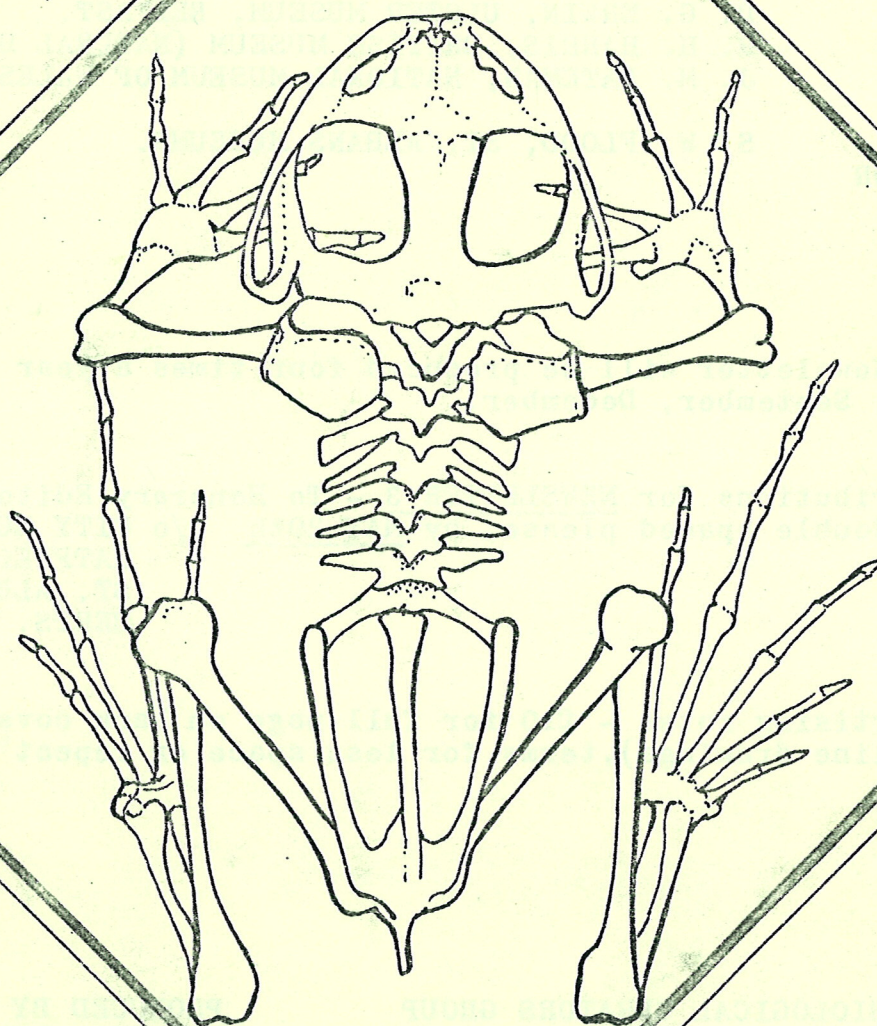


Biological Curators Group

Newsletter  
Number 2  
March 1976



BIOLOGICAL CURATORS GROUP

THE GROUP HAS THE FOLLOWING TERMS OF REFERENCE

1. To facilitate the exchange of information between individuals concerned with collections of specimens and records, their conservation and interpretation.
2. To present the views of Biological Curators to the Museums Association and other bodies.

CHAIRMAN E. G. HANCOCK, BOLTON MUSEUM.

SECRETARY/ G. STANSFIELD, DEPARTMENT OF MUSEUM STUDIES,  
TREASURER UNIVERSITY OF LEICESTER.

COMMITTEE E. F. GREENWOOD, MERSEYSIDE COUNTY MUSEUMS.  
D. G. ERWIN, ULSTER MUSEUM, BELFAST.  
R. H. HARRIS, BRITISH MUSEUM (NATURAL HISTORY).  
J. M. BATEMAN, NATIONAL MUSEUM OF WALES, CARDIFF.

HON. S. W. FLOOD, ST. ALBANS MUSEUMS.  
EDITOR

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BIOLOGICAL CURATORS GROUP NEWSLETTER

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No. 3 MARCH 1976

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MEMBERSHIP OF THE BIOLOGICAL CURATORS GROUP IS OPEN TO ALL INTERESTED INDIVIDUALS AND BODIES AT AN ANNUAL SUBSCRIPTION OF £1.00. FURTHER DETAILS AND APPLICATION FORMS ARE AVAILABLE FROM --

G. STANSFIELD,  
c/o Department of Museum Studies,  
University of Leicester,  
152, Upper New Walk,  
Leicester LE1 7QA.

PREPARATION TECHNIQUES FOR BIOLOGICAL MATERIAL

R. H. HARRIS  
BRITISH MUSEUM (NATURAL HISTORY)

(In this shortened version of the paper presented at the first meeting of the Biological Curators Group Reg. Harris highlights some preservation methods which are still in an experimental stage).

