified so that their localisation and histological chemical reactions in biological samples remains of doubtful veracity. Small molecules such as carbohydrates tend to be lost to the preservation fluid.

When in its hydrated form, formaldehyde can form methylene glycol. With protonation this can lead to the formation of the reactive electrophile (figure 1). It is this carbonium ion that is believed to be responsible for the fixative effect of formaldehyde as it is capable of nucleophilic attack with

electron rich areas such as the free electron pairs of nitrogen, oxygen and sulphur or unsaturated bonds. The lower the pH, the more the carbonium ion is formed. A 'typical' reaction pathway could be through an addition reaction between a compound containing a reactive hydrogen and the carbonium ion, forming a hydroxymethyl derivative. A further condensation reaction with another hydrogen atom to form a methylene bridge (figure 2). However this methylene bridge is considered to be reversible, and thus further, more permanent cross-linking reactions are occurring. A possible example of this is shown in figure 3.

Other non-aldehyde fixatives also exist. Examples of these are organic acids such as acetic acid; metal salts such as cadmium and lead; and osmium tetroxide. However these tend only to be suitable as specialist fixatives and can be more hazardous to work with.

It is important to remember that how a fixative is used can have a great effect. The osmotic strength of the fixative solution can effect how well a fixative penetrates a biological sample. The more isotonic the fixative solution, the lower is the osmotic stress on the sample. The pH of the fixative solution can also have a significant effect. At an alkaline pH the reactions with protein groups is different to those occurring at an acid pH.

So far we have discussed 'true' chemical fixation. However a good example of a 'pseudo' fixative is the use of ethanol or Industrial Methylated Spirits (IMS – 95% ethanol with 5% methanol). Ethanol is a clear flammable liquid, usually considered as a preservative rather than a fixative. However it can be considered as a 'dehydrating pseudo fixative' that is a non-additive, denaturing coagulant of proteins. It does this by altering the stereochemistry of the protein molecules. Proteins can be considered to have a number of steric structures depending on the molecular bonding occurring. The covalent bonding holds the primary structure between the amino acids that form the peptide chain of the protein. The secondary structure is determined by the hydrogen bonding between the components of the peptide chain itself, whilst the tertiary structure is considered to be the proteins total structure in three dimensions. A series of bonding types; hydrogen bonds; ionic bonds; and hydrophobic bonds determine the tertiary structure. Both hydrogen and hydrophobic bonds are very weak, but have a significant effect due to large numbers of these bonds occurring in

the protein molecule. Ethanol has the effect of disrupting the hydrophobic bonds in the protein molecule, thus causing the loss of the tertiary structure but not the secondary structure. The result is that ethanol fixation will leave the reactive groups on enzymes and proteins in a near original state as a result of stereochemical changes. Ethanol will also precipitate nucleoproteins but will not 'fix' them. However ethanol will dissolve lipids and precipitate or dissolve carbohydrates, as well as cause morphological changes due to shrinkage.

A fortunate result of the use of ethanol as a 'pseudo' fixative and preservative is that it can preserve DNA well. The ability to extract and use DNA from natural science collection specimens is becoming of increasing importance. Table 1 summarises current knowledge on this subject.

Mode of fixation	Subsequent preservation	External morphology	Histology	Internal anatomy	DNA
Cryo preservation	Freezer at – 70°C or below.	Can be good.	poor	Fair to good	good
Absolute ethanol	Absolute ethanol	Poor to good	Poor to fair	Poor to fair	good
70-80% IMS	70-80% IMS	Fair to good	Fair to good	Fair to Good	Fair - good
70-80% IMS	CPD or HMDS drying	Good	Poor	Good	Fair - good
70-80% IMS	Air drying	Good for certain groups.	Poor	Variable	Fair
4% Formaldehyde	70-80% IMS	Fair to Good	Fair	Fair	Poor – Fair
4% Formaldehyde	4% Formaldehyde	Good	Fair to good	Good	Poor
Ethyl acetate	Air dried	Fair to Good	?	Variable	Very Poor
Formaldehyde based histological.	Same	Fair to good	Good	Good	Very Poor to Poor.
Mercury based histological.	Same	Fair to Good	Good	Good	None or Very Poor

Table 1: Summary of the effects of various preservation protocols on invertebrate specimens (after Thomas, 1994; Dillon *et al.*, 1996; Quicke *et al.*, 1999).

