

NEWSLETTER

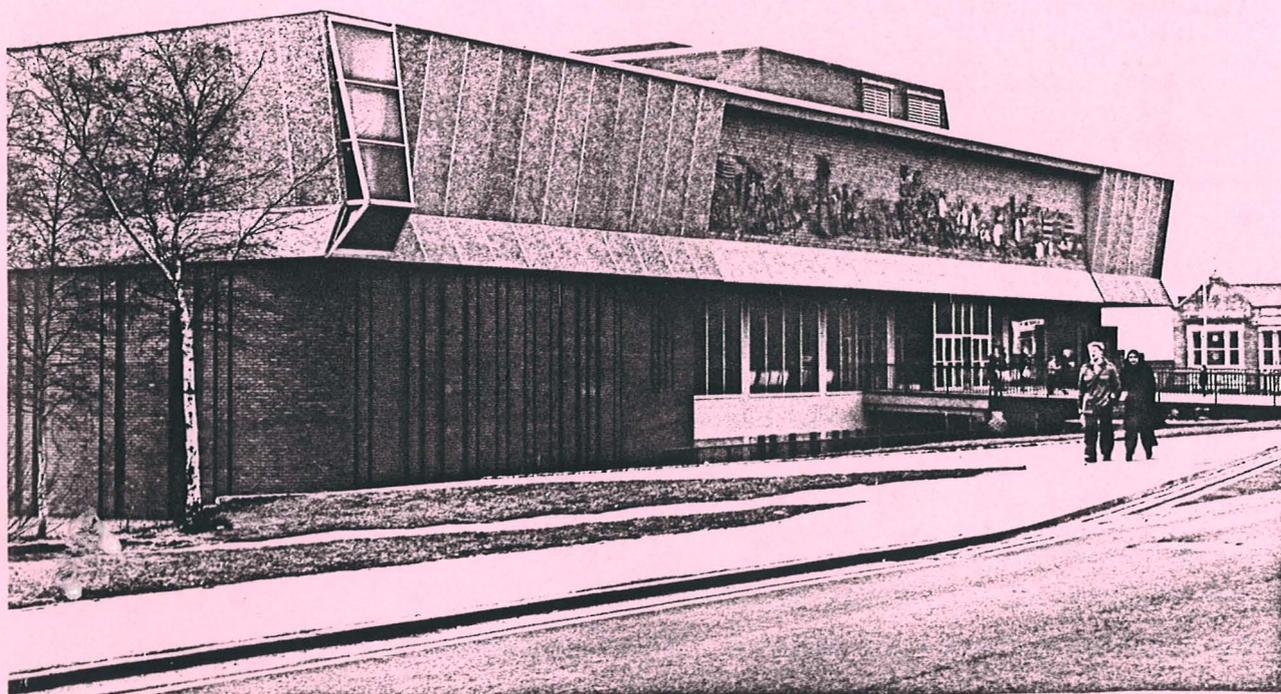
ISSN 0144-588x



Volume 3 Part 6

1983

Biology Curators' Group



featuring

STOKE-ON-TRENT City Museum and Art Gallery

CONTENTS

Annual General Meeting - Minutes	...269
BCG Committee Meeting - Minutes (22 February 1983)	...270
Treasurer/Membership Secretary's Report	...272
FEATURED INSTITUTION	
Stoke-on-Trent City Museum and Art Gallery Natural History Section (G. Halfpenny & D. Steward)	
Contents	...273
Introduction	...274
Botany	...285
Invertebrate Zoology	...289
Vertebrate Zoology	...292
Aquaria	...295
Alphabetical list of major collectors/donors	...297
Natural History Classification Scheme	...305
LETTERS	
Homo sapiens (E. G. Hancock)	...321
Is she my type? (A. G. Irwin)	...322
Delusory Parasitosis (A. M. Tynan)	...323
Legal Bat Trade (A. Norris)	...325
Psocids (L. A. Mound)	...327
Holarctic Avian Speciation Atlas (D. T. Lees-Smith)	...328
Wildlife Sound Recordings (R. Kettle)	...330
The Renovation of the Bird Gallery at Manchester Museum - Conservation Aspects (C. V. Horie)	...331
A Pest Control Strategy for Insect Collections (M. J. Scoble)	...339
Some Thoughts on Collecting Policies (M. A. Taylor)	...343
The History of Provincial Museums - Proposed Seminar	...344
Bird Egg Displays - Comments (A. Coles)	...345
BOOK NEWS & REVIEWS	...346
WANTS, EXCHANGES, LOST & FOUND	...351
IMPORTANT MEETINGS,	...352

Minutes of the Annual General Meeting of the Biology Curators Group held at the Hancock Museum, Newcastle upon Tyne, at 2.00 pm on Friday 25th March 1983.

- 1 Apologies were received from Dr C.M.King, M.Taylor and D Steward.
- 2 Minutes The Secretary read the minutes of the Annual General Meeting held on 2nd April 1982. The adoption of the minutes was proposed by D.Whiteley and seconded by Dr A.Seddon. It was resolved that the minutes be accepted.
- 3 Secretary's Report The Secretary drew attention to the main points of his report which had been circulated in the Newsletter.
- 4 Editor's Report The Editor reported verbally on the Newsletters which had been produced during the year and plans for future issues.
- 5 Treasurer's Report Copies of the Statement of Accounts for the year 1982-83 were circulated and the main points were outlined by the Treasurer. The adoption of the Statement of Accounts was proposed by G.Hancock and seconded by P.Davis. It was resolved that the Statement of Accounts be accepted.
- 6 Election of Officers

Chairman In the absence of new nominations E.Greenwood had agreed to continue in office.

Honorary Secretary A nomination had been received in respect of Dr Penny Wheatcroft, proposed by E.F.Greenwood and seconded by J.Mathias. Dr. Wheatcroft was declared elected.

Honorary Treasurer There being no new nominations, J.Mathias agreed to continue in office.

Honorary Editor There being no new nominations, S.Garland agreed to continue in office.

Committee
K.Boot and M.Hounsome had indicated their wish to resign from committee.
New nominations had been received in respect of :-
C.Copp, proposed by G.Stansfield and seconded by J.Mathias.
G.Halfpenny, proposed by G.Hancock and seconded by G.Stansfield.
Mrs R.Down, proposed by G.Hancock and seconded by G.Stansfield.
The new members were declared elected.

The Chairman thanked the retiring Honorary Secretary and the retiring committee members.
- 7 Date and Place of next meeting It was agreed to investigate the possibility of meeting in Glasgow.
There being no further business the meeting closed.

G.Stansfield
Honorary Secretary

Minutes of the Committee Meeting of the Biology Curators Group held at the British Museum (Natural History) on Tuesday 22nd February 1983.

1 Apologies were received from Mike Hounsome, Peter Morgan, Peter Davis, and Charles Steele.

Members present Eric Greenwood (chair), G.Stansfield, P.Lambley, G.Hancock, M.Brendell, S.Garland, J.Mathias and J.Cooper (representing GCG).

2 Minutes of the meeting held 30th November 1982 were approved and signed.

3 Matters arising

- a) Chester Museum The Chairman reported that an MSC post was to be created to assist with the dispersal of collections. A meeting of interested museums and representatives of the BCG and GCG would take place in Chester.
- b) Tax allowance John Mathias reported that application had been made and some further details supplied.
- c) Howie article The Secretary reported that Mr Howie had been reminded and was still prepared to write the article.
- d) CoEnCo The Secretary reported that he had written again to the Secretary of the Museums Association. He had also asked Charles Steele to pursue the matter but no response had been received. In the circumstances, it was agreed to pay the subscription but to pursue the matter with the Museums Association.
- e) Wildlife and Countryside Act seminar report. Copy for this had been sent to the Editor in January. It was agreed to publish the report as a Special Publication. John Mathias agreed to arrange for a cover to be designed incorporating the BCG logo. Material would be sent to Geoff Hancock for printing. It was agreed to print 300 and to distribute as many as possible at the AGM, sending the remainder by post.
- f) H.M.Customs The Secretary reported that the subject was covered in part by Mike Hounsome's article. It was clear that more guidance was needed and it was agreed to pursue the matter.
- g) Burton on Trent The Chairman had written to the Recreation Officer with copies of the letter to the East Midlands Area Museum Service and to the Museums Association.
- h) Cardiff Conference Report Peter Morgan had reported that papers were almost ready to go to press.
- i) Reg Harris bibliography John Mathias reported that he had arranged for this to be typed in Leicester and that he was in touch with Reg Harris.

4 Future Programme

- a) AGM 1983 Details of the programme and the Agenda for the AGM were included in the current Newsletter (tabled). As far as officers and committee were concerned, the Chairman would approach Penny Wheatcroft to stand as Secretary, and Geoff Stansfield would approach Charles Copp.
- b) ICOM Natural History Committee meeting The Secretary gave details of the excursion which was to leave London on the evening of Thursday 28th July to Edinburgh, the Farne Islands and Newcastle returning to London on Sunday 31st. Members wishing to participate were asked to contact Tony Tynan.

4 Future Programme (continued)

- c) Harrison Museum Details and booking procedure were included in the current Newsletter.
- d) Museums Association Conference - Swansea The Secretary reported that he had spoken to Dr Isaac who was heavily involved in general conference arrangements. He had offered to put together a programme starting with coffee and followed by visits to the Swansea Institute, to various University Museums and to the Botanic Garden, leaving time for a general discussion. It was agreed to accept this offer.
- e) Other Members were asked to suggest possible venues for the 1984 AGM at the next meeting. A seminar on the identification of labels, handwriting etc. was discussed.

5 Museums Association Matters

- a) Working Party on Natural Science Collections Resources The Chairman reported on the last meeting. In the absence of a nomination from the Museums Association, Janet Chamberlain had taken the chair. An anonymous grant of £4,000 had been made and applications for further grant aid were under consideration. It was hoped that it might be possible to advertise a one year post by Easter.
- b) Natural Sciences Diploma Course The Secretary reported on the two meetings which had been held in Leicester. A detailed programme for the two week course would be available within the next few weeks. It was agreed that this should be circulated to members together with the Department of Museum Studies Learning Goals and an explanatory paper - subject to Geoff Tresise's approval. The Museums Association were considering a request that the course be made an official Diploma Course.
- c) Registration of Museums No further information had been received.

6 Review of Area Museum Services

It was noted that an announcement of the review had appeared in the most recent Museums Association Bulletin with an invitation to submit comments by the end of February. It was agreed that the Secretary should write drawing attention to those areas which were of concern to BCG and offering to send more detailed comments at a later date.

7 Officers reports

- a) Editor Steve Garland reported that material was accumulating for the next two issues of the Newsletter.
- b) Treasurer John Mathias reported a balance of £675 in the deposit account and £764 in the current account. There were some subscriptions still to come in. There were 170 personal members, 47 institutional members and 4 complementary
- c) Secretary The Secretary reported on correspondence

A.O.E.

- a) John Burton of the Fauna and Flora Preservation Society had enquired whether it would be possible to produce a list of museum holdings of endangered species.
- b) Biological Record Centres The Chairman spoke of the need to take a further initiative with regard to BRC's.

Next Meeting

This was arranged to take place at the British Museum (Natural History) on Tuesday 26th April.

G. STANFIELD

HON. SEC.

Report of the Treasurer and Membership Secretary

I am pleased to report that 1982-83 was a satisfactory financial year for the Group. There was a small trading surplus of £271.77 and this, added to the funds remaining at the end of the previous financial year, accounts for the Group's total assets of £1422.19. The details of expenditure are given on the account sheet.

During the course of the 1983-84 financial year I anticipate Newsletter production and mailing costs to be about £800 with a further £160 committed to the production of the BCG special report no.2 (on the Wildlife and Countryside Act seminar) which will be distributed free to members. On this basis I can foresee expenditure remaining slightly less than income so there should be no pressure to increase subscription rates next year.

The Group's revenue is drawn almost entirely from subscriptions (£967.00 last year). Advertising brought in a further £61.70 but I am sure we can improve on this. I have therefore asked the committee to make one of its incoming members responsible for finding and liaising with potential advertisers in an effort to increase revenue from this source.

On the membership side we have seen an increase of 15 to 220 overall (50 institutional and 170 personal).

John Mathias
23.3.1983

BIOLOGICAL COLLECTIONS INVESTIGATION

The Museums Association Working Party on Natural Science Collections Resources has approved the final details of the appointments and duties of a full-time investigator. The hard work of the Museums Association secretary, Miss Brenda Capstick, has resulted in the acquisition of grant aid to cover the costs of one year's salary and associated expenses. The person to be appointed (probably to start work late August) will be responsible for gathering data on the facilities and level of curation of biological collections to match the work of the Geological Curators' Group. This resulted in Phil Doughty's Report published by the Geological Society, Misc. Paper No. 13 "The state and Status of Geology in U.K. Museums".

The Museums Association

BIOLOGICAL COLLECTIONS INVESTIGATOR

Salary: £5,520-£7,700 plus 1983 pay award pending

Applications are invited for a full-time Investigator to undertake a survey of the state and status of biological collections in the United Kingdom and to prepare a report of the findings. The person appointed will be responsible to the Museums Association's Working Party on Natural Science Collection Resources. The project has been initiated as an essential prerequisite to the formulation of national policy and the determination of standards of curatorial care for such collections.

The post will be tenable for a period of one year and will be located in the Department of Zoology, National Museum of Wales, Cardiff. Conditions of service will be related to those operating in this institution.

Candidates should possess a degree in biological sciences, and some experience of museum work is desirable. Applications, with the names and addresses of two referees, should be addressed to the Secretary, The Museums Association, 34 Bloomsbury Way, London WC1A 2SF, from whom further particulars may be obtained.

Closing date for applications: 17 June 1983.

FEATURED INSTITUTION

STOKE-ON-TRENT CITY MUSEUM AND ART GALLERY

NATURAL HISTORY SECTION

		Page
Introduction	Geoff Halfpenny	274
Botany	Geoff Halfpenny	285
Invertebrate Zoology		289
Insects	Geoff Halfpenny	
Other invertebrates	Don Steward	
Vertebrate Zoology		292
Fish	Don Steward	
Amphibians, Reptiles	Geoff Halfpenny	
Birds	Geoff Halfpenny	
Eggs	Don Steward	
Mammals	Geoff Halfpenny	
Osteology	Don Steward	
Aquaria	Don Steward	295
Alphabetical list of major collectors/donors	Geoff Halfpenny	297

2. Home of the main collections from 1912-1956.

Demolished in 1974.



The format of this article is based largely on that of the Sheffield City Museums (Riley et al 1982) though the collections data is organized according to our internal classification system (Halfpenny 1982, see elsewhere in this newsletter).

Arnold Bennett highlights something of the complexity of Stoke-on-Trent in his novel 'Anna of the Five Towns' (1902). In reality the City comprises six towns (Tunstall, Burslem, Hanley, Stoke, Fenton, Longton) each with its own administrative centre and at one time its own museum (Greenwood 1888, Museums Association 1931, Markham 1948, Bemrose 1953, Standing Commission on Museums and Galleries 1963, Black 1971).

Unfortunately, the dates of establishment of the museums as quoted in the references are rather conflicting. For example Hanley is variously listed as having been founded in 1826 (Museums Association 1931, Markham 1948) 1887 (Greenwood 1888, Bemrose 1953) and 1890 (Standing Commission on Museums and Galleries 1963). I believe 1826 to be the most likely date as it marks the foundation of the Mechanics Institute which replaced the Potteries Philosophical Society previously formed in 1819.

Hanley therefore represents the earliest museum in the area and for the purposes of this article the most important as it was here in 1908 that the North Staffordshire Field Club cooperated with the Hanley Corporation in the provision of a natural history museum (NSFCT 1908/09(a), City of Stoke-on-Trent 1926, Bemrose 1936).

1910 saw the Federation of the six towns and centralization began under the Libraries, Museums and Gymnasiums Committee. Hanley became the centre and on the outbreak of World War II was the only museum retaining a small display, the bulk of the collections having been evacuated to the country for safekeeping.

After 1945 sections of the permanent collections were displayed once more but the existing building was in a very bad state of repair and alternative accommodation (the need for which had been realised in the 1930's) was required (Bemrose 1953).

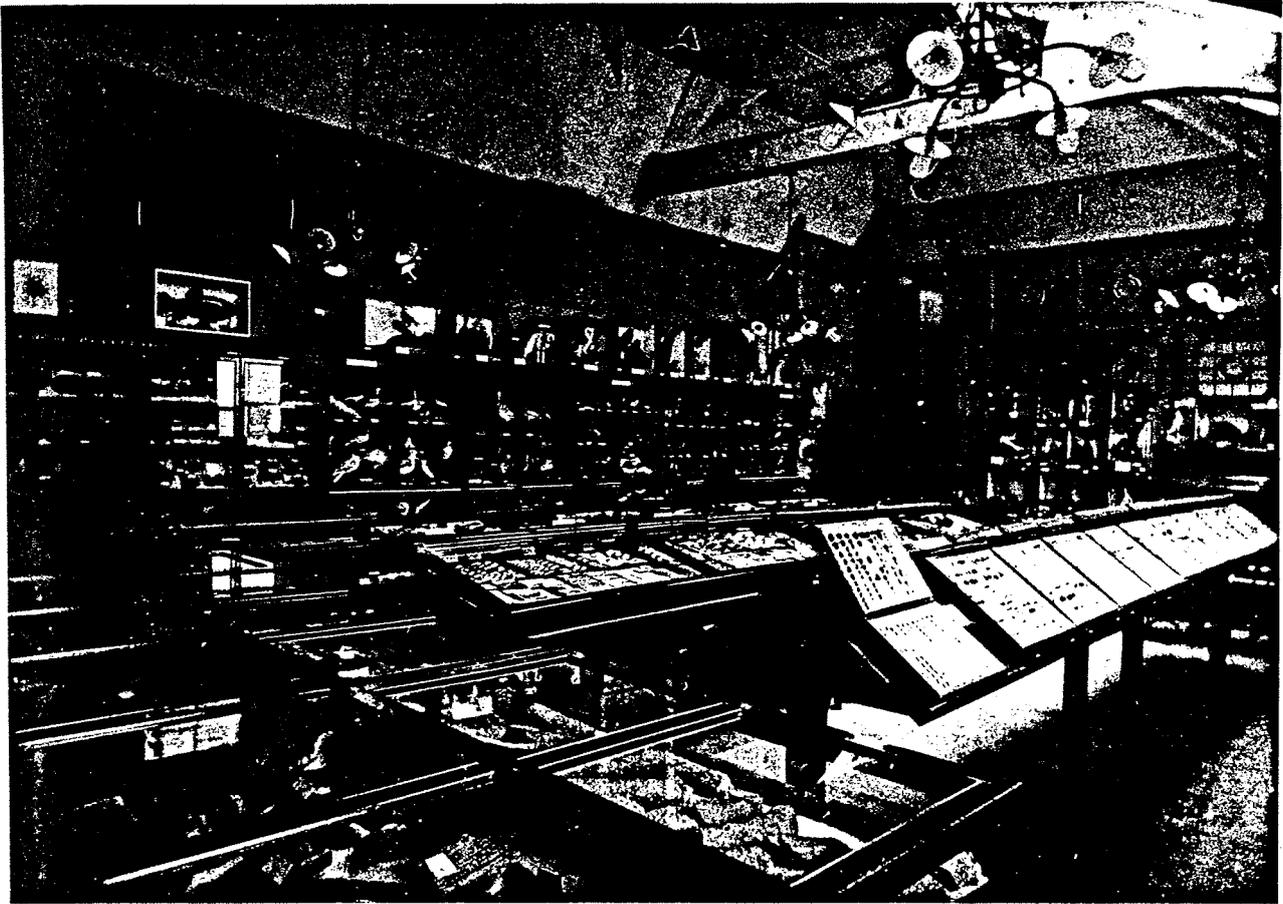
Work on a new building finally started in February 1955 (Sentinel 1955) and in October 1956 the City became the first Authority in Britain to build a new post-war museum (Sentinel 1956). Natural history was not redisplayed until 1960 when a small section was opened by the Deputy Lord Mayor Alderman S. Capewell (Sentinel 1960).

The 1956 building was always seen as the first phase of a larger development and in 1975 the Museum closed for the completion of the project. The new premises (which completely engulfed the earlier building) had a partial reopening in September 1979 and the entire building was officially opened by H.R.H. The Prince of Wales on 3rd June 1981. The much coveted Museum of the Year Award was received in 1982.