In preservation the emphasis is on good and even penetration of fixatives (moving aside organs if necessary) and similar routines are carried out with plants, remembering that penetration of the cellulose walls is assisted by the use of acetic acid. Fixation 'renders tissues stainable for histology' and 'renders tissue suitable for colour preservation' - preservation may not do this.

Preservatives are of three main types Dry, Fluid and Embalming.

Dry Preservation

Most dry preservation techniques are well established so this is just a summary of current methods -

HEAT Using Sand Baths (very useful for plants and some invertebrate animals).

AIR DRYING After heating, or injection with a suitable fixation agent e.g. Formol acetic acid (injected into crustacea and echinoderms this gives good colour and general preservation).

FREEZE DRYING Involves the sublimation of vapour from ice crystals in frozen, generally relatively impermeable, tissue (for entire animals and plants, fur, skin, etc.,).

VACUUM DEHYDRATION Dry frozen tissue over a dessicant under a medium vacuum, a method intended for permeable tissues (insects, fungi, etc.,).

Fluid Preservation

Traditionally alcohol (industrial methylated spirit) and formaldehyde are used. Other alcohols which may be found are isopropyl alcohol (American material is often in this) and tertiary butyl alcohol (which is a better preserver for both animals and plants to retain colour).

It is important to know the strength of preservatives being used. For alcohol, alcoholometers are available for direct readings of percentages. With formaldehyde (where a 2% solution acts as a cell macerator so that cells, although well-preserved, are disassociated) knowledge of concentration is more critical.

Steedman's method for estimating strength of formaldehyde solutions uses the principle of quantitative liberation of sodium hydroxide when formaldehyde reacts with sodium sulphite and water. 1

The change of pH may be followed by using thymolphthalein as an indicator and the amount of sodium hydroxide liberated is estimated by titration. From this the amount of formaldehyde present in the fluid can be calculated as follows -

1. Place 50 ml of a 30% sodium sulphite solution in distilled water in a clean beaker.
2. Add 4 drops of thymolphthalein.
3. Add a few drops of normal sodium hydroxide solution until the solution gives a faint blue colour.
4. Add normal sulphuric acid in drops until the colour just disappears.
5. Weigh out 3 gms of the formaldehyde sample. Add to the sodium sulphite solution. Blue colour appears.
6. Titrate with normal sulphuric acid or with normal HCl until the blue colour just disappears.
7. The percentage of formaldehyde is estimated as follows -

$$\% \text{ formaldehyde} = \frac{\text{Acid titre} \times \text{Normality} \times 3.003}{\text{Weight of sample}}$$

Example - if acid titre was 5 ml

$$\frac{5 \times 1 \times 3.003}{3} = 5\% \text{ formaldehyde.}$$

A number of other techniques have been developed in recent years although some are not fully tried and tested.

FORMALDEHYDE RELEASERS 'Dowicil',<sup>2</sup> obtainable as a yellow powder is made up in 10% aqueous solutions. This liberates formaldehyde in the presence of protein and is useful for expedition and general collecting trips. There are doubts about the state of cells and histology but entire samples seem to preserve reasonably well and further fixation can be carried out if necessary. (Still very much in the experimental stage).

'KEEPING SOLUTIONS' There are reagents in which samples may be kept after collection for further histochemistry or other preservation after some time. 'Chinosol' is used by UNESCO workers for entire animal and plant preservation at 15 to 20% aqueous solutions. They say it preserves natural colour much longer than alcohol or formaldehyde. We in the UK use the solution strictly as a 'keeper' and transfer to a fixation or preservation agent as soon as possible. Our<sup>3</sup> 'Chinosol' is 8-hydroxy quinoline sulphate, now called 'Seraquin', and is a benzoate and less corrosive than the sulphate (which corrodes metal etc.,).

POST FIXATION REAGENTS To be used after fixation or when a transfer from alcohol to a water based formula for fire risk etc., is necessary. Best of the general PFR's is Phenoxetol, used now for over twenty years. Provided that it is made up correctly

(it is a very viscous fluid in the neat state) phenoxetol forms a very useful and trouble free method of maintaining fluid collections, no more evil smelling dogfish tanks etc.,! Steedman has produced a formula<sup>4</sup> which uses propylene glycol as a humectant and also forms an easy solvent for the phenoxetol. This was the best of over 200 formulae tried out.

**FLUID COLOUR PRESERVATIVES** The theory that preservation of the respiratory pigments, haemoglobin and chlorophyll, might bring about colour preservation has proved right.

For haemoglobin use Kaiserlings solution followed by fixation, development and final immersion.

Chlorophyll is maintained in plants by immersion in simmering solution of glacial acetic acid and copper acetate before fixation, drying or freeze drying

Formaldehyde also preserves colour provided oxidation is prevented. Yoshida, a Japanese worker, first used Vitamin C at a 1% solution in formaldehyde to preserve colour in fish.<sup>5</sup> Pyridine<sup>6</sup>, Butylated hydroxytoluene (BHT)<sup>7</sup> and nicotine (much too dangerous for general use) can also be used. Much research and care is needed in this investigation.