Figure 1: Possible mechanisms for the production of the carbonium ion responsible for the main fixation reactions of formaldehyde.

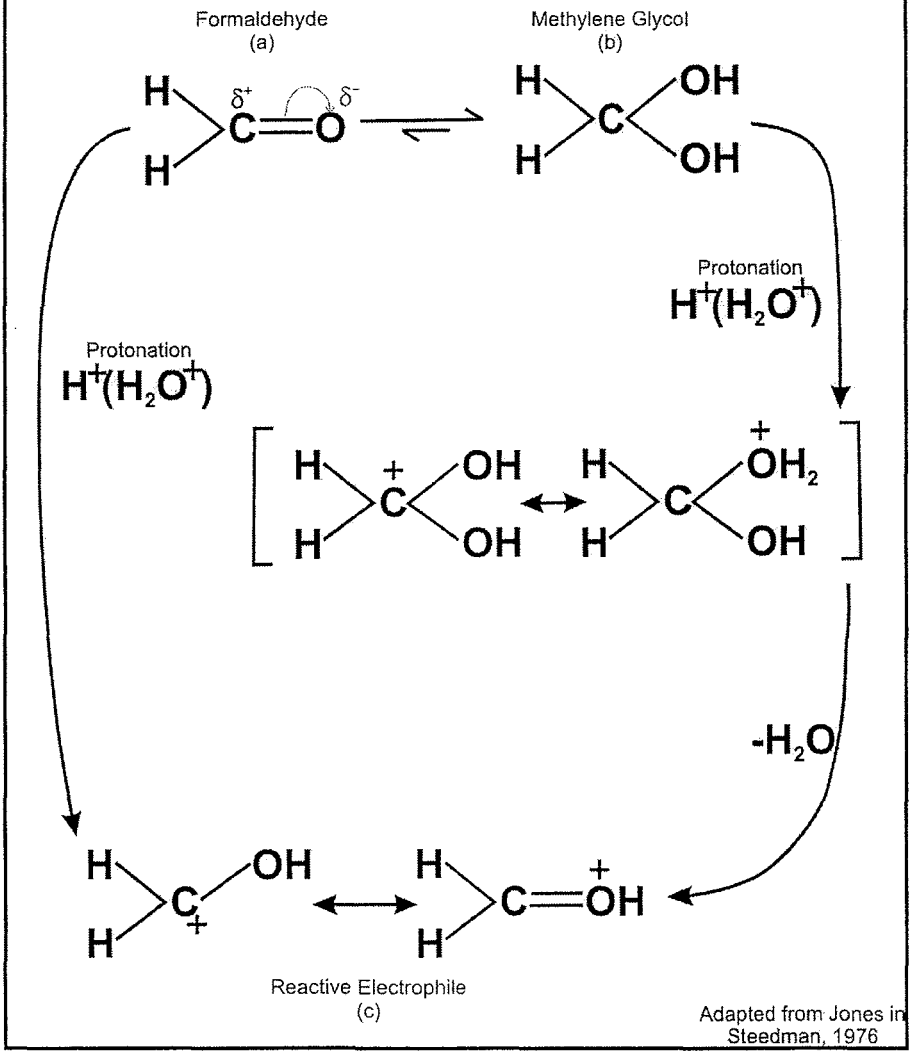


Figure 2: 'Typical' reaction pathway for methylene bridge formation.