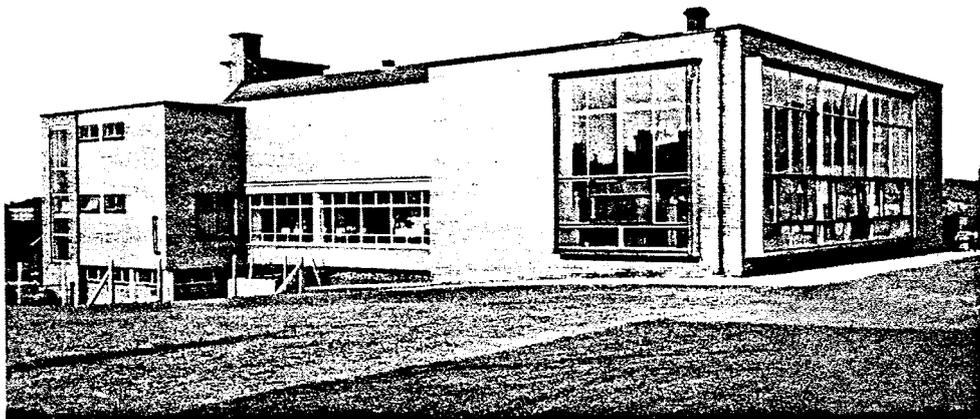
Staff

Prior to 1910 the various museums were run by honorary curators or librarians and evidence of them and their activities have proved very difficult to trace.

An early Curator of the Hanley Museum was Louis H. Jahn who saw it through the initial post-Federation days before his death in 1911. Jahn was a keen entomologist and an active member of the North Staffordshire Field Club having



3. Displays pre-1956.



CITY OF STOKE-ON-TRENT MUSEUM AND ART GALLERY

4. The 1956 building.

become a member in 1871. He later became a council member of the Field Club and was elected Vice President in 1907 (NSFCT 1904/05(a) and 1906/07(a)). In 1909 Jahn was awarded the Garner Medal (a celebrated award commemorating the achievements of a great Staffordshire naturalist) for his interest in the entomological work of the Club, especially in connection with the Order Coleoptera (NSFCT 1908/09(b)). In addition to general notes in the zoology section report of the Field Club's Transactions Jahn produced two lengthier articles on Coleoptera (NSFCT 1904/05(b) and 1906/07(b)).

On the death of Jahn the Museum was temporarily the responsibility of the Hanley Librarian Mr. A. J. Millward.

Later in 1911 Mr. Alf J. Caddie F.R. Hist. S., Librarian and Curator of the Stoke Museum (since 1890's) was asked to take charge of all the Borough Museums and this he did until 1923. Caddie appears to have been a Librarian keenly interested in developing strong links between Libraries and Museums and pressured for centralization (Sentinel 1902, Caddie 1905, 1907, 1910, Sentinel 1917). As far as I can ascertain he did not show any interest in natural history.

At a special meeting of the Libraries and Museums Committee on 18th June 1923, Mr. G. M. Forsyth then Superintendent of Art Education in Stoke-on-Trent took temporary charge of the Museum. Although an October meeting wished to appoint Mr. Forsyth as consulting Curator and the Librarian Mr. Averill as Curator in Charge this was not to be as the Education Committee would not agree. Mr. Averill was requested to continue his duties.

On 3rd March 1924 Mr. F. Lambert M.A., F.S.A. was appointed Curator, a post, which he held for three years before moving to take up the Directorship of the City Art Gallery, Leeds in July 1927. Lambert was elected to Council of the Field Club in 1925 (NSFCT 1924/25).

From October 1927 until July 1930 the Curator was Mr. H. W. Maxwell previously Secretary of the British Institute of Industrial Art. Mr. Maxwell later became Director of the Bristol Museum and Art Gallery.

A definite change now takes place and a service which had seen seven men at the top in the previous twenty years now comes through to the present day with two.

Mr. G. J. V. Bemrose took up the post of Curator in December 1930 having come to Hanley from Leicester Museum and Art Gallery. His curatorship lasted until his retirement in 1962 during which time he had seen the service develop apace and had received much recognition for his work. He was Chairman of the Archaeology and History section of the N.S.F.C. from 1942-1963, Vice President in 1935 and in 1959 was awarded the Garner Medal for his contributions to the study of local history and for his general service to the Club (NSFCT 1958/59(a)). Mr. Bemrose became President of the North Western Federation of Museums in 1935 (Sentinel 1935). Whilst interested in natural history and a keen botanist we only possess an annotated copy of a County Flora and a few records in the NSFCT as evidence of this interest. On his retirement Mr. Bemrose returned to Leicestershire where I believe he redeveloped his botanical enthusiasm (Personal communication with I. M. Evans, Leicester Museums Service).

Our present Director, Mr. A. R. Mountford M.A., F.S.A., F.M.A. began working at the City Museum and Art Gallery as Assistant Curator in 1949 and succeeded to the Curatorship, later Directorship in July 1962. As a ceramics expert of international repute he has a general interest in natural history and has certainly supported the activities of the section during the author's time at

the Museum. Mr. Mountford has also been deeply involved with the N.S.F.C. having been the Club's Honorary Librarian from 1950-1962 and Vice President in 1959-1961 (NSFCT 1958/59(b)). In 1960 Mr. Mountford was awarded the Garner Medal in recognition of his outstanding contributions to the study of Archaeology (NSFCT 1959/60) and in 1963 succeeded Mr. Bemrose to the Chairmanship of the Archaeology section, a post which he held until 1972.

Natural History Staff

Very few Museum staff have been employed solely to curate the natural history collections.

B. Bryan	1920's-c.1944
R. Bailes	1938-1940
J. Henthorne	c.1948-1950
G. W. Elliott	1953-1978
R. Leigh	1963-1965
G. Halfpenny	1967-present
D. I. Steward	1978-present

From the early 1920's to his retirement c.1944 Mr. Bert Bryan a keen naturalist and active member of the N.S.F.C. not only carried out a Museum Assistant's role but also took sole charge of the Museum in the intervals between curators.

Mr. Bryan had been contributing to the zoology section reports of the N.S.F.C. since 1904 but does not appear as a member until 1911. He had catholic tastes but is particularly noted for his work on bats, bumblebees, amphibians and reptiles. An early publication of his in the NSFCT deals with the wildlife near his home (NSFCT 1910/11). Mr. Bryan was to hold various positions in the Field Club. Council member, 1925, Life Vice President and finally President 1941-1942 (NSFCT 1941/42(a)). His presidential address was on a natural history topic (NSFCT 1941/42(b)). He became Chairman of the Zoology Section of the Field Club in 1932 and held the post until 1949.

Ronald Bailes joined the staff straight from Hanley High School and only stayed a short period before joining the R.A.F. in 1940 at the age of 22. He was commissioned in Canada and was tragically killed in action in 1943.

John Henthorne also stayed for a short time only before entering the teaching profession and later emigrating to Australia.

Gordon Elliott joined the staff straight from school and whilst originally appointed as a natural history assistant very soon developed interests in archaeology and was later to become first assistant and an authority on Ceramics. He left the Museum in 1978 to take up a lecturing post at the North Staffordshire Polytechnic where he is presently Area Leader in Ceramic History.

Robert Leigh only had a brief spell at the Museum before starting up a business selling pottery.

The author joined the staff straight from High School on 1st October 1967, having seen the post advertised whilst waiting to enter Teachers Training College. As an enthusiastic amateur naturalist the position offered a superb opportunity to pursue his interests. He has been responsible for resurrecting a moribund section to the hive of activity it is today. He has a particular interest in

mammals, especially bats but retains an enthusiasm for most biological groups.

The title of Keeper for Museum Assistants in charge of sections was adopted in April 1978.

Donald Ian Steward joined the staff as Assistant Keeper of Natural History on 1st July 1978 having previously worked at the City of Bristol Museum and Art Gallery. Whilst primarily appointed for his geological expertise Don's combined interests and qualifications in geology and zoology have enabled an effective coverage of groups to be achieved as will be seen from the collection notes which follow.

Collections

As natural history sections encompass different disciplines in different institutions I must first of all state that at Stoke the section includes geology in addition to botany and zoology. However, for the purposes of this article geology is being excluded and my colleague Don Steward is preparing a paper on our geological holdings for the Geological Curator.

Our collections are being fully documented by collector, subject and provenance as part of the work of the All Midlands Collections Research Unit and the data is being processed and stored on computer at Manchester University. A publication will be produced in due course.

At Stoke small may be considered beautiful or at least manageable and it will be seen that our collections are modest compared to those of similar-sized provincial museums (Hancock & Morgan 1980). Our major holdings are detailed in the papers which appear later in this issue. To date we curate in the region of 4,250 botanical specimens, 3,700 vertebrates and 64,800 invertebrates.

Whilst early collections coming via the North Staffordshire Field Club form the nucleus of our holdings subsequent collecting policy appears to have been based on a 'take what is offered' approach. However, our strength lies in our British holdings and particularly our Staffordshire material. Since 1967 the policy has been to develop the County collections and this will be the sectional approach put forward for inclusion in a written policy presently being worked on by the Museum as a whole.

One new and important source of local knowledge and specimens is the Stoke-on-Trent Environmental Survey; a Manpower Services Commission scheme organized via the natural history section. This survey started in August 1982 has dealt with various aspects of the City's environment but more particularly its geology and biology. A supervisor, three biologists and three geologists have been aided by a clerk/typist and four trainees (at any one time).

S.O.T.E.S. Personnel

Project Leader	Mr. K. McDade	31/8/1982-present
Secretary	Mrs. S. Harrison	6/9/1982-31/3/1983
Research biologist	Mr. G. C. Slawson	31/8/1982-present
Field biologist	Mr. K. P. Bloor	31/8/1982-present
Field biologist	Mr. H. N. Chadwick	31/8/1982-present

Research geologist	Miss H. Clarke	31/8/1982-present
Field geologist	Miss S. Rayment	31/8/1982-present
Field geologist	Mr. M. J. Branney	13/9/1982-1/5/1983

Trainees

Miss K. J. Bentley
Miss A. D. Furnival
Mr. S. A. Brayford
Mr. D. A. Gallagher
Mr. R. Tunnicliffe

A number of publications will result from this work. The biological aspect of the survey is to continue for a further twelve months during which time we hope to see the accumulated data placed on to computer and the botanical fieldwork completed more thoroughly.

Volunteers

During the last few years the section has benefited from the help and devotion of some excellent volunteers. I am grateful to them all but especially to Craig Slawson a competent biologist who worked for one whole year as a volunteer before becoming a member of the S.O.T.E.S. team; to Vivien Nye a graduate biologist and extremely efficient worker who is soon to leave us for the Leicester Museums Studies Course and to Chris Mellenchip a self-employed taxidermist whose skills are put to work for us one day per week.

Storage/Display

Details of our storage and display areas have been outlined (Halfpenny and Steward 1982, Stansfield 1981) but as few photographs have been published some are included here. A later paper in this issue describes our gallery aquaria. We are fortunate in having three temporary exhibition galleries in the Museum where we can augment our permanent gallery displays.

Extramural activities

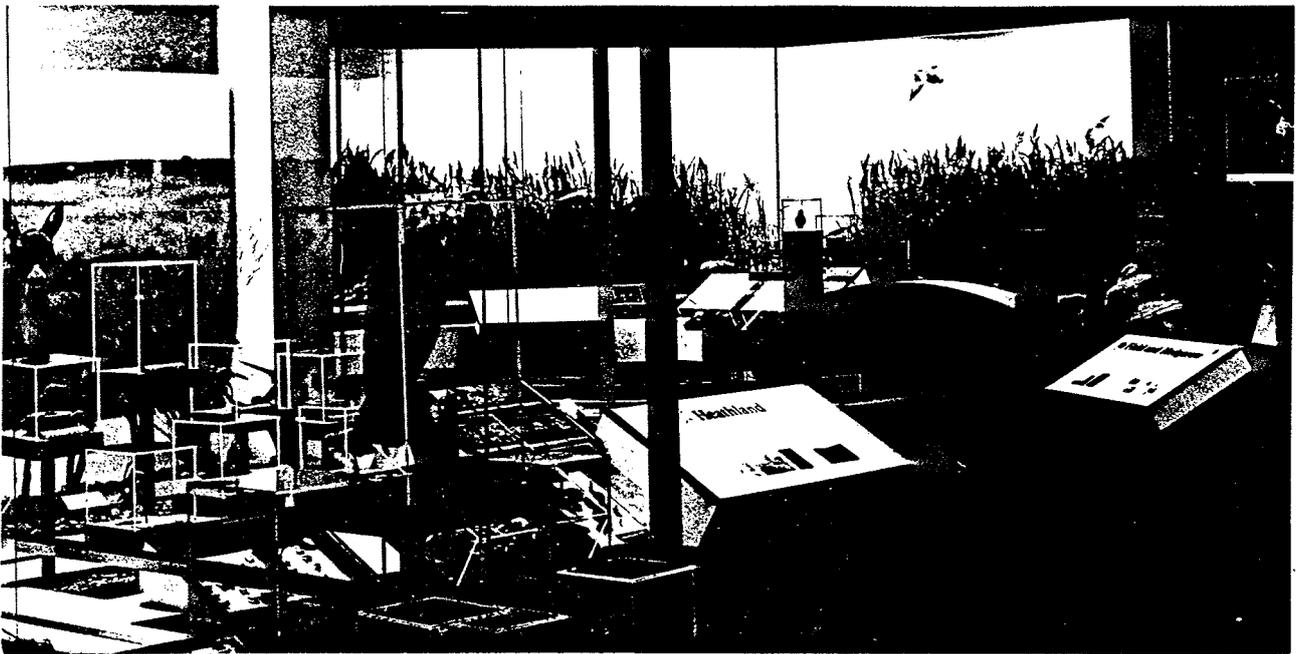
Sectional staff are actively involved with local societies particularly the North Staffordshire Field Club and Staffordshire Nature Conservation Trust and maintain close contact with other County organizations such as the West Midland Bird Club, Mid-Staffs Naturalists, South Staffs Naturalists, British Deer Society and the North Staffs group of the Geological Association.

Numerous lectures are undertaken each year.

Publications

A number of sectional publications have been produced mainly in connection with the Biological Records Centre. There follows a list of those presently available and those soon to be published.

Single copies are available at the prices quoted. Postage and packing 25p extra.



5. View through the present Natural History gallery.



6. View through the biology store.



7. The laboratory

Botany

(1983) Hayes, C., Checklist of Flowering Plants and Ferns of Staffordshire -
In preparation

Lepidoptera

(1975) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 1
Butterflies

Reprinting; available 1983/84

(1976) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 2 Moths
Lasiocampidae - Geometridae (Larentiinae) 50p

(1977) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 3 Moths
Geometridae (Larentiinae)
ISBN 0 905080 02 5 55p

(1979) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 4 Moths
Geometridae (Ennominae) - Nolidae
ISBN 0 905080 04 1 85p

(1980) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 5 Moths
Noctuidae (Noctuinae - Cucullinae)
ISBN 0 905080 08 4 £1.25

(1981) Warren, R.G., Atlas of the Lepidoptera of Staffordshire Part 6 Moths
Noctuidae (Acronictinae - Hypeninae), Hepialidae, Cossidae, Zygaenidae,
Sesiidae.
ISBN 0 905080 10 6 £1.25

(1983) Warren, R.G., Revised Checklist of Staffordshire Butterflies and Moths
95p

Diptera

(1979) Rotheray, G.E., Atlas of the Diptera of Staffordshire Part 1
Hoverflies (Syrphidae)
ISBN 0 905080 05 X 65p

Amphibians and Reptiles

(1978) Halfpenny, G., Atlas of the Reptiles and Amphibians of Staffordshire
ISBN 0 905080 03 3 60p

Birds

(1982) Emley, D. W. & Low, W.J., The Birds of Westport Lake
ISBN 0 905080 14 9 95p

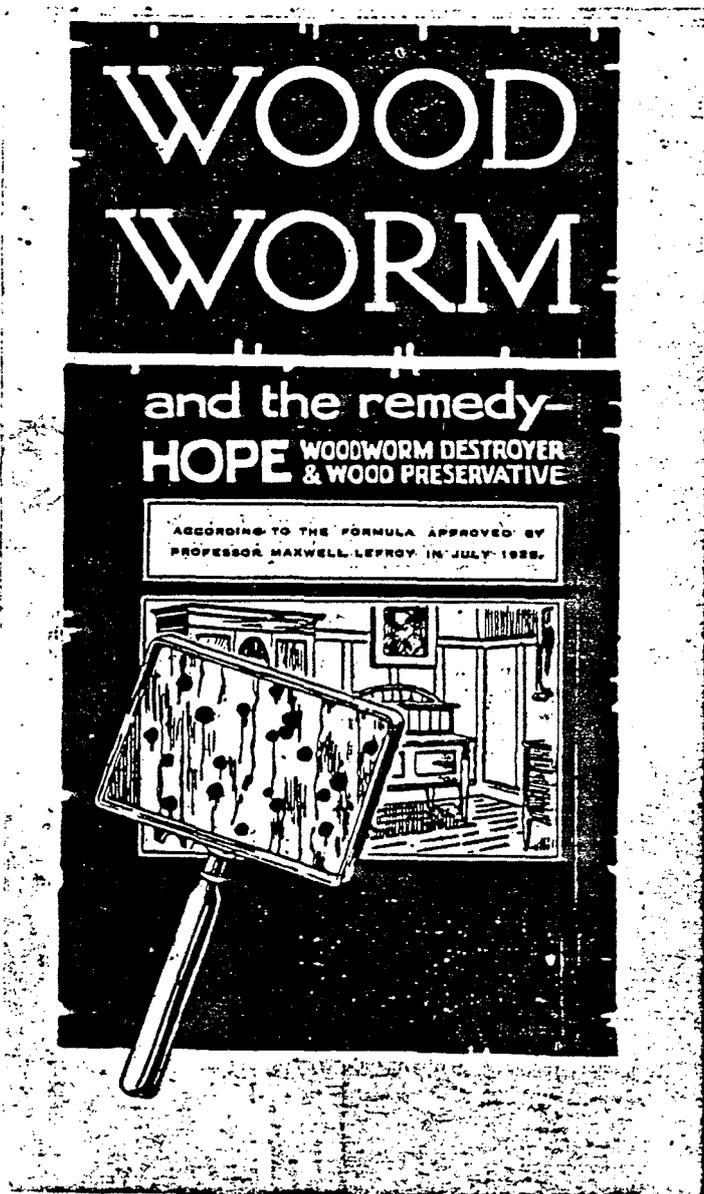
References

- Bemrose, G.J.V. 1936 Some notable museums: XVIII
The Museums and Art Gallery of Stoke-
on-Trent, The North Western Naturalist
106-109
- Bemrose, G.J.V. 1953 The "Pitiful" case of City's Tumble-
Down Museum
Sentinel 2nd Feb

Bennett, A.	1902	<u>Anna of the Five Towns</u> <u>Chatto and Windus</u>
Black, J.	1971	Abstract from unpublished student project <u>(Manchester University Museums Study Course)</u>
Caddie, A.J.	1905	The Museum in direct connection with the Reference Library <u>Quarterly meeting of Northern Counties Library Association</u>
Caddie, A.J.	1907	The method of collecting and exhibiting English Pottery and Porcelain <u>18th Annual Meeting and Conference of Museums Association in Dundee</u>
Caddie, A.J.	1910	The Board of Education and Provincial Museums <u>Museums Journal X 126-133</u>
City of Stoke-on-Trent	1926	Civic Week Report <u>Libraries Museums and Gymnasium Committee</u>
Greenwood, T.	1888	Museums and Art Galleries <u>Simkin Marshall & Co. London</u>
Halfpenny, G. and Steward, D.I.	1982	Natural History Section - The City Museum and Art Gallery, Stoke-on-Trent <u>Museums Journal 81(4), 216-218</u>
Hancock, E.G. and Morgan, P.J.	1980	A Survey of zoological and botanical material in Museums and other institutions of Great Britain <u>Biological Curators Group Report No. 1, 1-32</u>
Markham, S.F.	1948	Directory of Museums and Art Galleries in the British Isles <u>Museums Association 336-338</u>
Museums Association	1931	Directory of Museums and Art Galleries in the British Isles <u>Museums Association 329-331</u>
N.S.F.C.T.	1904/ 05(a)	Council for 1905-6 <u>North Staffordshire Field Club Transactions XXXIX 5</u>
N.S.F.C.T.	1904/ 05(b)	Coleoptera occurring in North Staffordshire <u>North Staffordshire Field Club Transactions XXXIX, 73-90</u>

N.S.F.C.T.	1906/ 07(a)	Council for 1907-8 <u>North Staffordshire Field Club Transactions XLI, 5</u>
N.S.F.C.T.	1906/ 07(b)	Further additions to the North Staffordshire Coleoptera list <u>North Staffordshire Field Club Transactions XLI, 81-85</u>
N.S.F.C.T.	1908/ 09(a)	Report of Council <u>North Staffordshire Field Club Transactions XLIII, 42-59</u>
N.S.F.C.T.	1908/ 09(b)	Annual Report <u>North Staffordshire Field Club Transactions XLIII, 10</u>
N.S.F.C.T.	1910/ 11	Wildlife around Longton <u>North Staffordshire Field Club Transactions XLY 83-93</u>
N.S.F.C.T.	1924/ 25	Council for 1925-6 <u>North Staffordshire Field Club Transactions LIX, 5</u>
N.S.F.C.T.	1941/ 42(a)	Council for 1942-3 <u>North Staffordshire Field Club Transactions LXXVI, 4</u>
N.S.F.C.T.	1941/ 42(b)	Presidential Address: Birds' Beaks, legs and feet <u>North Staffordshire Field Club Transactions LXXVI, 13-19</u>
N.S.F.C.T.	1958/ 59(a)	Annual Report <u>North Staffordshire Field Club Transactions XCIII, 12</u>
N.S.F.C.T.	1958/ 59(b)	Council for 1959-60 <u>North Staffordshire Field Club Transactions XCIII, 4</u>
N.S.F.C.T.	1959/ 60	Annual Report <u>North Staffordshire Field Club Transactions XCIV, 38</u>
Riley, T.H., Garland, S. and Whiteley, D.	1982	Sheffield City Museums: Natural Sciences section <u>Biology Curators' Group Newsletter 3(2), 71-105</u>
Sentinel	1902	Reference Library and Museum Wanted A.J. Caddie <u>Sentinel 1st Mar</u>

Sentinel	1917	The Birth of an Industry : Lecture to Royal Society of Arts, A.J. Caddie <u>Sentinel</u> 10th Mar
Sentinel	1935	G.J.V. Bemrose - appointed President of the North Western Federation of Museums <u>Sentinel</u> 9th Jan
Sentinel	1955	First sod cut for new Museum premises <u>Sentinel</u> 1st Feb
Sentinel	1956	Opening of New Museum <u>Sentinel</u> 13th Oct
Standing Commission on Museums and Galleries	1963	Survey of Provincial Museums and Galleries <u>H.M.S.O. London</u> , 209
Stansfield, G.	1981	Three new Natural History galleries <u>Museums Journal</u> 81(2), 82-83



Perhaps one should pray too!