#### Corrosion and general embalming techniques

**CORROSION** involves the injection of a substance into vascular systems and then the surrounding tissue is dissolved away to reveal a 'tree' of vessels. This is used for brain, kidney, liver, entire systems of invertebrates etc., (Very good<sup>8</sup> examples shown in the Royal College of Surgeons Museum in London). It can also be used in botany for fern steles and, experimentally, for vascular systems of plants. The substance must resist the digesting acid; originally X-ray film mixed with acetone was used, now mixtures of celloidin and polyester resins are being tested.

**EMBALMING** The object is to allow the sample to remain in a relatively dry state for examination. The usual fluid which contains formaldehyde, phenol and glycerine, is injected through main blood vessels (vertebrates and invertebrates) followed by placing them in an atmosphere of the media injected.

The latest method is the use of 'chlorocresol'<sup>9</sup> to collect insects and other inverts and keep them in the atmosphere of the reagent until ready for further work.

## References

1. Steedmans method of formaldehyde assay in UNESCO publication 'Monographs of Oceanographic Methodology No. 4 Fixation and Preservation of Marine Zooplankton' published February 1976.
2. 'Dowicil'  
the London agent for the Dow Chemical Co (UK) Limited is  
R.W. Greef,  
31-45 Gresham Street,  
London EC2 (01-606-8771).
3. 'Seraquin'  
from Ward Blenkinsop & Co Limited,  
Fulton House,  
Empire Way,  
Wembley,  
Middx.
4. Propylene Glycol formula - in Unesco publication mentioned in (1) above.
5. Use of Vitamin C for colour preservation  
in Yoshida, Y. 1962 'A way of making Fish specimens with their original body colours kept' Bull. Misaki. Mar. Biol. Inst. Kyoto Univ. No. 3 67-68.
6. Pyridine. The original paper by Romhany is in 'Makroskopische Preparaten' by T. Piechocki. Others are in Rumanian!
7. Butylated hydroxytoluene (Shell Chemical Co Limited)  
reference - 'A method of preserving colour in biological specimens' Bioscience Vol. 15 No. 5 1965.
8. Corrosion techniques are mentioned in the book 'Anatomical Techniques' by Tompsett, Royal College of Surgeons (published by Livingstone).
9. 'Chlorocresol' is obtainable in the U.K. from  
Koch-Light Labs,  
Colnbrook SL3 0BZ,  
Bucks.

If anyone wishes to try some of the new techniques Mr Harris is willing of offer advice and assistance to those who would like to contact him at the British Museum (Natural History).

If you write to any of the commercial firms mentioned it might be useful to mention the source of your information.

### CHARTERED CURATORS?

J. A. BATEMAN KEEPER OF ZOOLOGY  
NATIONAL MUSEUM OF WALES.

(The Education Committee of the Museums Association Council convened a 'Think Tank' in February to discuss the qualifications for museum curators).

The meeting was held at Coventry on 13/14 February, 1976 and was attended by about 30 delegates. The membership was by invitation, and selection was made to include a cross-section of persons interested in the training required for qualifications in museum practice. Thus there were representatives of the various specialist disciplinary groups, of MAG, of large and small provincial museums, national museums, private museums and area councils.

In general the discussion centred upon an examination of each of the three existing phases of qualifying as a professional curator viz, the Qualifying Examination stage, the Final Diploma stage and the Fellowship stage.

Dealing with the Qualifying Examination firstly, there was unanimous approval that this should be discontinued, subject to approval by members at the next Annual General Meeting of the Association. The reasons for this were the relatively few candidates coming forward, compared with a large amount of administrative procedure involved, the difficulty in examining in academic subjects and the inappropriateness that the Association be involved in this responsibility. It was felt that few professional curators had the correct background or experience for examining specialist disciplines, whereas the one thing that they should be concerned with was the collection of studies unique to the museum profession and directly related to a responsibility for material objects.

It appeared that over 90% of the annual intake of students registering as Diploma candidates was gaining exemption from the qualifying examination and it was thought that of the remainder, those holding 'non-relevant' degrees might be trained for the final examination in some manner.

Removal of the qualifying examination was not considered as a step towards an all-graduate entry. It was thought that qualification for registration might be 'a degree or equivalent status', which would be a loophole for mature students with a wealth of suitable background experience.

The members considered that a young non-graduate anxious to enter the profession had many alternatives for getting degree status - a situation quite different from when the Diploma training scheme was first developed.



Discussion next covered the training for the Diploma, or an equivalent qualification in curatorial responsibility. Matters considered included the nature of training required, especially the choice between concentrating on training in the curatorial responsibility for specialist disciplines; general curatorial training, picking out the features common to all disciplines; the organisation and philosophy side of professional training, and advanced management training. A primary objective was to try and find a formula which would provide greater encouragement for curators in museums to seek a qualification of professional competence, especially one that would merit recognition by all local authorities, the Civil Service Department and the D.E.S. The suggestion was advanced that the Council of the Association, through its Institutional Representatives, should ensure a widespread, if not universal, acceptance by all local authorities of a qualification in professional curatorship as a pre-requisite for all appointments above a certain level of responsibility - say from Assistant Keeper upwards.