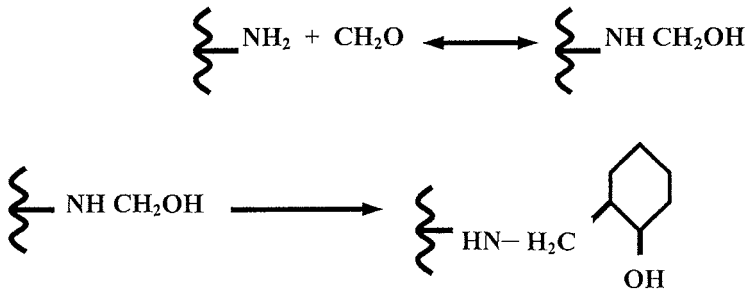
1. Addition reaction to a compound containing a reactive hydrogen;

$$R.H + CH_2O \longleftrightarrow R.CH_2(OH)$$

2. Condensation reaction with a further hydrogen atom to form a methylene bridge ($-CH^2-$);

$$R.CH_2(OH) + HR' \longleftrightarrow R-CH_2-R' + H_2O$$

Figure 3: example of possible cross-linking reactions involving amino acids and formaldehyde;



Further reading

Dillon, N. *et al.* 1996. Comparison of preservation for DNA extraction from hymenopterous insects. *Insect Molecular Biology* **5**(1):21-24.

Hayat, M.A. 1982. *Fixation for electron microscopy.* Academic Press.

Horie, C.V. 1989. *Conservation of natural history specimens – fluid collections.*

Pearse, A.G.E. 1980. *Histochemistry.* Volume 1: preparative and optical chemistry. 4th Edition.

Post, R.J. *et al.* 1993. Methods for the preservation of insects for DNA studies. *Biochemical Systematics and Ecology.* **21**(1): 85-92.

Quicke, D.L.J. *et al.* 1999. Preservation of hymenopteran specimens for subsequent molecular and morphological study. Zoology Scripta **28**(1-2): 261-267.

Steedman, H.F. 1976. *Zooplankton fixation and preservation.* UNESCO.

Thomas, R.H. 1994. Analysis of DNA from natural history museum col-

lections. In Schierwater, B & Strait, B., (eds) *Molecular Ecology and Evolution*: Approaches and Applications, p311-321.

Conservation Focus

Resource launches new Website

http://www.resource.gov.uk

Resource: The Council for Museums, Archives and Libraries has launched its redesigned website. The site has new features, such as E-mail alerts, news zones as well as all the information on the activities of Resource.

Modernising Regional Museum Sector in England

A number of new regional museum 'hubs' acting as flagships for the local museums community, will be chosen over the next few months, Arts Minister Baroness Blackstone recently announced.

In the annual lecture to the Association of Independent Museums, Baroness Blackstone gave details of the Government's strategy to modernise and support England's 2,500 regional museums. The Government's proposals are in response to the implementation plan delivered by Resource in response to, Renaissance in the Regions, the report of the Regional Museums Task Force.

Full details: http://www.resource.gov.uk/news/press_article.asp?articleid=225

WWW site

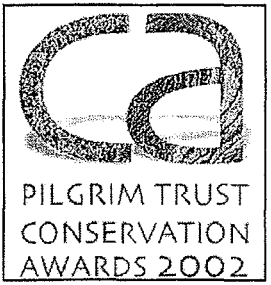
International Union of Biological Sciences
Taxonomic Database Working Group
http://www.tdwg.org/

TDWG Mission

- To provide an international forum for biological data projects;
- To develop and promote the use of standards; and
- To facilitate data exchange.

The problems of copyright, and intellectual property rights of 'virtual specimens' and data from natural history specimens are discussed in the 2000 meeting at http://www.tdwg.org/tdwg2000/ipr.htm

Conservation Awards 2002



Open to object, paper and building conservation projects
£15,000 for the Award for Conservation
£5,000 for the Student Conservator of the Year
£5,000 for their Training Institution
£2,000 for the Anna Plowden Trust Award for Research and Innovation
Prize-giving at the British Library on 12 November 2002

To be eligible for the Award for Conservation or the Student Conservator of the Year Award, projects must be: completed in the UK or Ireland between 31 January 2001 and 28 February 2002, or between 31 January 2001 and 30 April 2002 for student projects accessible to the public

Projects can include: conservation of individual items or whole collections, or the decorative elements or fixtures associated with a historic building, or monuments and sculptures, or preventive conservation to improve the environment in which a collection is housed

To be eligible for the Award for Research and Innovation, projects must be: accepted for publication or put on the market in the UK between 31 January 2001 and 28 February 2002 completed programmes of research or development aimed at furthering the practice of conservation, including production of materials, equipment, systems or techniques for improved conservation or collection care, or for examination, analysis, treatment or monitoring.