Publicity leaflet
ca. 1927

BOTANY Geoff Halfpenny

In the region of 4,250 specimens, mainly flowering plants and ferns.

3.1 Alga

27 specimens, mainly seaweeds from Falmouth (P. H. Allen) and Charophyta (5) (P. H. Allen, H. P. Reader, P. P. Thornton).

3.3 Myxomycota

3 specimens only collected during the Stoke-on-Trent Environmental Survey.

4. (8, 9, 12, 13, 14) Fungi

M. J. Austin

153 packets of air-dried specimens all from Staffordshire. Mike Austin spent 15 years on the Warwickshire Fungus Survey (Clark 1980), but has Kew check out all rare or new material to him. Mainly Agaricales and a few Aphylllophorales (Hymenomycetes). Very few Pyrenomycetes, Discomycetes and Gasteromycetes.

Dr. D. J. Antrobus

5 packets of air-dried specimens and related 35 mm colour transparencies. Agaricales (Hymenomycetes) from the Kinver area of Staffordshire (1982). I include Dr. Antrobus' collection as I believe we will receive much more material from him.

F. J. Beasley (Formerly Keeper of Natural History, County Museum, Shugborough)

10 air-dried specimens from Staffordshire (Hymenomycetes).

S.O.T.E.S.

120 air-dried specimens collected from within the City. Mainly Agaricales and Aphylllophorales (Hymenomycetes) with some Pyrenomycetes, Discomycetes, Hemibasidiomycetes and Gasteromycetes.

4.18 Lichens

M. A. & G. A. Arnold

26 Staffordshire specimens, all Ascolichenes. The majority have been checked by Dr. D. L. Hawksworth.

H. P. Reader

43 Staffordshire specimens, all Ascolichenes mostly collected by Reader (22) also contains specimens collected by K. Sheldon (3) and P. P. Thornton (18). All of these specimens have been checked and re-determined where necessary by Dr. D. L. Hawksworth.

S.O.T.E.S.

22 specimens from within the City boundary.

5.1.1 Bryophyta: Musci

P. H. Allen

13 specimens all collected by Allen. Three counties are represented Staffordshire (8), Cambridgeshire (3) and Suffolk (2).

M. A. & G. A. Arnold

220 Staffordshire specimens. Some collected by W. M. Baines and R. J. Thomas. Many identified by J. H. Field; some checked by T. Laflin.

Reverend E. A. Elliott

Between 1933 and 1941 three collections of mosses totalling 368 specimens were deposited with us. I can now account for only 274. Few were collected by Elliott (20) the majority are British Bryological Society exchanges. There are 36 associated collectors the major ones being W. Bellerby (14), C. H. Binstead (112) and S. P. Rowlands (36). Of the 213 British Isles specimens 161 are from England, mainly Cumbria (VC69, 70) (56), Hereford and Worcester (30) and North Yorkshire (VC62, 64, 65) (30). 29 are from Wales, mainly Gwynedd (VC48, 49) (24); 20 are from Scotland, mainly Strathclyde (Argyll, Mull VC103) (6) and Tayside (Perthshire, VC88) (8). 3 specimens are from N. Ireland.

There are specimens from ten other countries, mainly France (16) and Germany (11).

H. P. Reader

207 Staffordshire specimens, mainly collected by Reader (170) also contains specimens collected by J. S. Lather (1), K. Sheldon (1) and P. P. Thornton (35). This collection contains new county records.

S.O.T.E.S.

14 specimens from the City.

5.1.2 Bryophyta: Hepaticae

M. A. & G. A. Arnold

43 Staffordshire specimens some identified by J. H. Field and T. Laflin.

H. P. Reader

87 Staffordshire specimens, mainly collected by Reader (74). Others collected by J. S. Lather (1), Rev. D. Murray (2), J. F. Perry (1), Rev. F. Perry (1), K. Sheldon (1) and P. P. Thornton (7).

S.O.T.E.S.

5 specimens from the City.

5.3.3.2 Lycopside: Lycopodiales

J. E. Nowers

2 specimens from North Wales.

E. S. Eedes

1 specimen VC96.

5.3.4.3 Sphenopsida: Equisetales

P. H. Allen

6 specimens, Staffordshire (3), Suffolk (2), Cambridgeshire (1).

E. S. Eedes

1 specimen, Staffordshire, coll. Dr. K. M. Goodway.

J. E. Nowers

2 specimens, Staffordshire.

H. P. Reader

11 Staffordshire specimens, mainly collected by Reader (8), others by Rev. F. K. Clark (1) and W.K. Clark (2).

5.3.5. (4, 5, 6) Pteropsida: Ophioglossales, Osmundales, Filicales

P. H. Allen

14 British specimens, all Filicales, 8 sheets from Staffordshire, 6 other counties represented. Also 3 books of New Zealand ferns (141 sheets).

M. A. & G. A. Arnold

2 Staffordshire specimens, both Filicales.

E. S. Eedes

5 specimens all Filicales from Staffordshire. All but one collected by Eedes, other by Dr. K. M. Goodway.

C. B. Moore

10 specimens. 1 specimen - Osmundales, Staffordshire and 9 specimens of Staffordshire Filicales.

J. E. Nowers

11 specimens. 1 specimen - Ophioglossales, Staffordshire and 10 sheets of British Filicales from Staffordshire (3), Cheshire (1), Derbyshire (1), Devon (1), N. Wales (3), Ireland (1).

H. P. Reader

38 specimens. 2 specimens - Ophioglossales, Staffordshire; 36 Staffordshire Filicales mainly collected by Reader (27), others by Rev. F. K. Clark (1), W. K. Clark (2), E. Reynolds (1) and P. P. Thornton (5).

5.3.7.6 - 5.3.8.77 Spermatophyta: Gymnospermae, Angiospermae

P. H. Allen

547 specimens, 152 from Staffordshire and 342 from other British Counties mainly Cambridgeshire, Norfolk and Suffolk. Majority collected by Allen. Five associated collectors, most important S. Berresford (20). Also contains 53 sheets of French grasses.

E. S. Edees

385 specimens mainly collected by Edees (287). Majority from Staffordshire (312) with twenty other counties represented, only Norfolk exceeding 10 specimens. Contains material from nineteen associated collectors, most important Dr. K. M. Goodway (82).

D. Gee

278 specimens mainly from Staffordshire (177) all collected by Gee between 1956 - 1958. Six other counties represented, mostly Caernarvonshire (32), Cumbria (Westmorland) (37), Hampshire (10) and Yorkshire (20).

B. Jack

191 specimens of tree foliage including many exotic Gymnosperms and various hybrids. A good reference collection but with little locality data.

C. B. Moore

388 specimens all from Staffordshire although the collection includes 13 alien species.

J. E. Nowers

169 specimens including material from Staffordshire (54), Caernarvonshire (17), Tayside (Perthshire) (13), Galway (Ireland) (11) and twenty one other counties.

H. P. Reader

891 specimens all but one from Staffordshire, other from Gloucestershire. Mainly collected by Reader (777) other important collectors - W. K. Clark (11), Rev. D. Murray (10) and P. P. Thornton (62).

D. E. de Vesian

18 Staffordshire specimens

INSECTS Geoff Halfpenny

As in life so in the collections this group exceeds all other collections in terms of numbers. Over 47,000 specimens are curated falling largely into two orders Lepidoptera (almost 23,000) and Coleoptera (almost 24,000).

6.18.6 (1-4) Insecta: Thysanura, Diplura, Protura, Collembola

6.18.6.9 Ephemeroptera

Very few specimens of the above groups. All Staffordshire material collected by local entomologists, museum staff or S.O.T.E.S.

6.18.6.11 Odonata

33 specimens mainly from Staffordshire collected by D. W. Emley and R. G. Warren.

6.18.6 (13, 16, 20, 22, 26, 27, 28, 29, 30, 31, 32) Plecoptera, Orthoptera, Dermaptera, Dictyoptera, Psocoptera, Mallophaga, Anoplura, Hemiptera, Thysanoptera, Neuroptera, Mecoptera

All of the above groups are very poorly represented. Less than 150 specimens in total mainly from Staffordshire.

6.18.6.33 Lepidoptera

M. D. Cox

1,462 specimens mainly from Staffordshire and Cheshire. Also contains H. W. Daltry specimens and Portuguese material collected by J. T. Wattison.

C. Clarke

In the region of 2,200 British specimens.

D. W. Emley

74 Staffordshire specimens.

Dr. R. Freer

About 9,000 specimens in storeboxes. Many without data. Material from Staffordshire and Cornwall (1906 period). Fifteen associated collectors listed from various parts of the British Isles.

J. & W. Hill

About 1,250 specimens over 80% coming from the Leek area of North Staffordshire.

E. Shaw

A collection of about 2,500 specimens, few with data. Eleven associated collectors have been listed accounting for material from nine other counties and France.

Ex. County Museum Shugborough

About 850 British and 142 Foreign specimens few with data (Africa, Persia, New Guinea, Burmah).

Ex. Stafford Museum

About 145 Foreign specimens.

R. G. Warren

510 duplicate specimens from his own collection. Mainly Staffordshire material.

E. V. Whitby

1,723 British specimens mainly from the West Midlands, Staffordshire, Devon and Warwickshire. Six associated collectors listed.

6.18.6.34 Trichoptera

50 Staffordshire specimens mainly collected by R. G. Warren.

6.18.6.35 Diptera

Over 200 specimens mainly Syrphids from Staffordshire collected by D. W. Emley (163), M. Waterhouse (47) and R. G. Warren (3).

6.18.6.36 Siphonaptera

25 specimens.

6.18.6.37 Hymenoptera

About 160 specimens mainly Saw-flies from Staffordshire. Main collector M. Waterhouse (132), R. G. Warren (11), M. D. Cox (12), E. V. Whitby (4).

6.18.6.38 Coleoptera

C. E. Stott

21,172 British specimens, Staffordshire material (mainly Cannock Chase, Chartley and Armitage) dates from 1925 - 1935. Twenty six other counties represented and material from twenty two other collectors, most importantly E. C. Bedwell, J. Collins, H. St. J. Donisthorpe, W. W. Fowler, P. Harwood, E. A. Newbery, W. E. Sharp, J. R. le B. Tomlin and Tyrer.

Most groups except mollusca are poorly represented. Advances have been made in recent years to improve the collections of terrestrial and freshwater invertebrates and a specific storage area has been designated as a spirit store for the housing of future specimens (most of the material is in 1% Phenoxetol solution). Examples of certain groups have been acquired specifically for display and loan purposes. Other specimens, identified for Public Health Departments, have been retained as voucher material.

6.1 Mesozoa - 6.12 Brachiopoda

Very few specimens. Some specimens and photographs of annelids, Platyhelminthes and trout parasites.

6.18 (3, 4) Diplopoda, Chilopoda

Several examples of local millipedes and centipedes.

6.18.7 Crustacea

Less than 30 specimens mainly local woodlice and freshwater crayfish; marine specimens for display.

6.18.8 Arachnida

Over 100 specimens mainly Araneae from Staffordshire. The majority were collected by M. A. & G. A. Arnold and S.O.T.E.S.

6.23 Echinodermata

A few Echinoids and Asteroids for display.

Molluscs

The mollusc collections at the City Museum, Stoke-on-Trent contain approximately 18,500 specimens, the ratio being:-

land and freshwater gastropods	:	freshwater bivalves	:	marine molluscs
85	:	8	:	7

British species practically represent 100% of the collections and Staffordshire material constitutes 40%. The two collections mentioned below make up the bulk of the specimens and are supplemented by material transferred from Shugborough County Museum, Stafford (1978) and by limited collecting over recent years. Molluscan material other than gastropods and bivalves consists of three nautiloid shells.

6.13 Mollusca

W. Hill

2,830 land and freshwater Gastropods and 625 freshwater Bivalves mainly from north Staffordshire.

J. R. B. Masefield

About 13,000 land and freshwater Gastropods and 700 freshwater Bivalves of British origin, about 25% from Staffordshire.

J. R. B. M. was a great swapper of specimens and there are at least 40 associated collectors mentioned, the main ones being:-

Lionel E. Adams, 77 St. Giles Street, Northampton (circa 1894)
Charles Oldham, Essex House, Walford (circa 1909)
Robert Cairns, 159 Queen Street, Hurst, Ashton-under-Lyne (circa 1910)
Fred Taylor, 38 Landseer Street, Oldham (circa 1900)
H. C. Huggins, Syndale House, Park Road, Sittingbourne (circa 1916)

S.O.T.E.S.

19 specimens from the City.

FISH Don Steward

The fish collection is small and consists entirely of mounted specimens. As these are mainly trophy specimens from Staffordshire waters they are not particularly representative of the local species. The bulk of the collection was presented by the Stoke City and District Anglers' Association in 1975. The specimens are suitable for display and have been used for loans. One of the reasons for including an aquarium in the display area (see elsewhere in this issue) was to overcome this lack of typical sized fish.

6.25.3.4 Chordata: Vertebrata: Osteichthyes

Less than 30 specimens, all mounted. Many from Staffordshire waters.

AMPHIBIANS, REPTILES Geoff Halfpenny

6.25.5 Amphibia

Only 14 specimens mainly freeze-dried for display. Few spirit specimens of Staffordshire material.

6.25.6 Reptilia

Only 13 specimens including freeze-dried, spirit, model and sloughed-skin material. Few with data. Includes the black grass snake from Staffordshire, (Halfpenny, G. and Bellairs, A. D'A. 1976).

BIRDS Geoff Halfpenny

Including specimens in deep freeze awaiting treatment the collection numbers 1,640 specimens of which 523 are study skins, and 1,067 are mounted specimens. The material is mainly of British and European species although some exotica is present.

6.25.3.7 Aves

Dr. P. B. Mason

634 mounted specimens of mainly British species with a few exotics including a Passenger Pigeon. The work of famous taxidermists includes that of James Varley and John Hancock (Herriott 1968). This collection came to us in November, 1981 on an initial 10 year loan following the closure of the Burton-upon-Trent Museum. A catalogue was produced (Wain 1963).

Dr. R. H. Read

295 study skins, mainly British (183) especially Norfolk (108), Orkney (17) and Staffordshire (10). Also includes 18 Foreign specimens, mainly U.S.S.R. (8). A number (68) lack data and some (26) are 'query' localities.

General Collection

The remaining material has been acquired over the years from a number of sources. Mounted specimens are purchased to improve our British material and to fill gaps and all Staffordshire specimens coming in as road casualties etc. are produced as study skins (Stansfield 1965).

EGGS Don Steward

The collection contains just over 1,650 eggs representing 262 British species. Most of the individual collections were obtained from local private collectors unfortunately interested more in the eggs as objects rather than as biological records; this means that the collection has very little in the way of locality and clutch data to augment the specimens. Less than 1% of the material is Foreign and although the collection as a whole is useful for comparison purposes it is of little academic value. There are also 35 nests, some of which contain clutches of eggs. All of the eggs have been catalogued in readiness for possible Department of the Environment registration.

MAMMALS Geoff Halfpenny

6.25.3.8 Mammalia

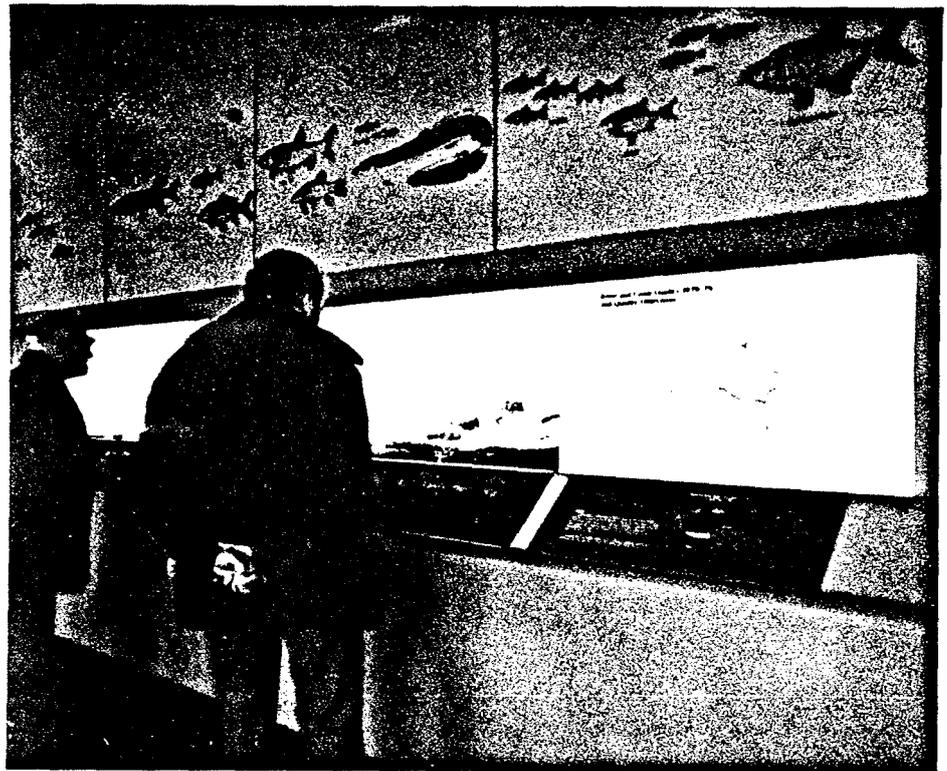
This is a general collection having been accumulated over the years with no single major donor. Including specimens in deep freeze, the collection numbers 323 specimens of which 75 are study skins, 131 are mounted specimens and 27 (mainly Chiroptera) are spirit specimens. Almost all the material is of British species.