Various views were expressed about the existing Diploma scheme, the main criticisms being the inequality of standards between disciplines, the lack of efficiency and understanding among many tutors, the overlapping detail of many courses and omissions from some of them, and the failure of the Association to keep absolute control over the progress of students towards the final examination.

The nature of the syllabus for a new type of course was also discussed. Although some held the view that the subject matter should be almost entirely based upon an administrative function, the idea which was most generally approved was that the whole training should be related to 'stuff'. This term was accepted by all as a well-meaning abbreviated piece of slang to express the overall nature of material objects, in infinitely variable form and number, constituting collections. Responsibility for 'stuff', directly or indirectly, was the special feature of museum curatorship and gave to it a greater need for ethical control than is required even by librarianship. To be based upon training for the responsibilities of handling 'stuff' would make a qualification of professional curatorship different from other qualifications that might be thought appropriate; more than that, such a qualification should be as near mandatory as possible.

Various training schemes were aired, but eventually there was universal agreement for a scheme, the product of which would be a Chartered Curator. This would presuppose that the Museums Association should acquire a Royal Charter and this could be explored as a realistic possibility.

The training would commence with registration of candidates working in museums and such candidates would be required to show a) that they had an adequate academic background b) preferably that they had an aptitude for the work they proposed to do - there might be a preliminary course in which aptitude could be assessed.

The whole training period would be supervised by the Museums Association, which would stipulate a range of experiences through which a student should pass. Each experience would have to be certified and some assessment made. This reflects the credit accumulating process.

Training should take three years, the first of which would be in a museum, but perhaps there would be a need for short-term secondment(s) if a student's own museum could not provide all of the experiences expected during this initial phase.

The second year preferably, or under certain conditions the third year, would be on secondment to a training institution. Experience showed that the cost of this to a local authority would be less than the series of detachments necessary with the present training scheme. The training institution would be either a university with a Department of Museum Studies, or a Training Museum. Delegates present from the Leicester and Manchester Departments saw no real problem in their fulfilling the function, although other universities might be required to form museum study departments in order to satisfy these requirements at the present rate of student enrolment. Members generally thought that students should have a year in a museum before entering a university department. Both of the departmental directors agreed, but one thought he might be under pressure from heads of faculties to take in graduates direct from the universities where they gained their first degree.

The training year would replace the present courses for the Diploma and would be subject to assessment.

The final training year would be in a museum with strict supervision by a tutor. Tutors would have to certify that students had covered required parts of the training programme, but would also function in an advisory capacity ensuring that their students had the facilities they required. There would be assessment during this period.

When all the training programme had been covered, a student could apply to take the final examination. The form of this was not decided but some part would probably be written and a good deal would be testing practical competence. The previous assessments would be taken into account before an award was made.

All members felt that national museums should be more extensively involved in the training programme and the Director of the Royal Scottish Museum thought that his institution would welcome an opportunity for such involvement.

The use of external examiners was also discussed and an opinion was advanced that this might be an important factor in persuading D.E.S. to give formal recognition to the qualification.

In descriptive terms, members of the 'Think Tank' saw the Chartered status as a 'licence to drive' and it might also provide

a qualification of international status e.g. in any consultation with EEC over the rights to practise of professionals providing a public service. There might come a time when such rights and status could be withheld where a code of professional ethics was infringed.

Discussions did not ignore a need to provide training for ancillary staff such as those concerned with conservation and display; however, it was thought desirable that any of these persons who felt inclined to seek museum directorships, should be expected to arrive at this career phase after going through the training required for a Chartered Curator. That a Director should always have had this professional training was considered essential if the integrity for preserving collections was to be upheld.

(The Institute of Biology is also seeking Chartership so that biologists in this country have equivalent legal status with their European colleagues. The B.C.G. Committee is discussing this matter with the Institute and will report back to members).

AN INDEX TO NATURAL HISTORY COLLECTIONS

R.J. CLEEVELY  
BRITISH MUSEUM (NATURAL HISTORY)

(This is the first of a series of papers on national documentation schemes to be published in preparation for the B.C.G. Conference on Biological Collections in 1977).

Revision of 'Where is the -- Collection' by C. Davies Sherborn

Summary report for 1971-1975

Following my approach to the Society for the Bibliography of Natural History for their help in producing questionnaire forms for circulation, I distributed the forms to all Museums in the U.K. that were likely to have natural history material. The major institutions in Europe and others with which I had some contact in North America and Australasia were also approached. Inevitably the response to both the circulars and the notices of the proposed revision in fourteen scientific journals, was variable. Good co-operation was given by the majority of museums in the U.K. (50%), that from the Antipodes was virtually 100%, but elsewhere the response was lukewarm.

Before proceeding with the revision, provisional clearance was obtained from Sherborn's surviving executor and also Cambridge University Press, his publishers.