Deadline for Applications: 29 March 2002 for the Award for Conservation and the Award for Research and Innovation 31 May 2002 for the Student Conservator Award
For more information or an application form contact the Awards Co-ordinator at: UKIC (Awards), 109 The Chandlery, 50 Westminster Bridge Road, London SE1 7QY Tel/Fax: 020 7326 0995 E-mail: consawards@britishlibrary.net

The application forms will be made available from this Web site in due course.

Sponsored by the Pilgrim Trust and the Anna Plowden Trust, and supported by English Heritage, the National Preservation

Courses & Meetings

Insect collections: From Preservation to Conservation

20th June 2002

One day workshop at the Oxford University Museum of Natural History

Including talks and demonstrations on: Preparation techniques (mounting-setting-labelling etc); Microscope slides (methods of making/storage); Wet to dry (bringing specimens out of fluid preservation); Collection storage.

Cost: £25.00

Contact: Darren J. Mann, Hope Entomological Collections, Oxford University Museum of Natural History, Parks Road, Oxford, OX! 3PW.
E-mail: darren.mann@oum.ox.ac.uk

Insect Pests in Museums

The Natural History Museum
13-14th March 2002

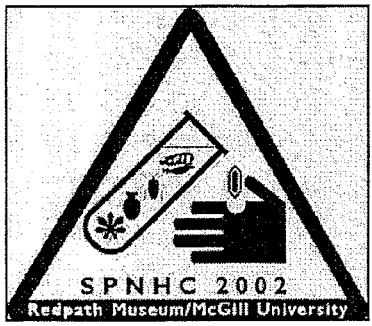
A two day course lead by David Pinniger, of interest to all those with responsibility for natural history, ethnographic and folk collections, textiles, and so on. Covering: pest identification and monitoring and control and pest management among other topics.

Further details from:
Phil Ackery, Department of Entomology, The Natural History Museum, Cromwell Road, London, SW7 5BD.
Tel: 0207 9425612
E-mail: pra@nhm.ac.uk

SPNHC 2002

Hazardous Collections and Mitigation

May 8 - 13, 2002



Redpath Museum / McGill University
Montreal, Canada

The 17th Annual Meeting of SPNHC is co-organized with the Canadian Museum of Nature (CMN) and features three days of technical sessions, a keynote speaker and a professional workshop on the topic of *Hazardous Collections and Mitigation.*

The Social Programme includes field trips to the Collection Facility of the CMN near Ottawa, a UNESCO Biosphere Reserve, local Ordovician quarries and the world famous Biodome.

Registration and Abstract submission: March 15, 2002.

Please use the Electronic forms available from the SPNHC website at http://www.spnhc.org/2002/

Or contact Joan Kaylor, SPNHC 2002, Redpath Museum/ McGill University, 859 Sherbrooke St. West, Montreal, Canada H3X 3R7. E-mail jkaylor@eps.mcgill.ca

NSCG AGM

Conservation Implications of Moving Collections.
Methods, Resources and Implications

This is a call for papers for the AGM Conference of the **NSCG**

At the Castle Museum, Norwich

Tuesday 16th and Wednesday 17th April 2001.

Paul A. Brown [Secretary NSCG], Department of Entomology, Natural History Museum, Cromwell Road, London SW7 5BD.
Tel: 0207 942 5196
Fax: 0207 942 5229
E-mail: pab@ nhm.ac.uk

BCG AGM

Biology Collections and Lifelong Learning

CALL FOR PAPERS

The subject of the 2002 AGM will be lifelong learning. Lifelong learning is a comparatively new phrase and one increasingly used in museums, education organisations and funding bodies literature. This conference will aim to explore what we mean by lifelong learning and look at the issues, theoretical aspects and practical projects relating to biology collections and the lifelong learning agenda.

Date and venue are to be confirmed but a tentative date is 10-11th April, possibly at Newcastle Upon Tyne.