The collections of bone material are not very extensive and consist of approximately 35 skulls of common British mammals, a variety of miscellaneous limb, rib and spinal bones and a small collection of antlers and game-heads. Mammal specimens stored as study skins have their skulls stored with them. Archaeological bone material is also housed in the biology store and includes over 100 items from an assortment of species. The bone material we do possess, particularly the skulls, has been found to be very useful for schools, who wish to compare the dentition of various animals.

References

- Clark, M.C. (Ed.) 1980 Fungus Flora of Warwickshire
Birmingham Natural History Society
British Mycological Society, London
- Halfpenny, G. and Bellairs, A. D'A. 1976 A Black Grass Snake
Brit. Journ. Herp. 5.(6), 541-542
- Herriott, S. (Ed.) 1968 British Taxidermists
A historical directory
Leics Museums
- Stansfield, G. 1965 Bird skin collections and local
museums
Bird Study Vol. 12, 129-132
- Wain, H.J. 1963 The Mason Collection of Birds
Museum & Art Gallery, Burton-upon-Trent

8. The aquaria



In the permanent display gallery (opened February 1981), the section devoted to aquatic habitats is augmented by two large aquarium tanks exhibiting local freshwater species. The inclusion of these tanks was agreed as it was considered that it would be the most interesting way of displaying fish and other aquatic flora and fauna, as well as providing a 'live' exhibit which seem so popular with children. Reservations to these arguments were the consideration of the time involved in maintenance and the problems that arise if and when disease strikes. The final decision to include the aquaria has however proved to be beneficial with regard to public appreciation.

The two tanks are situated alongside each other and have a mid-line viewing height of approx. 1300 mm; the labels are arranged on sloping boards at the base of the tanks and silk-screened fish outlines are situated above the tanks. Direct contact with the tanks is prevented from the gallery by two large sheets of glass. The option to use two large tanks rather than several smaller tanks was taken so that larger fish could be accommodated more comfortably.

The Negative Aspects

Problems have arisen from time to time and are mainly due to disease and suspension accumulation. Initially filtration relied solely on the under-gravel system, but this proved to be inadequate and was supplemented by external circulatory filters. The original fish stock was acquired from the Severn Trent Water Authority but overstocking, unsuitable species and disease quickly reduced the population. At this stage the tanks had to be cleaned out and disinfected, and the surviving fish (Crucian Carp, Leather Carp and Perch) were used as the nucleus of a renewed display.

Plants have continued to cause concern; the original idea was to have aquatic flora to help in species identification, to provide extra oxygen, and to give a pleasant visual effect. However a combination of fish eating the plants and possibly an inadequate light source has resulted in very limited growing success.

Maintenance and Feeding

The time taken to look after the aquaria is about 5 hrs/week. The work involved includes cleaning algae off the inside of the glass, siphoning off solid waste products, water changing, cleaning of the circulatory filters and feeding. The fish are fed 5 days a week and, from the excitement in the tanks, appear to understand that the presence of a white lab coat in the morning denotes that food is at hand. The diet is of floating pond pellets supplemented by maggots, and occasionally earthworms. The amount of food given is not accurately gauged and depends on the generosity of the feeder. About 20-30 pellets daily are given to the occupants of the 'big' fish tank, and about 5 to the others. The fish at the moment seem healthy enough on the food given and the amount of uneaten residue is minimal.

Preparatory chemicals from the local pet shop are used when necessary to combat white spot and fin rot, and to purify the tap water. Large pebbles from the local Triassic conglomerates have been found to be ideal for providing visual features in the tanks as they are easily cleaned and are chemically inert quartzites.

The working area behind the aquaria is entered via a concealed doorway off the

gallery. It contains a sink unit with hot and cold mains water supply, a smaller 'hospital' tank, and the electrical supplies.

The Successful Aspects

Tank 1

2 Leather Carp (approx 280 mm long)
4 Tench (200 mm)
1 Perch (150 mm)
Assorted plastic plants

The Leather Carp are the stars being the biggest and most active fish, they have also grown considerably in the two years they have been resident. The Tench were originally very shy, but now have acclimatised to the tank. The Perch, a replacement of the original stock, is too small to attack the other fish.

Tank 2

2 Crucian Carp (160 mm)
2 Bitterling (1 male, 1 female 60 mm)
1 Bream (120 mm)
3 Bullheads (80 mm)
several adult Sticklebacks
1 Ramshorn Snail
sprigs of Canadian Pondweed

The Bitterlings are included as they have established themselves at Hanley Park Lake and are particularly common at this local site (Lever 1977). The Bullheads and Sticklebacks exhibit territorial behaviour which becomes more aggressive when the tadpole barrier partitions off part of the tank.

Each year so far the emergence of tadpoles has been successfully exhibited. This is catered for by simply inserting a sheet of thin perspex which sections off part of the tank and prevents any contact between the predatory fish and the tadpoles. A high success rate in frog development has been observed and the maturing frogs are released at the site of spawn collection. A useful aside to this display is the voracious appetite of the tadpoles. Several small mammal skulls, that have had as much flesh as possible removed by hand, have been dropped into the reserve tank. The tadpoles then delicately, but energetically, proceed to remove the remaining flesh and leave surprisingly clean skulls suitable for inclusion into the osteological collection.

Other species that have been exhibited with varying degrees of success are Gudgeon, Trout, Rudd, Ruff, Roach, Dace, assorted snails, Caddis larvae, Great Diving Beetle and freshwater Crayfish. The Ruff was doing well until it was partially swallowed by one of the Leather Carp and had to be extracted using tweasers. The Crayfish probably died from the lack of suitable food. All but the largest snail tend to be eaten.

Tank Data

	Each Display Tank	Reserve Tank
Dimensions	1800 mm x 460 mm x 615 mm	1300 mm x 310 mm x 375 mm
Capacity	500 litres	150 litres
Lighting	4 ft. 40 Watt Deluxe Warm White fluorescent tube	2 ft. 40 Watt GroLux fluorescent tube
Lighting Control	time switch (on from 8.30 a.m. to 8.10 p.m.)	manual

and was an active entomologist mainly collecting Lepidoptera though other groups are represented. He was Chairman of the Entomology section of the Burton-on-Trent Natural History and Archaeological Society in the 1940's. His collection came to us in 1966.

M. D. Cox

Mr. Malcolm Cox is an Optician who presently lives in Alsager just over the Staffordshire border into Cheshire. He appears to have balanced a fondness for collecting Lepidoptera and a fondness for collecting geological specimens until in 1979 shortage of space together with the wish that his specimens were safeguarded led to him presenting his lepidoptera collection to us. The collection contains not only his own material but that collected by his uncle the late J. T. Wattison (1888-1974) who worked on lepidoptera in Portugal for some time (Wattison 1928) and the late H. W. Daltry F.R.E.S. Chairman of the Entomology section of the North Staffordshire Field Club from 1927-1950.

E. S. Edees (1907-)

Mr. Eric Edees of Newcastle-under-Lyme is Staffordshire's leading authority on plants and author of the most recent County flora (Edees 1972). His main interest today is the study of brambles, of which he possesses a large collection. His general herbarium was presented to the Department of Biological Sciences at Keele University and we have been able to extract duplicate material for our needs. Mr. Edees has been Chairman of the Botany section of the North Staffordshire Field Club from 1943 to the present (NSFCT 1942/43).

Rev. E. A. Elliott

Reverend Elliott became a member of the North Staffordshire Field Club in 1925 and its President in 1935 (NSFCT 1933/34). In 1936 he moved to live at South Stoke, Reading. For a time he was the President of the British Fuchsia Society and Editor of its Journal and for many years Secretary and Editor of the Pteridological (Fern) Society which awarded him its Stansfield Medal.

For a long time he was engaged on the classification of rare plants in S. Oxfordshire (NSFCT 1959/60(a)).

Whilst in Staffordshire he resided at Dunstall Vicarage, Burton-on-Trent.

D. W. Emley (1952-)

Mr. David Emley of Trent Vale, Stoke-on-Trent is a keen naturalist with particular interests in entomology, ornithology, photography and sound recording. He is presently Chairman of the Staffordshire Branch of the West Midland Bird Club and has been Chairman of the Zoology Section of the North Staffordshire Field Club since 1979 (NSFCT 1979/80). He is author of several publications (Emley 1980, 1982, Emley & Low 1982).

Dr. R. Freer

I wish I knew more about Dr. Freer who lived at Rugeley in Staffordshire from the 1880's to 1920? He is noted for recording the Small Lappet: Phyllodesma ilicifolia (L.) on Cannock Chase, Staffordshire on 17th May 1896 (VCH 1908). I have seen the specimen in the Birmingham City Museum and Art Gallery.

D. Gee

Mr. Derek Gee was a student at King Edward VI School Stafford before taking an Honours Degree in Agriculture at Leeds University. He was last heard of working in Winsconsin, U.S.A. His herbarium which came to us via the County Museum Shugborough in 1978 was formed between 1956-1958.

J. & W. Hill

Messrs. John (1872-1959) and William Hill (1876-1954) were brothers living in Leek, Staffordshire. They worked in their father's printing and stationery business in Stanley Street, Leek and eventually became partners. Their entomological partnership led to the formation of a very important local Lepidoptera collection. Numbers under the specimens tally with dated entries in a diary. They not only collected the insects but also made their own entomological cabinet (in which the specimens are still housed) in 1896/97. The collection dates from 1897-1946 and came to us in 1960 (NSFCT 1959/60(b), NSJFS 1961).

W. Hill

William Hill (see above entry) seemingly spread his net wider than the Lepidoptera (if you will excuse the pun) and took to collecting molluscs. His collection came to us via Buxton Museum in April 1981 having agreed with Mike Bishop, Curator of Buxton Museum and Derbyshire Museums Service that it had more relevance to Staffordshire. The original donor, Miss Doris Hill, daughter of William was also contacted and readily agreed to the transfer.

B. Jack (1912-)

Mr. Bernard Jack presently living in Rugeley, Staffordshire amassed a collection of tree foliage whilst studying tree species in the British Isles. His first collection was deposited at Sandon Hall in Staffordshire, following the production of a booklet (Jack 1971). We were presented with his second collection in 1982.

J. R. B. Masefield (1850-1932)

Although born at Stone, Staffordshire John Richard Beech Masefield lived most of his life at Rosehill, Cheadle, Staffs. The son of a doctor, he was educated at Cheltenham College and Jesus College, Cambridge and after gaining an M.A. was articled to the firm of solicitors, Messrs. Blagg and Son.

Shortly before his death his mollusc collection and some archaeological material was purchased by Stoke-on-Trent Corporation for £25. Masefield was an active member of the North Staffordshire Field Club (NSFCT 1931/32).

Dr. P. B. Mason

Dr. Mason lived at Trent House, Burton-upon-Trent, Staffordshire where he built up a small natural history museum. His mounted bird collection was purchased by the Burton-upon-Trent Corporation from the Executors in 1981. The basis of the collection was 296 cases of birds purchased from James Varley who had personally collected and mounted many of the specimens and many purchased mounted from John Hancock of Newcastle-on-Tyne (Herriott 1968). An article on the collection was written by Storer (1924), a catalogue was produced (Wain 1963) and a guide to those on display written (Cheese 1975). For Locations of other Mason material see Hancock and Pettitt (1981).

C. B. Moore (1870-1944)

Mr. Clifford Moore formed a collection of plants from the Stafford area around 1889/90. Formerly held by the Mid Staffordshire Field Club before being donated to the County Museum Shugborough (1969) and subsequently passing to us in 1978. The plants are pressed in book volumes, 12 in all, Vols. 3 and 6 missing.

Contains the earliest Staffordshire specimen of Indian Balsam: Impatiens glandulifera Royle (Coll. 1889) antedating what was considered to be the earliest record by 34 years (Edees 1965).

J. E. Nowers

Nowers must have been one of the first members of the Burton-on-Trent Natural History and Archaeological Society as he joined it as a boy in 1876/7. He won first prize for a collection of flowers and went on to become Hon. Sec. of the Botanical Section. He had a great deal to do with the Flora of Burton & District published in the Transactions of the Society in about 1880. Nowers later went to live in Darlington where he died. His main herbarium is at Sunderland Museum. Of particular interest are the saltmarsh specimens from the Branston area on which he wrote (Nowers and Wells 1890). We received the Staffordshire material from the Burton-on-Trent Natural History and Archaeological Society in 1982.

Dr. R. H. Read

Very little is known about Dr. Read whose bird skin collection came to us in 1936. He was twice Vice President of the North Staffordshire Field Club in 1903 and in 1905 (NSFCT 1902/03, 1904/05) and lectured locally on bird topics (Sentinel 1933).

Rev. H. P. Reader (1850-1929)

Reverend Henry Peter Reader was "stated to be 'formerly of Leicester' by Mott et al (1886) and Horwood (1904) indicates that he went to reside in another county in 1898. He apparently lived at Holy Cross Priory Leicester at one time (Mott et al, 1886; Horwood 1907(a)). Reader's main Lichen herbarium is now at the University of Bristol (BRIST) but other Lichen material is in LSR" [Leicester City Museum], (Hawksworth 1974).

The other county mentioned by Horwood (1904) would have been Staffordshire as a few specimens of Lichens, mosses and Liverworts date to early 1899. The bulk of the specimens were however collected in the 1920's. Father Reader lived at the Dominican Priory in Rugeley Staffordshire and his herbarium was added to the permanent collection of the North Staffordshire Field Club in Hanley Museum in 1927. Locations of other Reader material listed by Hancock and Pettitt (1981). Reader contributed to the North Staffordshire Field Club Transactions and a particularly important article refers to the Flora of Hawkesyard (NSFCT 1922/23 and 1925/26).

E. Shaw

Mr. Edwin Shaw was a local man about whom I have little information. Indeed it was not until his grandson called into the Museum in 1981 that I was able to put his name to a collection of Lepidoptera. I hope to have more information shortly.

1. data in square brackets mine.

C. E. Stott (1868-1935)

Mr. Stott worked for the Lancashire and Yorkshire railway before being promoted and finally becoming head of continental travel. He was at various times resident at Swinton, Worsley, Reigate and following his retirement in 1927, Staffordshire. He was said to have been an entomologist from boyhood and for many years specialised in Coleoptera (NSFCT 1935/36).

He is noted for his rediscovery on Chartley Moss N.N.R. Staffs of Cryptocephalus decemmaculatus (L.) a very rare phytophagous beetle after an interval of nearly 60 years (Stott 1929).

Unfortunately for Mr. Stott, people's attempts to honour him by naming a new species after him came to no avail as the wyles of taxonomy now rank the species concerned as synonyms. One such insect was a Capsid bug: Dicyphus stotti China, 1930 (NSFCT 1930/31) which now falls under Dicyphus pallicornis (Meyer-Dür, in Fieber, 1861); and another was a Clavicorn beetle: Stenichnus stotti Donisthorpe, 1932.

The Type and one Co-Type of this insect are in the BM(NH) (Personal communication with M. J. D. Brendell) and there are six specimens labelled Co-Type in our collection.

This species now falls with the synonymy of Stenichnus pusillus (Müll & Kunze, 1822). For further references see Donisthorpe (1932), Besuchet (1958) and MacKechnie-Jarvis (1966).

D. E. de Vesian

Miss de Vesian was one time county botanical recorder for Gloucestershire and her main herbarium is housed at the City Museum and Art Gallery there (Acc. No. 6/1973). She requested that material from other counties be offered to museums in the area where it was collected and it was in this way that 18 specimens came to us in 1974 (Personal communication with Mr. D. L. Dartnall, Deputy Curator/ Keeper of Natural History).

R. G. Warren (1912-)

Mr. Richard Warren is Staffordshire's leading authority on Lepidoptera and a good naturalist in all the meanings of that word. He took over from H. W. Daltry as Chairman of the Entomology section of the North Staffordshire Field Club in 1951 and holds this position to date. He has authored several publications on lepidoptera via the Staffordshire Biological Recording Scheme (see publications list). He maintains a private collection of Lepidoptera, Trichoptera, Neuroptera and Odonata and to date has presented us with almost 600 specimens.

M. W. Waterhouse

Maurice Waterhouse is warden of the R.S.P.B. Reserve at Coombes Valley near Leek in Staffordshire and is a naturalist and conservationist with wide tastes. He is presently Vice-Chairman of the Staffordshire Nature Conservation Trust. He is an authority on Coleoptera and has greatly aided the study of this group in Staffordshire. He also studies Saw-flies and the majority of specimens which he has donated belong to this group. To date he has presented almost 200 specimens.

Colonel E. V. Whitby (c.1885-)

Colonel Whitby a medical officer who retired early took to forming a Lepidoptera collection in 1948/49. When I met him in 1978 at his house in Sutton Coldfield he was in his early 90's and unfortunately suffering from failing eyesight. He would however reminisce fervently about his entomological exploits once I mentioned a certain insect. His beautifully mounted specimens came to us in a magnificent mahogany cabinet.

References

- Besuchet, C. 1958 Coleoptera Pselaphidae et Scydmaenidae Revue Suisse Zool., 65(44), 891-919
- Cheese, A. 1975 Burton Museum, Guide to the Bird Gallery Staffordshire County Museum Shugborough
- Donisthorpe, H. 1932 Stenichnus stotti sp. n., a species of Coleoptera (Scydmaenidae) new to science Entomologists Mon. Mag., 68, 267-8
- Edees, E.S. 1965 Botany Section Report North Staffordshire Journal of Field Studies New series Vol. 5, 130
- Edees, E.S. 1972 Flora of Staffordshire David & Charles
- Emley, D.W. 1980 The Bird Life of Keele University Keele Univ. Lib., Occ. Pub. No. 16
- Emley, D.W. 1982 The Butterflies and Moths of Keele University Keele Univ. Lib., Occ. Pub., No. 18
- Emley, D.W. and Low, W.J. 1982 The Birds of Westport Lake Staffordshire Biological Recording Scheme Publication No. 9
- Hancock, E.G. and Pettitt, C.W. 1981 Register of Natural Science Collections in North West England Manchester Museum
- Hawksworth, D.L. 1974 The Changing Lichen Flora of Leicestershire Trans. Leicester Lit. Phil. Soc., 68 footnote page 39
- Herriott, S. (Ed.) 1968 British Taxidermists. A historical directory Leicestershire Museums
- Horwood, A.R. 1904 Leicestershire Lichens, 1886-1903 J. Bot., Lond., 42, 47-49
- Horwood, A.R. 1907(a) On the disappearance of Cryptogamic plants J. Bot., Lond., 45, 334-339

- Jack, B. 1971 Guide to the Trees of Sandon Hall Gardens
George St. Press, Stafford
- MacKechnie-Jarvis, C. 1966 A note on *Stenichnus* species (Coleoptera Clavicornia) and three deletions from the British List
Entomologists' Mon. Mag., 102, 171-173
- Mott, F.T. et al 1886 The Flora of Leicestershire, including the cryptogams
London and Edinburgh
- N.S.F.C.T. 1902/ Council for 1903-04
03 North Staffordshire Field Club Transactions XXXVII, 5
- N.S.F.C.T. 1904/ Council for 1905-06
05 North Staffordshire Field Club Transactions XXXIX, 5
- N.S.F.C.T. 1922/ The Flora of Hawkesyard, Part I
23 North Staffordshire Field Club Transactions LVII, 105-117
- N.S.F.C.T. 1925/ The Flora of Hawkesyard, Part II
26 North Staffordshire Field Club Transactions LX, 118-132
- N.S.F.C.T. 1930/ An apparently new species of *Dicyphus*
31 (Heteroptera: Capsidae) from Staffordshire by W.E. China
North Staffordshire Field Club Transactions LXV, 110-111
- N.S.F.C.T. 1931/ In Memoriam, J.R.B. Masefield
32 North Staffordshire Field Club Transactions LXVI, 144-148
- N.S.F.C.T. 1933/ Council for 1934-35
34 North Staffordshire Field Club Transactions LXVIII, 4
- N.S.F.C.T. 1935/ Entomology Report
36 North Staffordshire Field Club Transactions LXX, 47
- N.S.F.C.T. 1942/ Council for 1943-44
43 North Staffordshire Field Club Transactions LXXVII, 38
- N.S.F.C.T. 1959/ Annual Report
60(a) North Staffordshire Field Club Transactions XCIV, 38
- N.S.F.C.T. 1959/ Entomology Section Report
60(b) North Staffordshire Field Club Transactions XCIV, 69

- N.S.F.C.T. 1979/ Council for 1980-81
80 North Staffordshire Field Club
Transactions New Series, Vol. 5, 1
- N.S.J.F.S. 1961 Entomology Section Report
North Staffordshire Journal of Field
Studies Vol. 1, 131-132
- Nowers, J.E. and Wells, J.G. 1890 Notes on a Saltmarsh at Branston
Trans. Burton-on-Trent N.H. & Arch Soc.
11, 50
- Sentinel 1933 Bird life in North Staffordshire with
special reference to the Barn Owl Census
Lecture by Dr. Read
Sentinel 30th Jan
- Storer, G.H. 1924 On the 'Mason' collection of Birds in
the Burton-on-Trent Museum
Trans. Burton-on-Trent N.H. & Arch. Soc.
VIII, 34-37
- Stott, C.E. 1929 Re. Occurrence of Cryptocephalus
decemmaculatus (L.) in Staffs
Ent. Mon. Mag., LXV, 268-269
- VCH 1908 Insects: The Victoria County History of
the County of Stafford Vol. 97
Archibald Constable & Co. Ltd.
- Wain, H.J. 1963 The Mason Collection of Birds
Museum & Art Gallery, Burton-upon-Trent
- Wattison, J.T. 1928 Lepidópteras De Portugal
Memórias e Estudos do Museu Zoológico

Acknowledgements

A number of people have helped with the production of this article and their help is hereby acknowledged. Particular thanks go to Mr. D. Beard and his staff at the Central Reference Library, Miss Julie Plant of the City Town Clerk's Department, Miss Cynthia Byrne Secretary at the Museum from 1936-1979 and last but by no means least Mrs. Karen Bowers who happily and efficiently converted all the handwritten scrawl to the beautiful type-face you see before you.