The arrangements for processing the information did not materialise and I reverted to the card index system. Initially, it was possible to devote considerable time to the project, but over the past two years the time spent on preparing and processing the information has been very limited. However, I expect the situation to improve from mid-summer 1976.

The present position is that the majority of entries for the letters A-C have been prepared. It is hoped to use these to discuss lay-out and the feasibility of publication with potential publishers, before processing the remaining entries. (For comparison - Letter A entries = Sherborn - 57 Revision - 110; Letter B = Sherborn - 235 Revision - 355; All these entries are more detailed than in the original work). The biographical details need to be added for many of the remaining cards, or at least verified. Information published in journals over the past few years needs to be extracted and added to the entries.

Various developments, particularly in the geological field have a bearing on the situation. In Britain the formation of the Geological Curators Group and their independant survey is of considerable importance. In America the Palaeontographical Society is conducting an enquiry into the availability of the resources for invertebrate palaeontologists in the continent and have allocated reasonable funds for carrying out this exercise. The principal mineralogical collections of the major institutions of the work have been briefly listed in a World Directory

published by the International Mineralogical Association in 1974 and which is to be revised in 1977. The forthcoming publication of the reference work 'Natural History Auctions 1700-1972' by Mr Chalmers-Hunt in association with Messrs. Sotheby, Parke, Bernet will also have some effect and provide additional information.

However, since it is intended that the revision should be more comprehensive than any of these ventures, I feel that the project is worth pursuing. Many of the staff of the British Museum (Natural History) and their research visitors appreciate the value of the information accumulated to date and regard it as a worthwhile research tool. Lack of time is the only drawback to such data being generally available.

Appended to this report is a copy of the original letter sent out to Museums and an example of two of the entries. Information for the Revision is strongest for Palaeontological and Recent Mollusca collections.

#### References

There was a review of similar schemes in Museums Assistant Group News April 1973.

The format of the revision will be something like the compilation produced by American Malacologists, edited by Tucker Abbot, 1973.

SOCIETY FOR THE BIBLIOGRAPHY OF NATURAL HISTORY

c/o British Museum (Natural History)

Cromwell Road,  
London, SW7 5BD.

INDEX TO NATURAL HISTORY COLLECTIONS

Where is the ----- Collection? By C. Davies Sherborn, D. Sc.,  
Cambridge University Press, 1940:141.

This catalogue, published in 1940, contains about 1,700 entries that give the whereabouts of past natural history collections and, in some cases, a brief account of their history. Its compiler, C. Davies Sherborn an eminent bibliographer, made a significant contribution to scientific literature through the reference works he produced e.g. Index Animalium, 1758-1850 and his painstaking labours in establishing publication dates of important works. In the course of these duties, he amassed details relating to the older collections concerned and subsequently, by diligent searching in miscellaneous records, sales catalogues and popular journals he was able to augment his notes so that they would provide a useful reference guide for systematists. Sherborn recognized that this catalogue was far from complete, but his reviewers, while praising his intentions, criticized its contents and particularly mentioned the omission of many famous collections housed in the major museums and institutions of Great Britain.

It is felt that a complete revision of this reference book would be of value to many taxonomists, both zoological and palaeontological, and others interested in the history of the natural sciences. In addition to rectifying incomplete and inaccurate entries, including the important omissions mentioned by critics and incorporating information on the later history and present whereabouts of the collections listed by Sherborn, entries concerning more recent collections will be provided, particularly those appertaining to branches of the natural sciences that have developed since 1940. It is also intended to widen the scope of the catalogue, although retaining its essentially British and European coverage, by mentioning important material available in scientific institutions throughout the world. However, information on botanical collections will not be included since this field is thoroughly covered in the Index Herbariorum. The inclusion of further biographical details of the collectors and information on hand-writing and portrait collections, together with a complete bibliography, should also increase the value of this catalogue as a reference tool.

Initially, the reference resources of the various libraries in the British Museum (Natural History) and the knowledge of the Museum's scientific staff will be used to compile this revision, but it is hoped that many others will be prepared and encouraged to collaborate in providing details of collections and collectors.

Any information that will be of value to the project should be addressed to, either Mr. A. Wheeler, Secretary, Society for the Bibliography of Natural History; or, Mr. R. J. Cleevely, Dept. of Palaeontology, both at the British Museum (Natural History), Cromwell Road, London, SW7 5BD, England.

ABBOTT, WILLIAM JAMES LEWIS ( 1853. - 3.viii. 1933)

Collected fossil vertebrates & non-marine molluscs.

A large part of his collection, including Ingress Vale material, was bought by the Geological Survey Museum in 1927 and is there now.

Pleistocene non-marine molluscs from Whitehall (1890-92) presented to B.M.(N.H.) in 1901 ; Pleistocene vertebrates from Igtham bought by Sir H.H. Howorth and presented to B.M.(N.H.) --- (these were described by Newton, Q.J.G.S., 50, 1894 ).