Anyone wishing to present a paper, demonstration or poster please contact:

Nick Gordon, New Walk Museum, New Walk, Leicester LE1 7EA
Tel: 0116 2554100
E-mail: gordn001@leicester.gov.uk

The Fossil Trade: Ethics Versus Science

The Geological Curators' Group of the U.K. is holding a one-day conference on the rights and wrongs of the Fossil Trade, on Wednesday 23 May 2001 at the Manchester University Museum, Oxford Road, Manchester, United Kingdom.

Anyone interested in speaking at this meeting, please contact Dr John Nudds. The registration fee for the meeting is £12 ($20). If you would like to attend, please contact Dr John Nudds by Friday 9th May 2001

Dr John Nudds, Keeper of Geology, Manchester University Museum, Oxford Road, Manchester M13 9PL.
Tel. 0161-275 2660
Fax 0161-275 2676

Geological Collections Databases, GIS and the WWW

Joint Meeting: Geological Curators Group
and Geoscience Information Group

15th May 2002,
British Geological Survey, Keyworth, Nottingham

Talks include:

- British Geological Survey's Geoscience Data Index - a web-based spatial index to our data holdings
- The Palaeontology Department specimen cataloguing system
- 9 Years of INCA: evolution of a museum catalogue
- National Museums & Galleries of Wales; Geological Database: accountability for collections vs. public access

Meeting Convener: Mike Howe and Garry Baker, British Geological Survey, Keyworth, Nottingham, NG12 5GG.
Tel: 0115 9363105
E-mail: mhowe@bgs.ac.uk, grba@bgs.ac.uk.

N.S.C.G. Committee Members

Chair

Paul Brown
Department of Entomology
Natural History Museum
Cromwell Road
LONDON
SW7 5BD
Tel: 0207 942 5196 Fax: 0207 942 5229
E-mail: pab@nhm.ac.uk

Secretary

Louise Cant
Conservation Department
Birmingham Museum &Art Gallery
Chamberlain Square
BIRMINGHAM
B3 3DH
Tel: 0121 303 4589 Fax: 0121 303 2891
E-mail: louise_cant@birmingham.gov.uk

Treasurer

Kate Andrew
Ludlow Museum
Old Street
LUDLOW
Shropshire
SY8 1NW
Tel: 01584 873857 Fax: 01584 872019
E-mail:geological.kandrew@virgin.net

Membership Secretary

Maggie Reilly
Curator of Zoology
Hunterian Museum
Glasgow University
GLASGOW
G12 8QQ
Tel. 0141 330 4772 Fax. 0141 330 5971
E-mail: mreilly@museum.gla.ac.uk

Editor

Darren J. Mann
Oxford University Museum of Natural History
Parks Road
OXFORD
OX1 3PW
Tel: 01865 272 957 Fax: 01865 272 970
E-mail: darren.mann@oum.ox.ac.uk

Committee Members

Susan Cooke
Leicestershire Museums,
Arts and Records Service
County Hall
Glenfield
Leicester
LE3 8TB
Tel:0116 2656843
E-mail: scooke@leics.gov.uk

Bob Entwistle
Ipswich Museum
High Street
IPSWICH
Suffolk
IP1 3QH
Tel: 01473 433549 Fax: 01473 433558
E-mail: robert.entwistle@ipswich.gov.uk

Gabriella M^{c}Kinnon
Birmingham Museum & Art Gallery
Chamberlain Square
BIRMINGHAM
B3 3DH
Tel: 0121 464 0523 Fax: 0121 303 1394
E-mail: gabriela_mackinnon@birmingham.gov.uk

Simon Moore
Hampshire County Museums
Chilcomb House
Chilcomb Lane
WINCHESTER
SO23 8RD
Tel: 01962 846337 Fax: 01962 869836
E-mail: simon.moore@hants.gov.uk

Amanda Sutherland
1 Ilsham Mews,
Ilsham Road,
TORQUAY
Devon
TQ1 2PB
E-mail: a.sutherland33@hotmail.com

Donna Young
Botany Section
Liverpool Museum
William Brown Street
LIVERPOOL
l3 8EN
Tel: 0151 955 0814 Fax: 0151 955 0840
E-mail: donna@mgmnhc.demon.co.uk

Contents