Natural History Classification Scheme in use at the City Museum and Art Gallery, Stoke-on-Trent Geoff Halfpenny

I often feel that as a small profession we fail at times to communicate our activities to our colleagues and in so doing necessitate fellow curators having continually to reinvent the wheel.

The classification scheme as detailed enables us to store information (specimen and field records (BRC)) and material in a way which suits our particular needs and is included here in the hope that it may be of use to natural history sections in other institutions.

I must acknowledge the tremendous amount of work put into this scheme by G. Craig Slawson presently employed on a Manpower Services Commission project at the Museum, and Mr. Chris J. Cleal of the Nature Conservancy Council's Geological Conservation Review Unit but take full responsibility for any nomenclatural errors.

I omitted a source of reference for Lichens

(4.18+19) which is:
Ahmadjian V., and Hale, M.E. (Eds.) 1973
The Lichens
Academic Press



9. The Mason bird collection as displayed at Burton in 1972.

EMPIRE NATURAE (LIVING ORGANISMS)

Sub-Empire : Prokaryota

- (1) Kingdom : Monera (Bacteria and Blue Green Algae)
- (2) Kingdom : Vira (Viruses)

Sub-Empire : Eukaryota

- (3) Kingdom : Protista (True algae, Protozoa and slime moulds)
 - (1) Alga.
 - (2) Protozoa.
 - (3) Myxomycota.
- (4) Kingdom : Fungi (True Fungi)
- (5) Kingdom : Plantae (Higher plants)
 - (1) Bryophyta (1. Musci, 2. Hepaticae).
 - (2) Nematophyta (extinct).
 - (3) Tracheophyta (1. Rhyniopsida, 2. Psilotopsida, 3. Lycopsida, 4. Sphenopsida, 5. Pteropsida, 6. Progymnospermopsida, 7. Gymnospermae, 8. Angiospermae.)
- (6) Kingdom : Animalia (Animals)
 - 23 Phyla (Mesozoa ——— Chordata).

Sub-Empire : Prokaryota

- (1) Kingdom : Monera (Bacteria and Blue Green Algae)

Classes

- (1) Schizomycetes (true bacteria).
- (2) Spiromycetes (spirochaetes).
- (3) Rickettsiomycetes (rickettsias).
- (4) Cyanophyceae (blue green algae).

- (2) Kingdom : Vira (Viruses)

Classes

- (1) Deoxyhelica (Helical DNA Viruses).
- (2) Deoxycubica (Polyhedral DNA Viruses).
- (3) Deoxybinala (T-even Bacteriophages).
- (4) Ribohelica (Helical RNA Viruses).
- (5) Ribocubica (Polyhedral RNA Viruses).

Viruses from Fundamentals of Microbiology M. Frobisher 8th Edition 1968.

Sub-Empire : Eukaryota

(3) Kingdom : Protista (True algae, Protozoa and slime moulds).

(1) Alga (True Algae)

Divisions

- (1) Chromophyta.
- (2) Rhodophyta.
- (3) Chlorophyta.
- (4) Charophyta.

(See - Phycology - R. E. Lee (1980).

(2) Protozoa

Classes

- (1) Mastigophora.
- (2) Sarcodina.
- (3) Actinopoda.
- (4) Sporozoa.
- (5) Cnidosporidea.
- (6) Ciliata.

(See - Larouse Encyclopedia of Animal Life).

(Sarcodina replaces Rhizopoda - see Principles of Invertebrate Palaeontology Shrock and Twenhofel (1953)).

(3) Myxomycota (slime moulds)

Classes

- (1) Acrasiomycetes.
- (2) Hydromyxomycetes.
- (3) Myxomycetes.
- (4) Plasmodiophoromycetes.

(See - Introduction to Fungi : John Webster : 1527.L.1981).

Sub-Empire : Eukaryota

(4) Kingdom : Fungi (True Fungi)

Classes

- (1) Chytridiomycetes.
- (2) Hyphochytridiomycetes.
- (3) Oomycetes.
- (4) Zygomycetes.
- (5) Trichomycetes.
- (6) Hemiascomycetes.
- (7) Plectomycetes.

Classes

- (8) Pyrenomycetes.
- (9) Discomycetes.
- (10) Laboulbeniomycetes.
- (11) Loculoascomycetes.
- (12) Hemibasidiomycetes.
- (13) Hymenomycetes.
- (14) Gasteromycetes.
- (15) Coelomycetes.
- (16) Hyphomycetes.
- (17) Agonomycetes.

(See - Introduction to Fungi : John Webster : 1527.L.1981).

- (18) Ascolichenes)
- (19) Basidiolichenes) Lichens
- (20) Deuterolichenes n.n.)

(Lichens classified according to G. Craig Slawson, 1981).

n.n. = Nomen Novum

Sub-Empire : Eukaryota

- (5) Kingdom : Plantae (Higher Plants)

Division

- (1) Bryophyta (Mosses and Liverworts)

Class

- (1) Musci (Mosses)

Orders

- (1) Sphagnales.
- (2) Andreaeales.
- (3) Polytrichales.
- (4) Buxbaumiales.
- (5) Fissidentales.
- (6) Dicranales.
- (7) Pottiales.
- (8) Grimmiales.
- (9) Funariales.
- (10) Schistostegales.
- (11) Tetraphidales.
- (12) Eubryales.
- (13) Isobryales.
- (14) Hookeriales.
- (15) Hypnobryales.

Class

- (2) Hepaticae (Liverworts)

Orders

- (1) Anthocerotales.
- (2) Sphaerocarpaceales.
- (3) Marchantiales.
- (4) Metzgeriales.
- (5) Calobryales.
- (6) Jungermanniales.

(See - British Mosses and Liverworts : E. V. Watson : 1127.L.1979).

Sub-Empire : Eukaryota

- (5) Kingdom : Plantae (Higher Plants)

Division

- (2) Nematophyta - (extinct group (Prototaxites, Nematothallus) of uncertain position).
- (3) Tracheophyta (Vascular Plants)

Classes

- (1) Rhyniopsida (Psilopsida)

Orders

- (1) Rhyniales - extinct.
- (2) Zosterophyllales - extinct.
- (3) Trimerophytales - extinct.

- (2) Psilotopsida

- (1) Psilotales

- (3) Lycopsida

Orders

- (1) Protolepidodendrales - extinct.
- (2) Lycopodiales.
- (3) Lepidodendrales - extinct.
- (4) Isoetales.
- (5) Selaginellales.
- (6) Pleuromeiales - extinct.

- (4) Sphenopsida

Orders

- (1) Sphenophyllales - extinct.
- (2) Calamitales - extinct.
- (3) Equisetales.

(5) Pteropsida

Orders

- (1) Cladoxylales - extinct.
- (2) Coenopteridales - extinct.
- (3) Marattiales.
- (4) Ophioglossales.
- (5) Osmundales.
- (6) Filicales.
- (7) Marsileales.
- (8) Salviniiales.

(6) Progymnospermopsida

- (1) Aneurophytales - extinct.
- (2) Protopityales - extinct.
- (3) Archaeopteridales - extinct.

(Adapted from The Morphology of Pteridophytes K. R. Sporne (1962) Hutchinson by communication with C. J. Cleal.)

(7) Gymnospermae

Orders

- (1) Pteridospermales - extinct.
- (2) Bennettitales - extinct.
- (3) Pentoxylales - extinct.
- (4) Cycadales.
- (5) Cordaitales - extinct.
- (6) Coniferales.
- (7) Taxales.
- (8) Ginkgoales.
- (9) Gnetales.

(From The Morphology of Gymnosperms K. R. Sporne (1965) Hutchinson Univ. Lib. 2nd Edition 1974.)

(8) Angiospermae

Orders

- (1) Magnoliales.
- (2) Illiciales.
- (3) Laurales.
- (4) Piperales.
- (5) Aristolochiales. *
- (6) Nymphaeales. *
- (7) Ranunculales. *
- (8) Papaverales. *
- (9) Sarraceniales. *
- (10) Trochodendrales. *
- (11) Hamamelidales. *
- (12) Eucommiales.
- (13) Leitneriales.
- (14) Myricales. *
- (15) Fagales. *
- (16) Casuarinales. *
- (17) Caryophyllales. *
- (18) Batales.
- (19) Polygonales. *
- (20) Plumbaginales. *

- (21) Dilleniales. *
- (22) Theales. *
- (23) Malvales. *
- (24) Urticales. *
- (25) Lecythidales.
- (26) Violales. *
- (27) Salicales. *
- (28) Capparales. *
- (29) Ericales. *
- (30) Diapensiales. *
- (31) Ebenales.
- (32) Primulales. *
- (33) Rosales. *
- (34) Fabales. *
- (35) Podostemales.
- (36) Haloragales. *
- (37) Myrtales. *
- (38) Cornales. *
- (39) Proteales. *
- (40) Santalales. *
- (41) Rafflesiales.
- (42) Celastrales. *
- (43) Euphorbiales. *
- (44) Rhamnales. *
- (45) Sapindales. *
- (46) Juglandales. *
- (47) Geraniales. *
- (48) Polygalales. *
- (49) Umbellales. *
- (50) Gentiales. *
- (51) Polemoniales. *
- (52) Lamiales. *
- (53) Plantaginales. *
- (54) Scrophulariales. *
- (55) Campanulales. *
- (56) Rubiales. *
- (57) Dipsacales. *
- (58) Asterales. *
- (59) Alismatales. *
- (60) Hydrocharitales. *
- (61) Najadales. *
- (62) Triuridales.
- (63) Commelinales.
- (64) Eriocaulales. *
- (65) Restionales.
- (66) Poales. *
- (67) Juncales. *
- (68) Cyperales. *
- (69) Typhales. *
- (70) Bromeliales.
- (71) Zingiberales.
- (72) Arecales.
- (73) Cyclanthales.
- (74) Pandanales.
- (75) Arales. *
- (76) Liliales. *
- (77) Orchidales. *

* = Represented in British Flora.

Angiosperms listed according to V. H. Heywood (1978)
Flowering Plants of the World.

Sub-Empire : Eukaryota

(6) Kingdom : Animalia (Animals)

(1) Phylum Mesozoa

- (1) Order Dicyemida.
- (2) Order Orthonectida.

(2) Phylum Parazoa (Porifera)

- (1) Class Calcarea.
- (2) Class Hexactinellida.
- (3) Class Demospongia.
- (4) Class Pleospongia - extinct.

(3) Phylum Cnidaria (Coelenterata)

- (1) Class Prolomedusae - extinct.
- (2) Class Dipleurozoa - extinct.
- (3) Class Hydrozoa.
- (4) Class Stromatoporoidea - extinct.
- (5) Class Scyphozoa.
- (6) Class Anthozoa.

(4) Phylum Ctenophora

- (1) Class Tentaculata.
- (2) Class Nuda.

(5) Phylum Platyhelminthes

- (1) Class Turbellaria.
- (2) Class Trematoda.
- (3) Class Cestoda.

(6) Phylum Nemertina

- (1) Class Anopla.
- (2) Class Enopla.

(7) Phylum Aschelminthes

- (1) Class Nematoda.
- (2) Class Rotifera.
- (3) Class Gastrotricha.
- (4) Class Kinorhyncha.
- (5) Class Nematomorpha.

(8) Phylum Acanthocephala

(9) Phylum Entoprocta

- (10) Phylum Bryozoa (Polyzoa)
 - (1) Class Phylactolaemata.
 - (2) Class Stenolaemata.
 - (3) Class Gymnolaemata.
- (11) Phylum Phoronida
- (12) Phylum Brachiopoda
 - (1) Class Inarticulata.
 - (2) Class Articulata.
- (13) Phylum Mollusca
 - (1) Class Monoplacophora.
 - (2) Class Amphineura.
 - (3) Class Gastropoda.
 - (4) Class Scaphopoda.
 - (5) Class Bivalvia.
 - (6) Class Cephalopoda.
- (14) Phylum Priapulioidea
- (15) Phylum Sipunculoidea
- (16) Phylum Echiuroidea
- (17) Phylum Annelida
 - (1) Class Archannelida.
 - (2) Class Polychaeta.
 - (3) Class Oligochaeta.
 - (4) Class Hirudinea.
- (18) Phylum Arthropoda
 - (1) Class Onychophora.
 - (2) Class Pauropoda.
 - (3) Class Diplopoda.
 - (4) Class Chilopoda.
 - (5) Class Symphyla.
 - (6) Class Insecta.
 - (Apterygota)
 - (1) Order Thysanura.
 - (2) Order Diplura.
 - (3) Order Protura.
 - (4) Order Collembola.
 - (Exopterygota)
 - (5) Order Palaeodictyoptera - extinct.
 - (6) Order Megasecoptera - extinct.
 - (7) Order Protohemiptera - extinct.
 - (8) Order Protephemerida - extinct.
 - (9) Order Ephemeroptera.
 - (10) Order Protodonata - extinct.

- (11) Order Odonata
- (12) Order Protopelaria - extinct.
- (13) Order Plecoptera.
- (14) Order Grylloblattodea.
- (15) Order Protorthoptera - extinct.
- (16) Order Orthoptera.
- (17) Order Caloneurodea - extinct.
- (18) Order Glosselytrodea - extinct.
- (19) Order Phasmida.
- (20) Order Dermaptera.
- (21) Order Embioptera.
- (22) Order Dictyoptera.
- (23) Order Protelytroptera - extinct.
- (24) Order Isoptera.
- (25) Order Zoraptera.
- (26) Order Psocoptera.
- (27) Order Mallophaga.
- (28) Order Anoplura.
- (29) Order Hemiptera.
- (30) Order Thysanoptera.

(Endopterygota)

- (31) Order Neuroptera.
- (32) Order Mecoptera.
- (33) Order Lepidoptera.
- (34) Order Trichoptera.
- (35) Order Diptera.
- (36) Order Siphonaptera.
- (37) Order Hymenoptera.
- (38) Order Coleoptera.
- (39) Order Strepsiptera.

(7) Class Crustacea

- (1) Subclass Cephalocarida.
- (2) Subclass Branchiopoda.
 - (1) Order Notostraca.
 - (2) Order Kazacharthra - extinct.
 - (3) Order Acercostraca - extinct.
 - (4) Order Conchostraca.
 - (5) Order Cladocera.
 - (6) Order Anostraca.
 - (7) Order Lipostraca - extinct.
- (3) Subclass Mystacocarida.
- (4) Subclass Euthycarcinoidea - extinct.
- (5) Subclass Copepoda.
 - (1) Order Calanoida.
 - (2) Order Cyclopoida.
 - (3) Order Harpacticoida.
 - (4) Order Caligoida.
 - (5) Order Monstrilloida.
 - (6) Order Lernaecoida.

- (6) Subclass Branchiura.
- (7) Subclass Ostracoda.

- (1) Order Mydocopa.
- (2) Order Cladocopa.
- (3) Order Platycopa.
- (4) Order Podocopa.

- (8) Subclass Cirripedia.

- (1) Order Acrothoracica.
- (2) Order Rhizocephala.
- (3) Order Ascothoracica.
- (4) Order Thoracica.
- (5) Order Apoda.

- (9) Subclass Malacostraca.

- (1) Order Leptostraca.
- (2) Order Hymenostera - extinct.
- (3) Order Archaeostera - extinct.
- (4) Order Eocaridacea - extinct.
- (5) Order Pygocephalomorpha - extinct.
- (6) Order Stomatopoda.
- (7) Order Palaeocaridacea - extinct.
- (8) Order Anaspidacea.
- (9) Order Stygocaridacea.
- (10) Order Bathynellacea.
- (11) Order Spelaeogriphacea.
- (12) Order Thermosbaenacea.
- (13) Order Mysidacea.
- (14) Order Tanaidacea.
- (15) Order Isopoda.
- (16) Order Amphipoda.
- (17) Order Anthracocaridacea - extinct.
- (18) Order Cumacea.
- (19) Order Euphausiacea.
- (20) Order Decapoda.

- (8) Class Arachnida.

- (1) Order Scorpiones.
- (2) Order Pseudoscorpiones.
- (3) Order Opiliones.
- (4) Order Architarbi - extinct.
- (5) Order Acari.
- (6) Order Haptopoda - extinct.
- (7) Order Anthracomarti - extinct.
- (8) Order Trigonotarbi - extinct.
- (9) Order Palpigrada.
- (10) Order Schizomida.
- (11) Order Thelyphonida.
- (12) Order Kustarachnae - extinct.
- (13) Order Phrynichida.
- (14) Order Araneae.
- (15) Order Solifugae.
- (16) Order Ricinulei.

- (9) Class Trilobita - extinct.

- (10) Class Merostomata.

- (1) Order Xiphosura.
- (2) Order Eurypterida - extinct.
- (3) Order Aglaspida - extinct.

- (11) Class Pycnogonida.
- (19) Phylum Pentastomida.
- (20) Phylum Tardigrada.
- (21) Phylum Chaetognatha.
- (22) Phylum Pogonophora.
 - (1) Class Frenulata.
 - (2) Class Afrenulata.
- (23) Phylum Echinodermata.
 - (1) Class Cystoidea - extinct.
 - (2) Class Eocrinoidea - extinct.
 - (3) Class Paracrinoidea - extinct.
 - (4) Class Crinoidea.
 - (5) Class Edrioasteroidea - extinct.
 - (6) Class Carpoidea - extinct.
 - (7) Class Machaeridia - extinct.
 - (8) Class Cyamoidea - extinct.
 - (9) Class Cycloidea - extinct.
 - (10) Class Stelleroidea.
 - (1) Subclass Asteroidea.
 - (2) Subclass Ophiuroidea.
 - (3) Subclass Auluroidea - extinct.
 - (4) Subclass Somasteroidea - extinct.
 - (11) Class Echinoidea.
 - (12) Class Holothuroidea.
- (24) Phylum Hemichordata
 - (1) Class Enteropneusta.
 - (2) Class Pterobranchia.
 - (3) Class Graptolithina.
- (25) Phylum Chordata
 - (1) Subphylum Tunicata.
 - (1) Class Ascidiacea.
 - (2) Class Thaliacea.
 - (3) Class Larvacea.
 - (2) Subphylum Cephalochordata.
 - (3) Subphylum Vertebrata.
 - (1) Class Agnatha.
 - (1) Order Osteostraci - extinct.
 - (2) Order Anapsida - extinct.
 - (3) Order Cyclostomata.
 - (4) Order Heterostraci - extinct.
 - (5) Order Coelolepida - extinct.

(2) Class Placodermi.

- (1) Order Petalichthyida - extinct.
- (2) Order Rhenanida - extinct.
- (3) Order Arthrodira - extinct.
- (4) Order Phyllolepada - extinct.
- (5) Order Ptyctodontida - extinct.

(3) Class Chondrichthyes.

- (1) Order Cladoselachii - extinct.
- (2) Order Pleuracanthodii - extinct.
- (3) Order Selachii.
- (4) Order Batoidea.
- (5) Order Chimaeriformes.

(4) Class Osteichthyes.