Flint implements from Hastings Castle purchased by the Wellcome Museum, 1930

Some MSS material in the Palaeontology Library of the B.M.(N.H.)

London

Obit. : Q. Jl. geol. Soc., 90, 1934: 1 - 11

Proc. geol. Ass., 45, 1934:97

Fossil Mamm.; Moll.

ALDER, Joshua (1792-1867 )

His collections in the Hancock Museum, Newcastle-on-Tyne; the British nudibranchs had deteriorated (1965) but were being treated and re-housed. Some shells in the B.M.(N.H.).

In 1974, Dr. A.P. Nimmo reported that this material was in good condition.

Biogr. : see E.L. Gill, 1908 , ' The Hancock Museum and its History ', Appendix to the Trans. nat. Hist. Soc. Northumb., N.S., 2, 1908 : xi-xli , portr. sketch.

MS. notebook relating to Brit. Nudibranchiate Mollusca (c. 1835-64) in BM(NH)

Embleton, D. 1867. Notice on the life of the late Joshua Alder, Esq. Nat. Hist. Trans. Northumb. 1 : 324-337.

Goddard, T.R. 1929. In 'History of the Natural History Society of Northumberland, Durham & Newcastle-upon-Tyne, 1827-1927.

See also Cornelius, P. (In Press). 'Revisionary notes on the coelenterate taxa of Joshua Alder (1792-1867)'. Bull. Br. Mus. nat. Hist., Zool.

Moll.

Report of the first General Meeting of the Biology Curators  
Group held at the British Museum (Natural History) on 10th December,  
1975

There was an attendance of approximately 40 at the meeting, 25 of whom had become members of the Group.

Report of Hon. Secretary/Treasurer Mr Stansfield reported that the membership of the Group stood at 50. There was a balance of £34.93 after the production of the first Newsletter. Information about the Group had been sent to all who had expressed interest. A note had been placed in the Museums Bulletin and similar notes had been sent to a number of Biological Societies and other organisations.

Speakers

1. John Robinson, Assistant Keeper, Fund for the Preservation of Technological and Scientific Material, Science Museum drew attention to the availability of grants for the acquisition of specimens in the natural sciences. Grants could cover up to 50% of the cost which could include purchase, transport and taxidermy charges. Grants had also been given for the production of models.
2. Reg Harris, Senior Scientific Officer, British Museum (Natural History) gave a comprehensive talk about preserving methods under the headings of Fluid methods, Embalming methods and Dry methods. Mr Harris had arranged an exhibition of specimens in the Conversazione Room to illustrate his talk. (See article elsewhere).
3. Stephen Flood, City Museum, St. Albans presented a short report on the present position concerning Biological Records Centres. A report on the Oxford Symposium was included in the first issue of the Newsletter. Mr Flood suggested that the establishment and operation of the B.R.C.s should be included in the syllabus for the Museums Association Diploma. Discussions were taking place with a number of organisations concerning the establishment and recognition of Centres. Mr Flood thought that there were a number of topics which the Group should consider Recording boundaries to be covered by B.R.C.'s; A national register of biological collections; Specimens of protected species in museum collections; Site record cards (a meeting had taken place between IRGMA and the GCG) - what were the B.C.G.'s views?; A register of special interests of museum biologists; Correspondents in specialist disciplines; The role of the biology curator in collecting and recording.

Discussion. David Erwin said that the Ulster Museum already had a licence for protected material in the collection. The Ulster Museum proposed to follow the example of the National Museum of Wales by studying underworked areas, the first being Rathlin Island.

Peter Morgan spoke about the need to make the expertise of the British Museum (Natural History) available to provincial museums.

Janet Dawson said that she understood that the N.W. Area Council had provided funds to have collections in the area surveyed.

The question of the Natural History option for the Museums Association Diploma was discussed. Jim Bateman explained the proposals to use



Open University credits to replace the qualifying examination. The need for courses on taxonomy was also discussed.

#### Open Forum

Bibliographies. It was felt that bibliographies on techniques would be valuable. Dick Hendry suggested that there was a need for exchange on methods in taxidermy. The possibility of a central pool of dead birds should be investigated.

Seminars. It was agreed to look into the possibility of Liverpool as a venue in 1977. Other suggestions included Belfast and Leicester. Jan Dawson felt the need for a seminar on aspects of fumigation and the use of fumigants. Jill Royston expressed a need for practical sessions dealing with preservation techniques.

It was agreed to look into the possibility of a one day meeting in Cardiff in April/May and a three day meeting in December 1976.

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At a meeting of the Committee held in Liverpool on Wednesday 4th February 1976 the following topics were discussed.