- (1) Order Climatiformes - extinct.
- (2) Order Ischnacanthiformes - extinct.
- (3) Order Acanthodiformes - extinct.
- (4) Order Palaeonisciformes - extinct.
- (5) Order Polypteriformes.
- (6) Order Acipenseriformes.
- (7) Order Semionotiformes.
- (8) Order Pycnodontiformes - extinct.
- (9) Order Amiiformes.
- (10) Order Aspidorhynchiformes - extinct.
- (11) Order Pholidophoriformes - extinct.
- (12) Order Leptolepiformes - extinct.
- (13) Order Elopiformes.
- (14) Order Anguilliformes.
- (15) Order Notacanthiformes.
- (16) Order Clupeiformes.
- (17) Order Osteoglossiformes.
- (18) Order Salmoniformes.
- (19) Order Cetomimiformes.
- (20) Order Ctenothrissiformes.
- (21) Order Gonorhynchiformes.
- (22) Order Cypriniformes.
- (23) Order Siluriformes.
- (24) Order Amblyopsiformes.
- (25) Order Batrachoidiformes.
- (26) Order Gobiesociformes.
- (27) Order Lophiiformes.
- (28) Order Gadiformes.
- (29) Order Atheriniformes.
- (30) Order Beryciformes.
- (31) Order Zeiformes.
- (32) Order Lampridiformes.
- (33) Order Gasterosteiformes.
- (34) Order Channiformes.
- (35) Order Synbranchiformes.
- (36) Order Scorpaeniformes.
- (37) Order Dactylopteriformes.
- (38) Order Pegasiformes.
- (39) Order Perciformes.
- (40) Order Pleuronectiformes.
- (41) Order Tetraodontiformes.
- (42) Order Crossopterygii.
- (43) Order Dipnoi

(5) Class Amphibia.

- (1) Order Temnospondyli - extinct.
- (2) Order Anthracosauria - extinct.
- (3) Order Nectridea - extinct.
- (4) Order Aistopoda - extinct.
- (5) Order Microsauria - extinct.
- (6) Order Proanura - extinct.
- (7) Order Anura (Salientia).
- (8) Order Urodela (Caudata).
- (9) Order Apoda.

(6) Class Reptilia.

- (1) Order Cotylosauria - extinct.
- (2) Order Mesosauria - extinct.
- (3) Order Chelonia.
- (4) Order Eosuchia - extinct.
- (5) Order Squamata.
- (6) Order Rhyncocephala.
- (7) Order Thecodontia - extinct.
- (8) Order Crocodilia.
- (9) Order Pterosauria - extinct.
- (10) Order Saurischia - extinct.
- (11) Order Ornithischia - extinct.
- (12) Order Araeoscelidia - extinct.
- (13) Order Sauropterygia - extinct.
- (14) Order Placodontia - extinct.
- (15) Order Ichthyosauria - extinct.
- (16) Order Pelycosauria - extinct.
- (17) Order Therapsida - extinct.

(7) Class Aves.

- (1) Order Archaeopterygiformes - extinct.
- (2) Order Hesperornithiformes - extinct.
- (3) Order Tinamiformes.
- (4) Order Struthioniformes.
- (5) Order Rheiformes.
- (6) Order Casuariformes.
- (7) Order Aepyornithiformes - extinct.
- (8) Order Dinornithiformes - extinct.
- (9) Order Apterygiformes.
- (10) Order Gaviiformes.
- (11) Order Podicipediformes.
- (12) Order Procellariiformes.
- (13) Order Sphenisciformes.
- (14) Order Pelecaniformes.
- (15) Order Ciconiiformes.
- (16) Order Anseriformes.
- (17) Order Falconiformes.
- (18) Order Galliformes.
- (19) Order Gruiformes (Ralliformes).
- (20) Order Diatrymiformes - extinct.
- (21) Order Icthyornithiformes - extinct.
- (22) Order Charadriiformes.
- (23) Order Columbiformes.
- (24) Order Psittaciformes.
- (25) Order Cuculiformes.

- (26) Order Strigiformes.
- (27) Order Caprimulgiformes.
- (28) Order Apodiformes.
- (29) Order Coliiformes.
- (30) Order Trogoniformes.
- (31) Order Coraciiformes.
- (32) Order Piciformes.
- (33) Order Passeriformes.

(8) Class Mammalia.

- (1) Order Monotremata.
- (2) Order Triconodonta - extinct.
- (3) Order Multituberculata - extinct.
- (4) Order Symmetrodonta - extinct.
- (5) Order Pantotheria - extinct.
- (6) Order Marsupialia.
- (7) Order Edentata.
- (8) Order Insectivora.
- (9) Order Scandentia.
- (10) Order Dermoptera.
- (11) Order Tillodontia - extinct.
- (12) Order Taeniodontia - extinct.
- (13) Order Chiroptera.
- (14) Order Primates.
- (15) Order Creodonta - extinct.
- (16) Order Carnivora.
- (17) Order Pinnipedia.
- (18) Order Condylarthra - extinct.
- (19) Order Amblypoda - extinct.
- (20) Order Cetacea.
- (21) Order Sirenia.
- (22) Order Desmostylia - extinct.
- (23) Order Proboscidea.
- (24) Order Perissodactyla.
- (25) Order Hyracoidea.
- (26) Order Embrithopoda - extinct.
- (27) Order Notoungulata - extinct.
- (28) Order Astrapotheria - extinct.
- (29) Order Litopterna - extinct.
- (30) Order Tubulidentata.
- (31) Order Artiodactyla.
- (32) Order Pholidota.
- (33) Order Rodentia.
- (34) Order Lagomorpha.
- (35) Order Macroscelidea.

Animal Classification as in "Larousse Encyclopaedia of Animal Life" (Hamlyn, 1967) with modifications according to "Principles of Invertebrate Palaeontology" (Shrock and Twenhofel, 1953) for Phylum Parazoa (2), Bryozoa (10) and Echinodermata (23), Treatise on Invertebrate Palaeontology (Ed. R. C. Moore) for Phylum Arthropoda, Class Crustacea (18(7)) and Marine Life (George & George) for Pogonophora (22). Subphylum Vertebrata (25(3)) classified according to "Vertebrate Palaeontology" (A. S. Romer, 1966 3rd Edn.) with modifications to the Mammalia (23(4)8) according to "A World List of Mammalian Species (G. B. Corbet and J. E. Hill, 1980).

1. Room B.40, Geology Store (Basement)
2. Room B.45, Spirit Store (Basement)
3. Room B.66, Biology Store (Basement)
4. (4.1 - 4.12) Gallery display specimens (Ground Floor)
5. Room G.18, Keeper's Office (Ground Floor)
6. Room G.16, Assistant Keeper's Office (Ground Floor)
7. Room G.14, Recording Room (Ground Floor)
7. (a) Hall outside Offices (Ground Floor)
8. Room B.38, Natural History Laboratory (Basement)
 - (a) Room B.41, Identification Room
 - (b) Room B.42, Collection Data Room
9. Room B.43, Natural History Workshop (Basement)

Specimen Locality Codes

- | | |
|------|-------------------------|
| 4. | Specimens on display |
| | Natural History Gallery |
| 4.1 | Introductory area |
| 4.2 | Limestone Grassland |
| 4.3 | Moorland |
| 4.4 | Urban |
| 4.5 | Deciduous |
| 4.6 | Coniferous |
| 4.7 | Heathland |
| 4.8 | Field and Hedgerow |
| 4.9 | Aquatic |
| 4.10 | Archaeology Gallery |
| 4.11 | Decorative Arts Gallery |
| 4.12 | Ceramics Gallery |

Bolton Museum and Art Gallery
Le Mans Crescent
Bolton BL1 1SA
England
Tel 0204 22311



Biology Curators' Group

The Editor,
Biology Curators' Group,
Sheffield City Museum,
Weston Park,
Sheffield.
S10 2TP

12 April 1983

Dear Sir,

Although at first I too was not sure if a serious answer was required to the question ("where is the type specimen of Homo sapiens Linn. 1758?") I suppose it deserves an answer. The problem divides into two parts.

Firstly, when Linnaeus described Homo sapiens the "Type Method" was not in existence. Whereas he is responsible for the binomial nomenclatural system it was another 150 years before a "Code" was established. Even then the type concept as we now know it was ill-defined. Before then taxonomy was dominated by the Aristotelian concept of types. Apart from the fact that "obvious" and "well-known" species did not have type specimens as such, the taxonomists considered that "typical" specimens were sufficient. This meant in turn that any examples conforming to the taxonomist's opinion of that species were types and they were frequently changed in collections for "better specimens" when they became available.

Secondly, given that there was never a "Type" (ie. holotype) for Homo sapiens what should be done about it? Here, the answer is an unequivocal nothing! The modern method when erecting species demands a type to go with the name. However, the Code is clear in stating that the manufacturing of neotypes simply for the sake of having a type for every species name is forbidden. Most of the older species of birds have no types, either. Only in the interest of stability of nomenclature need any action be taken, and in the case of ourselves this is clearly unnecessary.

Although it is now slightly dated I have always found Ernst Mayr's Principles of Systematic Zoology (1969) a useful source of information on general questions of nomenclature and procedure. Most useful is the section which translates into vernacular the legal language of the International Code of Zoological Nomenclature (1961). This latter has now been updated. In a future issue of BCG Newsletter it is hoped to publish a comprehensive article on the Type Method in Zoology by Robert Nash (Ulster) which will bring the story up-to-date by including the provisions of the new code.

Yours faithfully,

E. G. Hancock,
(Production Editor,
Bolton Museum).

Castle Museum

Norwich

12 May 1983

Dear Sir,

Is She My Type ?

Reading the account of Homo sapiens in Systema Naturae, it is clear to me that Linneaus made the description from a series of specimens. Rather than seeking a neotype (which is how I interpret Jon Cooter's suggestion), why not designate a lectotype from the specimens available to Linneaus? Of these, Linneaus himself is the obvious choice. His remains were interred in Upsalla Cathedral in 1778, but unfortunately Sir James Smith left this important type material in Sweden when he snatched the Linnean collections. Should we seek to exhume the great systematist and reunite him with his collections in Burlington House? I think not.

The question of a female paralectotype cannot be solved by looking to his wife, Sara Lisa (née Moraea). Systema Naturae was published less than one year after he met her and four years before they were married. I am sure that Linneaus would not have been thinking of her when he wrote "umbilico excavato".

The final solution to this problem may be provided by Linneaus himself. His description is prefaced by "Nosce te ipsum". I leave you to reach for a Latin dictionary and/or mirror.

Yours faithfully,



A. G. Irwin



Curator AM Tynan BSc FMA
Deputy Curator PS Davis BSc MSc MIBiol AMA FLS

Ref. 7.3

8th March 1983

The Editor
Biology Curators' Group
Sheffield City Museum
Weston Park, Sheffield S10 2TP.

Sir,

Delusory Parasitosis

I was interested in Gerald Legg's article in the current BCG Newsletter. We have had one similar case in twenty five years. The facts, I believe are worth recording, since they are rather different from those described in the article. To cut short a story which could be funny were it not so sad, a little old grey haired lady (I was soon to meet her) reported by telephone that her house, which had a good address, was infested with insects. Since she was about to visit her widowed sister in Sussex, would I please do something now. She was clearly in some distress, and since it was time to close shop for the day I promised to call on my way home. Collecting a few tubes, a camel hair brush, a handlens, and a wife to chat to the old dear, I set off. I had established, during our telephone conversation that there were several large trees, "yes they might be lime", in her garden, I could only guess that she had aphid problems. The house was immaculate, everything which could conceivably shine did so, in a dazzling fashion. My attention was drawn, by her to endless wholly non-existent insects which, after careful scrutiny through a handlens, I swept into glass tubes. After a guided tour of the whole house, which was large, and very comprehensive sampling we departed. Having discovered, in a very roundabout way, a route to her G.P., we sent an urgent message that his patient would benefit from a visit. That, we thought was that. We were quite wrong. My telephone rang at 9.00 a.m. the next day, it was the little old lady, demanding a diagnosis and prescription. I hedged, praying that the G.P. would get the message and do something. Although the patient had not mentioned suicide, nor cats, nor fleas (perish the thought!) I was anxious for her welfare. The telephone calls were repeated at 30 minute intervals. After 11.30 they stopped. I sighed with relief. At about 3.00 p.m. I had another call, from Newcastle's Town Clerk. The little lady, despairing of this wretched Curator had telephoned the 'Town Hall', summoning help. The Town Hall sent the rat man. The ratman had, with more perception than tact, told this proud, if poorly ratepayer that, I paraphrase, "she was nuts". She was not happy and lost no time in telephoning the Town Clerk to demand the head of the rat man, and, if he could arrange it, the Curator's, on shields. So the Town Clerk telephoned me to try and find out what in heavens name was going on. I told him, he

cont./

seemed to understand, anyhow he went away and I heard no more. There is a clear message here, if not for Curators, at least for Town Clerks, and rat-men.

There is a short post-script. Shortly after this incident, I met a GP friend and told him the story. Coincidentally he had, in his childhood known the 'patient's' children and could remember the discomfort of visits to their family house. Mother, it seemed, followed the young around the house, brushing carpets and shaking up cushions disarranged by small bottoms. Some thirty years later, widowed and her children dispersed, the poor little old lady had broken down. It was, he said, a fairly well-known condition.

No cats, no fleas, just a fetish for tidiness. Is there a message here also, or maybe I'm making excuses? Whatever may be the truth, it was certainly an enquiry with a difference and underlined clearly the messages in Mr. Legg's article.

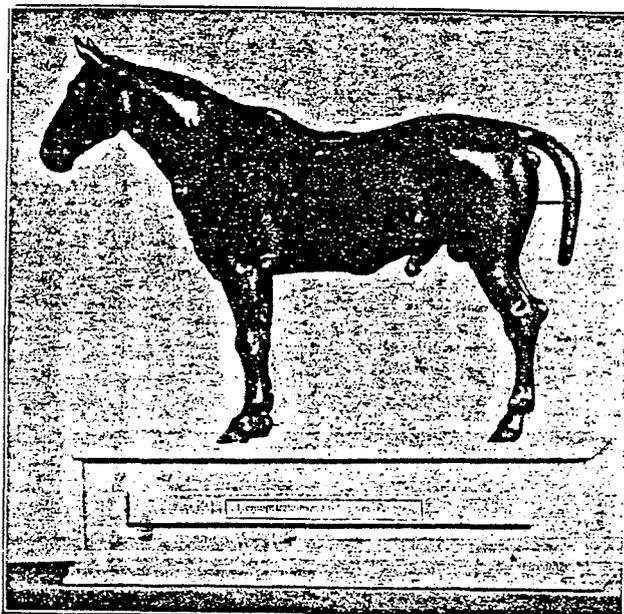
Yours faithfully,

A.M. Tynan

A.M. Tynan
Curator

Section 16. PATHOLOGICAL MODELS.

from an old
Gallenkamp
catalogue.



No. 9995.

- d 9995 DEMONSTRATION MODEL OF A HORSE, one-fourth natural size, the model shows 39 different diseases and defects which most frequently occur or appear in the horse, *i.e.*, catarrh of the nose, cervical-bump, bronchocele, mane-scurl sore caused by the saddle, flankhernia, paralysis of the tail, umbilical hernia, elbow lump, etc., made of paper-mâché and coloured with durable oil-colour, so that it is lasting, the model can easily be moved. A board mounted in the stand which can be pulled out contains the description Each £5 12 6

Dear Steve

21st January, 1983

You may be interested in the following account, either for your reference or to be included in the BCG Newsletter. I feel myself that this is something that perhaps ought to be brought to people's notice, and perhaps the BCG, through the appropriate authorities, should try to have something done to prevent this type of trade, even though, as you will see, it is not illegal, I consider it to be extremely immoral. The story is as follows:-

In the second week of August, 1982, I happened to pass one of the more respected china shops in the centre of Leeds, and my attention was attracted to a window display, which included various preserved animals, set in plastics. In particular I was concerned at the presence of two species of bat. The bats both proved to be American species, the Brown Cave Bat and the Vampire Bat. I was concerned over this, due to the new Wildlife & the Countryside regulations, which prevent any disturbance of British bats, and thought that the importation of this type of souvenir reflected very badly on a very good aspect of the new Wildlife & the Countryside Act.

I therefore contacted the local agent for the World Wildlife Fund, and visited the shop, asking for further details on the import of the material, with the result that the shop immediately withdrew the items from sale and have no longer done business with the importers regarding this type of material.

I wrote an official letter to the World Wildlife Fund, asking about these rather bizarre animal souvenirs, and they acknowledged my letter and forwarded it on to the Wildlife Trade Monitoring Unit at Cambridge, who stated that the bats would have needed an import licence under the Endangered Species Act of 1976. The Customs Office in central London, however, informed me that there would have been no problems in acquiring an import licence, as the importation of bats comes under Rabies Control, and therefore as long as the animals were dead a licence would be easily and readily available.

The Wildlife Trade Monitoring Unit at Cambridge forwarded my letter on to the Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC), U.S.A., who checked the bats out, and in their reply stated that the trade in these two species of bats is legal in America, and they have not been able to stop this trade.

I have enclosed copies of the three letters from the World Wildlife Fund, the Wildlife Trade Monitoring Unit, and TRAFFIC for your interest, but I think the letter from TRAFFIC is perhaps the most telling, if rather condoning. I feel that it would be far more useful if the BCG used its influence to prevent the importation of this rather obnoxious souvenir trade.

Yours sincerely



ADRIAN NORRIS

Dear Mr. Norris,

17th September, 1982.

Thank you for your letter of 24th August about the rather bizarre animal 'souvenirs' in Leeds.

As the company involved is an American one I am sending a copy of your letter to our office in Washington to ask them to look into the matter. I am also passing a copy of your letter to the Wildlife Trade Monitoring Unit at Cambridge.

Thank you for drawing this matter to our attention.

Dr. Chris Tydeman,
Staff Ecologist.



Dear Mr. Norris,

January 6, 1983

Mr. Russell E. Train, President of the World Wildlife Fund-U.S. forwarded your letter to our office. Please accept our apologies for the delay in answering your letter.

TRAFFIC(U.S.A.), an acronym for Trade Records Analysis of Flora and Fauna in Commerce, is the program of WWF which monitors the trade in animals, plants, and their products. We are concerned primarily with those species whose survival is threatened by trade and/or habitat destruction.

Trade in the two bat species you mentioned in your letter is legal. Little can be done on our end to curtail this trade. However, there are steps that you as a concerned consumer can take. The only way the sale of animal products will diminish is if the demand, and therefore the market, decreases. Being an informed consumer and educating friends and family are critical steps in stopping the sale of wildlife products.

I suggest you write the company involved, Nature Gems, yourself and express your concern regarding their use of these magnificent creatures.

Thank you very much for your concern.

Linda McMahan, Ph.D.
Director



INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES
UNION INTERNATIONALE POUR LA CONSERVATION DE LA NATURE ET DE SES RESSOURCES
Conservation Monitoring Centre - Centre de surveillance continue de la conservation de la nature

Dear Mr. Norris,

Your letter regarding animal specimens in plastic has been passed to me by Dr. Tydeman of World Wildlife Fund.

If the bats were whole, preserved specimens, fixed in plastic they would certainly require an import licence (Endangered Species Act 1976) and I am therefore sending a copy of your letter to the Department of the Environment, which is the body responsible for issuing import and export licences. They may wish to pursue the matter further.

Many thanks for the information - if you have any further news on the matter we would be very glad to hear from you.

5/10/82.

J.R.Caldwell
Wildlife Trade Monitoring Unit+Cambridge



British Museum (Natural History)
Cromwell Road London SW7 5BD

Telegrams Nathismus London SW7

Telephone 01-589 6323 ext

The Editor,
Biology Curators' Group Newsletter
Sheffield City Museum,
Weston Park,
Sheffield S10 2TP

Your reference Newsletter Vol.3.pt.5.

p.233

Our reference

Date 3rd March, 1983.

Dear Sir,

I and my colleagues feel that your reprinting of an Information Leaflet on Psocids should not go unremarked. The second paragraph of the Leaflet contains factual statements which could be questioned, but more importantly the fourth paragraph implies, most surprisingly, that psocids are only found in domestic rather than commercial situations. In our experience psocids are likely to be found wherever packets of suitable foods are stored, and the statement that they are "never found where food is produced" seems to have more in common with the language of advertisers than that of scientists.

Yours faithfully,

Laurence A. Mound D.Sc.,
Keeper of Entomology.