1. Constitution. Discussion took place on the need for a constitution. Geoff Hancock agreed to produce a paper for the next meeting and to write to the Secretary of the Museums Association to invite M.A. representation on the committee.
2. Charter. The relationship between the B.C.G. and the Institute of Biology was discussed together with the possible implication of the Institute seeking Chartership. It was agreed to invite the secretary of the Institute to speak at a future meeting.
3. B.R.C.'s. Geoff Stansfield reported that he had attended two meetings of the Society of County Museum Directors Ad Hoc Working Party on Environmental Data Centres. Eric Greenwood reported that a paper was being prepared setting out the case for B.R.C.'s being housed in museums. The committee would have the opportunity to consider and make comments on the draft.
4. National Surveys. It was agreed that as a matter of policy the Group should give its support to national documentation schemes concerning biological collections and in particular surveys being organised by Dr. Clevely of the Department of Palaeontology of the British Museum and the Linnean Society on archival material. A note about the surveys should be included in the Newsletter.
5. 1977 meeting. Eric Greenwood agreed to prepare proposals for the 1977 meeting in Liverpool on the theme - National surveys of biological collections.

The possibility of sponsorship was discussed.

Geoff Stansfield reported that the Systematics Association had asked whether the B.C.G. would be interested in a joint meeting with the G.C.G. on the use of natural history collections. Eric Greenwood agreed to pursue the matter.

Membership List at February 1976

Ms. J. A. Bardsley	Booth Museum, Brighton
Mr. J. A. Bateman	National Museum of Wales, Cardiff
Mr. P. C. Bates	Museum of Pathology, Royal Free Hospital, London
Ms. K. M. Berry	Bolton Museum
Mr. C. R. Betteridge	Department of Museum Studies, Leicester
Mr. R. K. Brinklow	Dundee Museum
Mr. B. C. Campbell	Newport Museum
Mr. J. M. Campbell	Oxford City and County Museum, Woodstock
Dr. M. D. Crane	Bristol Museum
Mr. D. A. Curry	Plymouth Museum
Ms. J. Chamberlain	Portsmouth Museum
Ms. J. E. Copson	County Museum, Warwick
Mr. P. S. Davis	Sunderland Museum
Mr. J. J. Daws	Gordon Museum, Guy's Hospital, London
Ms. J. E. Dawson	Leicestershire Museums Service
Ms. R. M. Down	Museum of Zoology, University College, London
Mr. W. A. Ely	Clifton Park Museum, Rotherham
Mr. D. G. Erwin	Ulster Museum, Belfast
Mr. I. M. Evans	Leicestershire Museums Service
Ms. C. Fisher	Merseyside County Museums, Liverpool
Mr. S. W. Flood	City Museum St. Albans
Mr. O. Froiland	Zoological Museum, Bergen
Mr. K. Ghani	National Museum of Wales, Cardiff
Mr. W. M. Grange	Dorset County Museum
Dr. J. R. A. Gray	Bolton Museum
Mr. E. F. Greenwood	Merseyside County Museums, Liverpool
Ms. B. D. Greenwood	Merseyside County Museums, Liverpool
Mr. G. Halfpenny	City Museum, Stoke on Trent
Mr. E. G. Hancock	Bolton Museum
Ms. M. M. Hartley	Keighley Museum
Mr. R. H. Harris	British Museum (Natural History)
Mr. J. I. Harris	Merseyside County Museums, Liverpool
Mr. A. P. Harvey	British Museum (Natural History)
Mr. J. J. Heath	Colchester Museum

Mr. R. Hendry	Glasgow Museum
Ms. A. Hollowell	Bristol Museum
Dr. M. V. Hounsome	Manchester Museum
Dr. M. S. Isaac	Swansea Museum
Mr. T. T. James	Hitchin Museum
Mr. P. W. Lambley	Norfolk Museums Service, Norwich
Mr. A. Leigh	Warrington Museum
Ms. M. E. Lewis	Bolton Museum
Mr. B. M. Logan	University of Nottingham
Dr. A. G. Long	Hancock Museum, Newcastle upon Tyne
Dr. J. Mathias	Leicestershire County Museums Service
Mr. G. Y. McInnes	Merseyside County Museums, Liverpool
Mr. H. Mendel	Department of Museum Studies, Leicester
Mr. P. J. Morgan	Merseyside County Museums, Liverpool
Mr. O. Morton	Ulster Museum, Belfast
Mr. W. J. Norton	Ludlow Museum
Ms. S. J. Patrick	Derby Museum
Mr. B. R. P. Playle	Natural History Museum, Nottingham
Mr. T. H. Riley	Sheffield Museum
Ms. J. Royston	Buckinghamshire County Museum, Aylesbury
Mr. B. R. Sawford	Letchworth Museum
Mr. C. Simms	Yorkshire Museum, York
Mr. G. Stansfield	Department of Museum Studies, Leicester
Dr. H. F. Steedman	Bath
Mr. C. A. B. Steel	Booth Museum, Brighton
Dr. A. Stevens	Department of Pathology, University of Nottingham
Mr. M. A. Taylor	Towneley Hall Museum, Burnley
Mr. B. Walker	Scunthorpe Museum
Mr I. D. Wallace	Merseyside County Museums, Liverpool
Mr. G. P. Walley	Natural History Museum, Nottingham

Institutional members

Bolton Museum

Area Museums Service for South Eastern England

Additions

Ms F. Le Seur	Jersey Museum
Mr J.C. Metcalf	76 Broadway Road, Leicester
Mr A.B. Ritchie	Dundee Museum
Mr D.J. Clarke	Carlisle Museum
Mr J.R. Laundon	British Museum (Natural History)

It was suggested at the Annual General Meeting that there should be an attempt to compile a register of interests of members, and establish a system of correspondents with professional bodies. The 'Short Notes' Section of the Newsletter will present a Forum for exchange of ideas and requests for information but the aims of the B.C.G. (to communicate between curators and to represent curators) cannot be realised fully in this way.