Section 18. PATHOLOGICAL MODELS.



No. 9895

Guaranteed to
break the ice
at parties!

from an old
Gallenkamp
catalogue.

d 9895	LIVER OF AN INEBRIATE, (hob-nailed liver)	...	...	...	...	Each £0 17 6
d 9896	KIDNEY OF AN INEBRIATE,	...	...	...	...	Each £0 11 3

Holarctic Avian Speciation Atlas

The purpose of this atlas is to map, with commentaries, the breeding distributions of the 2014 biological bird species of different biogeographical elements and origins which breed regularly entirely or partly within the Holarctic faunal area (the Palaearctic and Nearctic Regions of classical zoogeographers combined) from the arctic regions south to mid-Sahara, Arabia, Himalayas, west China, south Mexico with the Atlantic Islands and the ecological "islands" of the high montane areas of Taiwan and Chiapas/Guatemala. The atlas is intended as a contribution to better understanding of species evolution and the conservation of environments and gene "pools".

The model for HASA is the two-volumed atlas of speciation in African birds (Hall & Moreau 1970, Snow (ed.) 1978) published by the British Museum (Natural History). Whilst the various "national", "state" and "provincial" bird atlases of western Europe and North America are pure "gridded" distributional atlases without reference to relationships and evolutions of the taxa dealt with, HASA will not only map species by shading symbols, but will also comment upon the ecologies and relationships of the species included and consider these in context of current understanding of the climatic and vegetational changes known to have been caused by the advances and retreats of the several Pleistocene glaciations. Morphologically distinct isolated populations are of paramount importance as these could represent stages in the speciation process.

As it is intended that this atlas should incorporate, as far as possible, the most recent data from museum and field studies with these obtained as efficiently as possible, the preparation work is split between data gathering from museum material, field records and published literature on the one hand and the actual map preparation with commentaries on the other hand. To facilitate data gathering, the entire Holarctic avifaunal area is divided into 306 areas grouped into three categories based upon the extent of ornithological knowledge available for each area. The data so gathered is passed on to specialists in different taxonomic groups who prepare the maps and write the accompanying commentaries.

Recruitment, on a voluntary basis, of area data collection organizers for areas and of taxonomic group specialists is now in progress; ten years work is envisaged to complete the maps and commentaries ready for publication by an academic or institutional publisher. This ten years' work will be an international effort with ornithologists taking part as ornithologists and not as representatives of institutions or organizations. An advisory committee guides and advises the Organizer/Editor who will work with an executive committee. HASA was formally launched in a round table discussion held on 19 August 1982 in Moscow during the XVIII International Ornithological Congress. HASA is independent of any other institution or organization except the Yorkshire Museum, York, England, which is supporting the expenditure involved in great amount of correspondence and stationery, but offers of funding participants' work will be welcomed and much appreciated.

All offers of participation and funding together with requests for further details should be addressed to: D. T. Lees-Smith, Organizer/Editor HASA, 134 The Avenue, Starbeck, Harrogate, North Yorkshire HG1 4QF, England.

Curators who would like extra copies of this synopsis for distribution to local naturalists should also contact Mr. Lees-Smith at the above address.

November 1982

Also available is a publicity leaflet aimed at intelligent members of the general public worried about nature conservation and bird protection. This leaflet is for distribution in bulk to organizations such as natural history societies, museums etc, for distribution to their members and to museum visitors. BCG.

B.C.G. members wishing to have supplies for their museums to distribute to the public at their publications counter should send direct to the Yorkshire Museum, Museum Gardens, York YO1 2DR, enclosing £4 per 100 copies required.

WE STILL DO NOT KNOW EXACTLY WHERE OUR BIRDS ARE!



H
A
S
A

1982

1992



SUPPORTED BY
THE YORKSHIRE MUSEUM, YORK
AND
MANY ORNITHOLOGISTS THROUGHOUT THE
HOLARCTIC AREA

Do you wish to take part in our work?
If yes, fill in below and send to us:-

NAME (Dr. Mr. Ms. Mrs. Miss)

TEN YEARS is a short time for preparation of the Holarctic Avian Speciation Atlas, but FOREVER is the duration of extinction. Already within our area we have lost 12 species - Pallas Cormorant, Labrador Duck, Crested Shelduck, Heath Hen, Great Auk, Bonin Woodpigeon, Jouy's Woodpigeon, Passenger Pigeon, Carolina Parakeet, Bonin Ground Thrush, Bonin Grosbeak and Slender-billed Grackle. The Thick-billed Parrot has not been reliably seen for many years. Seriously endangered are California Condor, Siberian Crane, Whooping Crane, Ivory-billed Woodpecker, Noguchi's Woodpecker and Lidth's Jay.

TOO MANY of our bird species are only known as specimens like Vaurie's Warbler, a few...

Wildlife Sound Recordings

'And so I should like to encourage my colleagues and the museum people who are present here today to go to work! In the same way as you have in the past accumulated millions of bird skins in your private collections and public museums please collect now some 100 phonographic records of the voices of your birds. By this means it will be possible at any time by means of films and of these phonogrammes to make your dead bird world alive again.' Hans Stadler, Lohr, on 'Electronic Recordings of Bird Voices', Proc. 7th International Ornithological Congress, Amsterdam, 1930 (Translated from the German).

Don't bother! The British Library of Wildlife Sounds has done it for you. Hans Stadler proposed the setting up of an archive of bird sound recordings for study and research. BLOWS at the British Institute of Recorded Sound in London is precisely that. Not only does it have over 1,000 published records and cassettes of the sounds of all kinds of animals - insects, amphibians, mammals, reptiles, even fishes, as well as birds - from all parts of the world; but there are also 10,000 tape recordings and a duplicate of all the BBC Natural History Sound Archives recordings of wide zoogeographical coverage. The commercially published records cannot be lent or copied, but they can be listened to on the premises. Copies of the BLOWS tape recordings can be supplied for exhibition purposes subject to an agreement being reached with the recordist (or copyright-holder if different) on terms for such use. Similarly copies of the BBC recordings can be supplied subject to their agreement.

Some museums already provide facilities for visitors to listen to sound recordings of the birds or other animals displayed, and BLOWS has supplied recordings for some special exhibitions, at the British Museum (Natural History) in London, for instance, as well as at others elsewhere. The Library will be only too pleased to help museums to obtain the right recordings for their purposes, whether it be an exhibition of urban wildlife, a special presentation about whales or the birds of tropical forests, or simply for individual animal exhibits, such as a scream to go with a stuffed fox or a laugh with a Kookaburra.

For further information, please apply to the Curator, British Library of Wildlife Sounds, British Institute of Recorded Sound, 29 Exhibition Road, London SW7 2AS. Tel: 01-589 6603.

Ron Kettle
Curator, British Library of Wildlife Sounds



The renovation of the bird gallery at The Manchester Museum
Conservation aspects

1. Introduction

The natural history galleries in The Manchester Museum were designed as part of the Victorian gothic buildings which form the nucleus of the University of Manchester (fig.1). The galleries form a long north-south rectangle with a main floor and two balconies around a central well. The middle layer of the galleries had been neglected over many years and the poor condition of the displays prompted a renovation in 1980/1 (1). This gallery housed, in display cases and in storage cabinets, collections of mounted birds, osteological specimens, specimens in fluid storage (the spirit collection) and other miscellaneous zoological items.

The conservation related work can be divided between improvements to environmental conditions of displays and storage and treatment of specimens.

2. Environmental control

2.1 Display area

The gallery was originally designed to be lit by natural light, supplemented by gas flares (fig.2). Accordingly the cases are set in bays between the windows along the gallery with skylights down the centre to illuminate the well. Obvious damage had occurred to the specimens by the action of daylight and sunlight which had streamed in over many years. Although in the late nineteenth century and early 1900's roller blinds were used on the windows to control the light, these had long since been removed. The skylights had in recent years been treated with a light reflecting film (Scotchint) but this film is inadequate as it keeps falling off due to the action of water condensed on the glass. It is proposed to obscure the skylights completely in the near future. The use of solar control films on the windows of the gallery was investigated (3) but rejected as the achievable light reduction would not be deflected. Dark coloured vertical blinds (Permaglass) were chosen to deal with these problems. Unfortunately blinds are more vulnerable to wear and vandalism so providing problems in long-term maintenance. The blinds, which have been placed over all the windows in the natural history galleries, have reduced the ambient light levels to be used to illuminate the specimens adequately. The iron-framed windows in the gallery were repaired and gasketed to reduce leakages of the outside air which carries pollution.

The gallery retains the original mahogany display cases which run from floor to ceiling. The redundant displays were stripped out and all cracks and holes filled with a non-setting mastic (Arbomast) or Polyfilla as appropriate. Access is gained to the cases by large glazed doors which, with the carcasses, can distort significantly with changes in relative humidity. The doors and frames had been provided with re-entrant mouldings along the edges to restrict the flow of air into the cases. These had been supplemented by velvet pasted onto some of the mating surfaces. Although this protection probably improved the conditions, dust settling in the cases had been a constant problem. Attempts were made during the renovation to improve the seal by running a strip of closed cell PVC foam around the gap. Unfortunately the width of the gap in some cases varied more than the foam could accommodate without interfering with the closing of the door. The air-tightness of the cases was improved by the gasket though other methods will be substituted in future developments.

The lighting in the gallery had been from a combination of daylight and fluorescent tubes hung outside the cases. In the renovated gallery the lighting had to be supplied from within the cases though of course

this causes problems of heating and thus exchange of air between the case and gallery. The fluorescent tube control units had also to be housed within the cases which added to the heat build-up. The new lighting was by a combination of fluorescent tubes to provide a background illumination with low wattage spot/flood lamps on light tracks for directional light. The fluorescent tubes finally used were Trucolor 38 (Philips) which require UV filters (Morden) to reduce the fading of specimens. The lamps on each light track are controlled by a dimmer. This combined with directing the main focus of light slightly away from a specimen gave flexibility in providing good quality light at relatively low light levels. The maximum on any one specimen is 400 lux, frequently well below 200 lux. These were the minimum illumination levels achievable within the constraints of the building and case construction, and the design of the exhibition, but are well above limits suggested by Thomson (4).

Dust levels are monitored by collection of the dust which will be examined microscopically. The rate of fading caused by the lighting is monitored by a series of blue wool ageing standards (5). Humidity levels in cases are monitored thrice weekly. No measures of humidity control were feasible in the gallery.

2.2 Storage Area

As part of the renewal programme a store room for the large number of displaced mounted birds was prepared. A basement room carrying relatively few service pipes and wires but with some window openings along two sides was sealed by plastering over cracks, vents, window openings etc. This brought the rate of exchange with the outside air down from ca. 80 cu.m/hr. to ca. 6.5 cu.m/h. (6). The concentration of dust was reduced from ca. 64 ug/cu.m. to ca. 37 ug/cu.m. with the particle size remaining roughly the same at ca. 0.77 μ m. (7). A recirculating dust extractor installed to remove the fine dust unfortunately caused stirring of dust rather than removal. Dexion racking was erected to take the mounted bird specimens on open shelves. The provision of a storeroom with clean air was thought to be a far cheaper and less time-consuming option than boxing all the specimens individually.

A storeroom was prepared for the many spirit specimens displaced from the gallery combined with other zoological spirit specimens from around the museum - a total of 3771. These were provided with Dexion racking and arranged in order on the shelves. Other displaced collections, such as the osteological material, were put in a holding store for consideration at a later date.

3. Deinfestation

During the preparation of the mounted birds for display two dermestid beetles were discovered in the room being used temporarily for storing all the specimens. The risk of infestation running through the whole collection was felt to be sufficiently great to justify the deinfestation of all the specimens. Various possibilities were considered e.g. treating each specimen with insecticide, taking all the birds to a vacuum fumigation chamber, and sealing specimens into plastic bags with dichlorvos insecticide. The method chosen was fumigation of the entire room containing the specimens.

Fumigants are gases toxic to insects and humans and the time necessary for adequate penetration of the fumigant into the specimens is about 72 hours. Advantage was therefore taken of the closing of the Museum over the Christmas period (1980). The fumigation was carried out by an outside contractor (Rentokil) who recommended the use of phosphine, in preference to methyl bromide (possible adverse reaction with the specimens), hydrogen cyanide (too likely to diffuse into other parts of the Museum) and ethylene oxide

(at the levels of concentration required, too severe a fire risk). All ventilation holes, doors, windows and the gaps around wiring and pipes were sealed with brown paper and masking tape. The phosphine generator (calcium phosphide) was put in place and the room sealed for four days. By the end of this period the concentration of phosphine had already dropped by reaction with materials in the room and by diffusion out of the room. The room was ventilated by leaving the windows open for several hours and the Museum was opened the following day. At no time was phosphine detected by smell or Draeger tube in the museum galleries or other rooms of the building.

This fumigation will have killed any insects in or around the specimens but provides no long term protection. To achieve this vapour phase insecticide (dichlorvos) strips (Vapona) were hung in all the display cases when work in these had finished. As these had been moderately well sealed and were not opened, lethal concentrations of insecticide would be maintained over many months and would deal with any infestation arising from the specimens, mounts, display materials, cases or the gallery. The cases are opened only rarely to change lamps or filters with little chance of reinfestation. The dichlorvos strips will therefore not be renewed except when necessary.

4. Treatment of specimens

Most of the mounted birds required treatment of some sort. Approximately 1,250 birds were cleaned though some which had been boxed in glazed cases were sufficiently clean. Of the 786 birds that were used on the display about 50% required some minor repair work, about 25% required more major repair work and about 90% required some work in remounting. In addition to the mounted birds, 29 skeletal exhibits were repaired or prepared. 100 eggs were cleaned and 15 nests were cleaned and consolidated. Although not strictly part of the bird gallery, a whale skeleton which hangs in the well of the gallery and is viewed from this floor was also cleaned.

Each object dealt with had the details of the treatment recorded in a standard format. Unfortunately lack of money and time prevented the usual photographic recording.

4.1. Cleaning

Cleaning was carried out in various stages depending on the soiling, the more vigorous methods being used only if necessary.

- 1) Loose dust was removed using a soft brush aided by compressed air.
- 2) Greasy dirt, the result of city pollution, was removed by wiping down with cotton wool swabs moistened by a 1:1 mixture of Genklene (1,1,1-trichloroethane) and alcohol (IMS).
- 2a) Persistent stains were swabbed down with alcohol, Genklene or petroleum spirit (100/120).
- 2b) Stains insoluble in organic solvents were treated with water, a 1% solution of non-ionic detergent (Synperonic N) in water, or a 1-5% solution of .880 ammonia in water as necessary. The detergent or ammonia was removed by swabbing with water. Following the aqueous treatment the affected area was swabbed down with the alcohol/Genkelene mixture.
- 3) The mounted birds were then dried using a cool stream of air provided by a hair drier. The feathers were arranged using a brush or pin during the drying.
- 4) Birds that were badly stained overall or had heavily soiled white plumage were sometimes swabbed with a commercial biological detergent and then treated as 2b.

- 5) Skeletal material used on the gallery was first cleaned with a 1% solution of Synperonic or a 5-10% solution of ammonia. Greasy osteological material was cleaned with ammonia solution, petroleum spirit, acetone or trichloroethylene. Small specimens were treated in a soxhlet extractor, larger ones were sometimes treated in an ultrasonic tank.
- 6) Dirty bird eggs were cleaned with Synperonic solution.
- 7) The whale skeleton posed greater logistical problems. Scaffolding was erected (fig.3) and the skeleton was vacuum cleaned then scrubbed down with a mixture of 1% Synperonic, 2% .880 ammonia and 10% IMS in water. The detergent mixture was rinsed out by spraying with water from a high pressure portable plant spray. The rinsing was repeated until the water ran out of the bone clear. After drying for two weeks the bone was coated with two coats of a 10% solution of poly vinyl butyral (Mowital) in IMS.

4.2 Repairs

- 1) Large broken feathers, i.e. with cracked rachis, were repaired with a cellulose nitrate adhesive (HMG). Sometimes a fine stainless steel wire was inserted into the rachis to give support.
- 2) Bent and distorted feathers could often be restored by moistening, rearranging and then drying in the new position. Others could only be restored to their natural position by gentle steaming. Brittle feathers which were often also badly faded, usually proved difficult, if not possible, to restore.
- 3) Split and torn skin was stitched back into place on the larger birds where the skin was not too brittle but in most cases the specimen had to be left unrepaired. Where the splitting produced a flap of loose skin and feathers it was sometimes possible to glue the flap down with HMG.
- 4) Broken or missing eyes were replaced with a matching one where possible. Otherwise both eyes were replaced by a matching pair.
- 5) Chipped beaks or claws were repaired by filling the hole with epoxy resin (Araldite AV100/HV100) or plaster of Paris and then grinding down to match the line of the original. The repair was then painted with oil paints.
- 6) Missing beaks and claws were usually replaced by taking a mould, usually in Plasticine, from a similar bird. A replacement was then cast in plaster, Araldite or an acrylic casting resin (Acrylite). After shaping to the correct form the replacement was stuck in place and painted. An alternative method was to build up a shape in situ which was modelled and painted.
- 7) Loose heads and broken necks were secured with HMG. It was often necessary to insert a new reinforcing wire through the skull and into the body.
- 8) Broken legs were stuck back using HMG, sometimes with the addition of a new supporting rod. Large heavy birds required the use of a quick setting epoxy resin (Devcon 5 Minute) rather than HMG.
- 9) Loose or detached wings were secured with stitches of polyester/cotton sewing thread where it was practicable. Otherwise they were held in place with stainless steel pins.
- 10) Loose or detached tails were stuck in place with HMG and usually fitted with an extra supporting wire through into the body.
- 11) Broken bones were repaired with HMG where possible. In some cases it was necessary to use Deycon with steel wire plints inserted into the bone. The bones of one specimen which had been very greasy were repaired with anaerobic adhesive (Loctite 312). Chipped bones were filled with plaster.
- 12) Missing bones from skeletal mounts were prepared as in 6.
- 13) Broken eggs were repaired with HMG where possible. In some cases it was necessary to use Deycon to provide the required strengthening

behind the cracks. One specimen that could not be repaired successfully with any other adhesive was stuck with Loctite.

- 14) Several very fragile nests were consolidated with a dilute solution of poly vinyl butyral (Butvar B98) in alcohol sprayed onto the surface.

4.3 Display related treatment

Many birds were to be displayed in positions different from the original mount. Various methods were used to achieve a change of stance.

- 1) In several cases wires used for side mounting and which therefore passed through the side of the body and the wing were removed.
- 2) Side mounting wires were often replaced on the opposite (less degraded) side of the bird.
- 3) Some side mounting wires had to be lengthened by soldering on more wire to facilitate mounting on display panels.
- 4) Extra side mounting wires were frequently required to provide additional support or stability.
- 5) When the new mounting position was significantly different from the original, it was necessary to soften the legs and feet using steam in order to alter the stance of the bird. In two instances it was necessary to alter the position of the neck and head.
- 6) Large numbers of birds had broken leg-mounting wires. Fresh wires had to be inserted through the feet into the legs so that these birds could be displayed in the standing position.
- 7) Many birds were removed from old, painted, flat bases and fixed to new bases, perches or branches.
- 8) When birds were to be remounted on branches, great care was taken to match the branch shape to the original setting of the birds' feet.
- 9) Previously painted beaks, legs and feet were cleaned with Synperonic solution and, if necessary, repainted with oil colours.
- 10) Prior to use with specimens all newly acquired branches and trees were dried and treated with sodium pentachlorophenol and gamma benzene hexachloride.

4.4 Outside contractors

A small number of new specimens were prepared outside the museum. Although the work appears to have been well carried out no record of the processes employed accompanied the specimens. This reinforces the need to ensure adequate documentation for specimens whose past history can so easily be lost.

5. Personnel

Although preliminary planning and some research was carried out from 20 months before the gallery opened in September 1981, work on the specimens did not start until October 1980. The bulk of the preparation of the specimens used in the gallery was undertaken by the three technicians in the Conservation Department, Don Ashton and Bill Hutchinson led by Roy Garner. A student who had experience of this sort of work was employed for two months.

Following the opening of the gallery a large programme of moving and recataloguing of the items and collections which had not been used for display was started. A three man team, A. Boyle, S. Barnes and M. Wilding funded by the Manpower Services Commission, worked for a year to clear the backlog of work arising from and exposed by the gallery renewal. This made a marked improvement to the relevant stores and museum records. Unfortunately they were unable, for reasons of space and finance, to

complete the clearing up operation which has been undertaken by following MSC funded team also based in the Conservation Department.