If members feel that arrangements like this would be useful please let us know so that procedures can be formulated in time for the next A.G.M. in December 1976.

## SHORT NOTES

(THIS SECTION CAN BE USED TO EXCHANGE INFORMATION CONNECTED WITH PEOPLE, MEETINGS, COLLECTIONS, PUBLICATIONS, ETC.,).

### 1. REQUEST - DRAWINGS OF INSECTS by John Sang (1828-1887)

According to their second owner, John Sang's drawings of Coleoptera were the finest ever executed. The detail was reported to be such that the drawings could be examined under the microscope to reveal the fine detail. He used a technique of punching or pricking holes in the paper to represent the sculpturing on beetle elytra, but this could never be reproduced by printing methods. Herbert Willoughby-Ellis (1889-1943) was the lucky person to obtain these drawings from their original owner, Philip Brookes Mason (1842-1903) who commissioned John Sang to draw beetles from his collection. Sang curated Mason's collection from about 1882 until his death during which time he drew from the collection which is now in Bolton Museum. Each specimen drawn is labelled 'Specimen drawn by Sang' and they fall mainly within the Staphylinidae. Earlier he drew micro-Lepidoptera and these were also in Willoughby-Ellis' possession.

I am anxious to trace these drawings, particularly of the coleoptera as they relate to the collection here. More importantly, many of them are of the holotypes of the various species described by Rye, Matthews, etc., and could be of taxonomic significance if they have been published, which point I am also trying to establish. Furthermore, they will be exceedingly valuable and it is quite likely that material like this could be mouldering, unappreciated, in some museum or private collection. The museums of Torquay, Birmingham University Zoology Department, Harrow School, York, British Museum (.N.H.) and Liverpool which have some Willoughby-Ellis material have already been contacted and claim to know nothing of these drawings. Could anyone with any knowledge of them or any ideas concerning their whereabouts, please contact me.

Willoughby-Ellis, H (1942) Proc.R.Ent.Soc 17 (4-6) 62-63

'John Sang's original drawings of British  
Coleoptera and Lepidoptera, with a note on  
Dr. P. B. Mason's Collections'

John Sang - Obituary of, EMM XXIII (1807), 278-9

Willoughby-Ellis - Obituary of, EMM LXXIX (1943), 280

E. G. Hancock, Senior Keeper, Natural History Department, Museum & Art Gallery, Civic Centre, Bolton BS1 1SA. Tel.(0204) 22311 Ext 361.

### 2. PUBLICATION - KEY FOR THE IDENTIFICATION OF ANIMALS AND PLANTS

The Nature Conservancy Council has initiated an AID-GAP project (Aids to the identification of difficult groups of animals and plants). In this context 'difficult' refers to groups not adequately covered in readily available field guides. It is intended to produce keys written so as to avoid excessive use of technicalities and the first one is available at 30p from Preston Montford Field Centre, Near Shrewsbury, Salop.

3. TECHNIQUES

Copies of the original sodium perborate method for preparing osteological material introduced to museums by J. Coy and C. E. Owen are available from Dick Hendry, Museum and Art Gallery, Kelvingrove, Glasgow, G3 8AG.

A round robin copy of a new technique for mounting mammals (medium and large), used at The Newfoundland Museum, is now available. The technique involves laminating a very thin layer of fibreglass and resin over the posed, frozen carcass. This layer is used directly as the mannikin. Contact Dick Hendry.

4. MEETING - 4-11 AUGUST 1976 PLANNING FOR MAN AND NATURE

This course is designed for those who have an interest in some branch of natural history or land use planning and who wish to gain knowledge of the conservation of nature. The course, involving field excursions, will cover -

the ecology of plant and animal communities;  
recording, evaluation and management of sites of  
ecological interest;  
the economics and ecology of competing and complementary  
highland land uses;  
education and interpretation in the countryside.

The course will be held at Kindrogan Field Centre in the Scottish highlands and the fee for the week will be £39.00, inclusive of board, accommodation and tuition.

Details from - The Warden,  
Kindrogan Field Centre,  
Enochdhu,  
Blairgowrie,  
Perthshire. Tel Strathardle 286.

5. WANTED - ANIMAL REMAINS -

Jennie Coy would welcome any material capable of being made into skeletons, even parts of rarer animals.

Contact - J. Coy,  
DOE, Faunal Remains' Project,  
63 University Road,  
University of Southampton,  
Southampton SO9 5NH,  
Tel. 559122 (Ext. 428).