6. Conclusion

It is almost an axiom of museum life that there is not enough time available to carry out the tasks to the desired standards. In retrospect it was obvious that work on the objects should have started as soon as possible. As a result there was an unfortunate rush at the end.

Although the project was supposed to deal, at least in part, with the problems of storage thrown up by the gallery renewal, these problems turned out to be more time consuming than was appreciated in advance. Much of the storage had been inadequate and it was not considered proper simply to transfer the inadequacies from one store to another. The process of improving the stores and arranging the specimens occupied a large part of the time of the MSC team. The documentation of the collection mirrored the storage conditions. The recording of the specimens and the conservation work relating to them proved difficult in the time scale of the renewal. The MSC team worked hard to bring the records up to date.

Research into appropriate environmental control and conservation measures also proved more time consuming than expected.

The renewal of the gallery taught me a great deal about the organisation of such a project. Even more it demonstrated the skills and hardworking nature of those who worked on all aspects of the gallery.

References

1. A. G. Millward and S. Cross, forthcoming paper in Museums Journal.
2. C. V. Horie, Solar Control Films for reducing light levels in buildings with daylight, pp.49-54 in Conservation within Historic Buildings, ed. N.S. Bromelle, G. Thomson and P. Smith, IIC 1980.
3. R. L. Feller, Further Studies on the international blue wool standards for exposure to light, paper 78/10/2, ICOM Committee for Conservation, 1978.
4. R. Thompson, Museum Climatology, Butterworths, 1978
5. Measured using on IRGA 30, non-dispersive infra-red gas detector for nitrous oxide, kindly loaned by the Architecture Department of the University.
6. Dust measurements kindly carried out by Dr. F.F. Cinkotai, Department of Occupational Health of the University.

Materials used:

Scotchint V30: 3M (UK) Ltd., 3M House, P O Box 1, Bracknell, Berks RG12 1JU.
Permaglass Raisin 113: Perma Blinds Ltd., Propect Row, Dudley, West Midlands DY2 8SE. A dark non-inflammable material.

Arbomast BR: Adshead Ratcliffe & Co. Ltd., Belper, Derby. A butyl mastic that is non-setting and has good ageing resistance.

PVC foam sealing strip: Inseal 5900 2.5mm thick, 5mm wide; DRG (UK) Ltd., Theobold St., Borehamwood, Herts. WD6 4SQ. Norseal V560. 3.2mm thick, 6.4mm wide; Norton Abrasives Ltd., Welwyn Garden City, Herts. AL7 1HZ. Inseal is a denser, stronger, PVC foam than the very light weight Norseal.

Trucolour 38: Philips Lighting, PO Box 298, City House, London Rd., Croydon CR9 3QR. Trucolour 37 giving a better colour rendering and UV emission was originally specified but became unavailable by the time of installation.

Morden T-12: The Morden Co., Lytham Rd., Heald Green, Cheshire SK8 3RG

Rentokil: Marine and Fumigation Division, Rentokil Ltd., Rentokil House, 248-252 Price Street, Birkenhead L41 3RA.

Draeger Safety, Draeger House, Sunnyside Rd., Chesham, Bucks HP5 2AR
Vapona: Temane Bees Ltd., Sealand, Chester CH1 6BA. Various sizes of strips were used depending on the size of case to be protected.

Genklene: ICI Ltd., Sunley Building, Piccadilly Plaza, Manchester M60 7JT.

IMS 74op: BP Chemicals Ltd., Devonshire House, Piccadilly, London W1X 6AY.

Synperonic N: ICI as above, supplied by F. W. Joel, Oldmedow Road, Hardwick Industrial Estate, King's Lynn, Norfolk PE30 4HH.

Cellofas B1500: Joel as above

Mowital B20H: Hoechst (UK) Ltd., Hoechst House, Salisbury Rd., Hounslow, Middx TW4 6JH.

HMG Waterproof Adhesive: Joel as above

Araldite AV100/HV100: Ciba-Geigy (UK) Ltd., Plastics Division, Cambridge CB2 6TA

Acrluite: Rubert & Co. Ltd., Station Rd, Theale, nr. Reading, Berks RG7 4AB

Devcon 5 Minute: Devcon Ltd., Station Road, Theale, nr. Reading, Berks BG7 4AB

Loctite 312, Loctite (UK) Ltd., Watchmead, Welwyn Garden City, Herts AL7 1JB

Butvar B98: Monsanto Ltd., 10-18 Victoria St., London SW1H ONG.



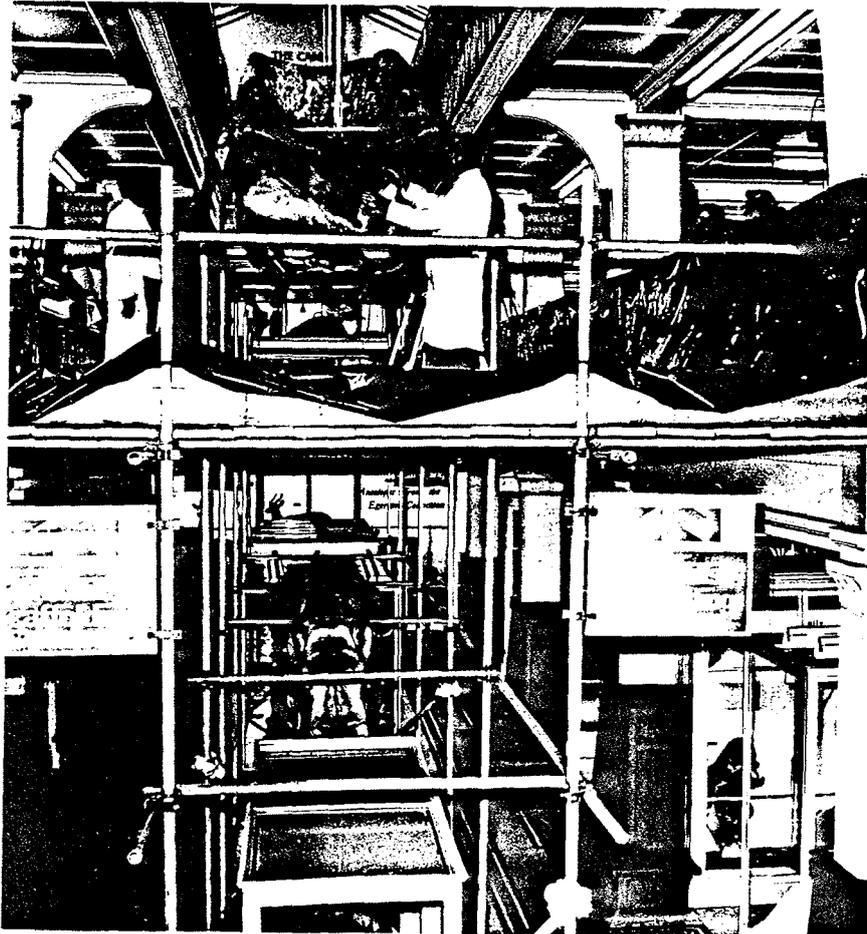
1;

External view of the natural science galleries after renovation. The three top floors make up the natural history galleries, the bird gallery being the middle of the three. The effects of the blinds are visible as is the obviously lower light level in the bird gallery.



2;

View of the galleries in the late nineteenth century showing arrangement of cases in bays between windows.



3;

Whale washing. Also visible is the fluorescent lighting used before the renovation.

A PEST CONTROL STRATEGY FOR INSECT COLLECTIONS

by

M.J.SCOBLE

Hope Entomological Collections, University Museum, Oxford

The aim of any pest control system for museums is to preserve the collections from attack by pests, and to use methods that are as safe as possible for staff working among them. There are presumably no pesticides that are entirely harmless to humans when used in large quantities, and ideally no pesticides should be used at all. In practice, pest control of collections should involve the use of as little pesticide as possible, the choice of the least toxic agent that can do the job, and an attempt to keep the effects of the pesticides chosen to a minimum. What I have to say below concerns collections of dried insects housed in storeboxes or in glass-topped drawers. The suggestions are ones that can be carried out without expensive equipment. They revolve around the prevention of infestation, and propose a way in which this can be combined with dealing with infestations if they occur.

The major pests of insect collections are the larvae of beetles belonging to the family Dermestidae, but mites can also cause trouble. There are others - notably fungi - but these will not be considered since they are relatively minor, at least in the United Kingdom.

PREVENTION

Physical. The first line of defence is cleanliness. Dust and debris provide an ideal milieu for dermestid larvae. (Proximity of collections to bird or mammal specimens, in which dermestids also feed, can be a problem.) However, even in the best kept collections trouble can arise, and perhaps the most effective barriers to pests are insect drawers with tightly fitting lids. If these can be housed in cabinets, or racks with doors, then so much the better. There is a need to check for cracks in the bases of insect drawers. Splits or widening of the joints provides access for pests. A well-constructed drawer of good quality materials will give the best protection to specimens. A further, and very important policy is to check the collection regularly for signs of pests. In the case of dermestid larvae, cast skins and dust

underneath specimens are the usual tell-tale signs. Regular inspection also acts as an estimate of the effectiveness of the control method. A number of drawers should be inspected each week if possible.

Chemical. The two pesticides used most frequently in insect collections are naphthalene and paradichlorobenzene. Of these only naphthalene was recommended for use in museum collections by Edwards et. al. (1980). Paradichlorobenzene (PDB) is being reviewed for registration for institutional use in America by the U.S. Environmental Protection Agency (EPA). Many curators no longer use PDB because they consider it a hazard to health. It is worth noting that naphthalene is a repellent; it does not kill dermestids. This means that it may discourage adult beetles from entering drawers to lay their eggs on specimens, but that once the eggs or larvae are there naphthalene may be of little use. Further information on naphthalene is given below.

Another chemical that is used in museums is Vapona (or dichlorvos or DDVP). The general availability of this substance, which is marketed as a polyvinylchloride strip impregnated with the pesticide, has caused much controversy. Its main use in insect collections is in drawers that are infested, but it can be used as a very effective preventative. The simplest and safest way of which I know has been developed by Dr. S. Endrödy-Younga of the Coleoptera section of the Transvaal Museum, Pretoria. A small block (about 1 cm²) is cut from a Vapona strip with a Stanley knife. (Use disposable gloves!) A pin is thrust through the block so that it can be pinned into a drawer. A collection can be systematically fumigated with a low concentration of Vapona by shifting a small number of blocks through it. A small block of Vapona is added to, say, each of a vertical row of drawers in a cabinet.

The blocks are left for a fortnight and then each piece is shifted to the next row. This is continued throughout the collection. For large collections one might put Vapona into more than one row (perhaps one at the beginning and one halfway through) or in one row to each room. The effective life of Vapona in a closed space with little air circulation is given as three to four months by Edwards et. al. (1980). Therefore new pieces should replace the old ones accordingly.

This method acts both as a preventative and as a cure. As a preventative it not only means that the drawers are fumigated systematically, but also that the collection is inspected regularly.

SOME COMMENTS ON NAPHTHALENE AND VAPONA

Naphthalene. Edwards et. al. (1980) list naphthalene as a pesticide 'recommended and registered for "museum use" ' (this is in the U.S.A.); but they note that its effectiveness is "questionable". Certainly we have found live dermestid larvae (Anthrenus) in drawers in the Hope Entomological Collections to which naphthalene had been added. Once eggs have been laid, naphthalene does not help; but the repellent effect on the adults is of value.

A problem with naphthalene is that it can recrystallize on specimens or on the lining of drawers.

The effects on health that have been noted are many and varied. Acute effects of naphthalene are experienced particularly by persons with a genetic predisposition to it. Chronic effects are given as dermatitis and skin allergies by Edwards et. al. (1980), and some of the acute effects listed by these authors are eye irritation, cataracts, haemolytic anaemia, jaundice, and acute kidney failure. The exact concentrations at which these effects were caused are not given. A further problem with naphthalene is that it is sold in various degrees of purity. Impurities in most commercially available naphthalene may be more hazardous than naphthalene itself. (Impurities are also left behind in drawers as a sooty deposit after naphthalene has sublimated.)

Vapona. Edwards et. al. list Vapona as a pesticide 'recommended and registered for use in "public buildings" and /or "institutions" '. They recommend its use in museums in 'storage or sealed display cases'. My experience of using Vapona is that it does kill dermestid larvae; and it is sold in a form that is particularly easy to use in insect drawers because the product can be cut, and blocks can be pinned into drawers.

One problem with Vapona is that it bleaches certain green moths after lengthy exposure. Another is that it exudes an oily substance that can collect on the glass lids of the drawers. For these reasons Vapona pieces should not be left for long in drawers. The desired effect seems to be achieved in a fortnight, and if the Vapona blocks are rotated the problems noted should not arise.

Vapona is implicated in adverse effects on the central nervous system. Acute effects range, on the mild side, from headaches, to unconsciousness and seizures in severe cases. Edwards et. al. (1980) give a list of chronic and acute effects. Effects depend on degree of exposure. Vapona has caused a great deal of controversy; therefore it should be used with caution. It should be handled only using disposable gloves, and the number of pieces should

be kept to a minimum.

OTHER PRECAUTIONS

In the Hope Entomological Collections there is a pesticide-free zone in the area where staff spend most of their time. Extractor fans are of great value in the ventilation of areas where pesticides are used.

SUMMARY

The scheme that follows summarizes one strategy in the protection of insect collections from dermestids:

PREVENTION

Physical: (i) keep collections, and areas in which they are housed, as well-dusted as possible.

(ii) store specimens in drawers with lids that have a good fit.

(iii) check collections regularly for signs of pests.

Chemical: (i) naphthalene is a repellent. It should be used with care.

(ii) Vapona (dichlorvos) kills insect pests; small quantities can be shifted through the collections. It should be used with great care.

PRECAUTIONS

Rubber, disposable gloves should be used when handling insecticides. Extractor fans assist ventilation.

REFERENCE

Edwards, S.R., Bell, B.M., and King, M.E. 1980. Pest control in museums: a status report (1980). The Association of Systematic Collections.

ACKNOWLEDGEMENTS

I thank Jocelyn Allard, Ivor Lansbury, and Christopher O'Toole for comments.

SOME THOUGHTS ON COLLECTING POLICIES

A review of British museological bibliographies reveals a surprising absence of debate on the question of collecting policies. Is this accident or design? Certainly I have had many discussions with colleagues about policies but few seem willing to formulate or publicise policies for their own institutions, though no one yet seems to have listed museums which have policies and those that do not. However, as more attention becomes focused on the role of museums and their relationship to each other the matter of policy, which has too often been avoided in the past, will come more and more to the fore. Here then are some comments from a self-confessed supporter of collecting policies which may (as the Editor hoped) provoke some debate in future issues of the newsletter.

A collecting policy is not simply a 'hit list' of specimens required to complete series. It should be a reasoned statement of the aims and functions of the museum or department and the type of material which it is necessary to collect in order to carry these out. Many institutions have still not sorted out the first of these let alone the second. What are they doing?

Provincial museums are not centres of taxonomic research nor are they rest homes for 'curators' who want some time to indulge their own interests. They should be places where details, i.e. specimens and data of the local flora and fauna are collected, collated, stored and made available. If the museum is well staffed it may be possible to initiate a field work programme. If the museum is small it is up to the curator to find out who is doing the fieldwork in his area, make contact and try to ensure that records and vouchers are preserved while at the same time extracting information from the collections which he already has in his care.

Museums have a responsibility to their community which they can best serve by the accumulation and presentation of facts (specimens and records) from their own area. If the curator wants to study the morphology of tropical butterflies let him visit the BM(NH) and not waste valuable time and money acquiring such material for his local museum. As for display, the local theme can be varied by the staging of temporary exhibitions involving exotic material if necessary. This can usually be found in the reserve collections of most museums and if not present it can be borrowed. What I would not advocate (as yet) on practical as well as political ground, is the reallocation of existing collections to other museums. This is fraught with difficulties.

Collecting policies are a must. If you haven't got one - beware! Sooner or later it will catch you out.

Policies are essential because a) they make the role of the institution clear to the public, the staff and (perhaps most importantly) to the people who hold the purse strings b) they make you think twice when you acquire items as to the type of acquisition you make. It's true that 'you cannot collect everything' - some people still try. Why? because they say a written policy restricts the exercise of your professional expertise and judgement. Fine - that is what it's meant to if you think that the only guidelines one needs when assessing an imminent donation or purchase are those carried in your head. What happens when you move or have a confrontation with a number 9 bus? All too often museums or their constituent departments have completely changed direction when a new member of staff has appeared. This is not good for the institution or the collections and a written policy can help to prevent it.

When formulating a policy think about the content of your policy statement - draft and redraft it until you feel that it is right - then try your best to get your elected members to accept it. It can be a useful tool when competing for resources. Roles once defined and accepted are easier to maintain. Some

councils have twigged to this and have not approved policy statements because they fear being bound to future financial/staff commitments. If this happens, keep trying - don't use it as an excuse to do nothing. If necessary operate it as a part of the internal management practice of the institution. Redraft the statement and keep any comments on staff size etc. for separate reports. Policy statements are about aims and guidelines not staff resources.

Finally make sure that your policy is known to all staff. Lodge copies with the Area Council, the Museum Association and neighbouring museums and don't forget that the M.A.'s draft Code of Conduct requires the curator to take "all possible steps" to produce an acquisition policy and, if a registration scheme for museums gets off the ground, written policies will be required from all museums wishing to register - with the possibility of 'no registration - no grants'!

Don't forget policies can be changed. Policy reviews can be built in (say) every 5 years and if a policy is seen to be to the detriment of a department it can and should be amended.

So, if you have not yet drafted your collecting policy get on with it. If you think its not important, I think that history will prove you wrong.

Michael A Taylor
Keeper of Natural Sciences
Perth Museum and Art Gallery

The History of Provincial Museums

Many of the national museums have had their histories written, but the history of provincial museums and their collections has been almost ignored.

Stuart Davis of the Local History Department at Birmingham and I are interested in holding a one-day seminar on the subject in Birmingham in the early part of 1984. I should be interested to hear from anyone

a) who would like to attend (no deep commitment necessary at this stage)

and

b) feels they could contribute a talk on some aspect of the history of provincial museums and their collections. We would also be interested in brief reports on work in progress.

Gail Durbin
Education Officer
Castle Museum
Norwich
NR1 3JU

Bird Egg Displays - Comments

The point in the editorial of vol.3 part 4 about the display of birds' eggs is well taken. I feel, however, that there can be no case for 'hiding away' eggs. If the museum's job is, at least partly, education, then the fact is that birds lay eggs. No one (I hope) would argue that our displays should ignore this integral part of bird biology, why, therefore, should we ignore the museum's most powerful educational tool; 'the real thing'? Surely it is part of our job to educate, also, about the need for conservation, and the laws which are involved. If seeing eggs in museums inspires a person to go out and collect, then museums are failing. The function of museum displays, in any discipline, should not merely be the communication of information but, also, the communication of enthusiasm and excitement. The public should feel that the person/people responsible for a display actually felt that the display and its contents were worthwhile.

It is also surely another case of 'if people want to do it they will'. There will always be egg collectors, no matter what the penalty. It is rather like badger baiting; those that do it know what they are doing, where the badgers are, the chances of prosecution (slim) etc. This does not mean that seeing the horribly mutilated body of a badger would make people suddenly want to go out and join the carnage. If the threats to birds from egg-collecting are made known we are more likely to win public support than stimulate a whole new generation of collectors.

Another, possibly egotistic, argument could be used: namely that if eggs are on display in a museum then they are always available for inspection by everyone, including the inquisitive child, for instance. If he/she knows that the eggs can always be seen, then there is less temptation to start ones own collection.

Just out of interest, I am organising a small temporary exhibition this summer entitled 'Living with Wildlife'. The purpose of this is to show the public what protection is afforded to wildlife, both, through legislation, and through the work of voluntary conservation bodies locally. This will obviously include consideration of why such protection is necessary. I plan to include a display of birds' eggs to illustrate this. Apart from the current local implications of the Wildlife and Countryside Act (i.e. West Sedgemoor, Tadham and Tealham Moors) the idea was inspired by a couple of instances of small children bringing eggs they had found to the Museum. We do not have a display of eggs.

In conclusion, I think I have outlined some positive arguments against the 'censorship' of egg displays. There is one negative argument: if we take the view that egg displays might encourage egg collecting, could it not, also, be said that displays of mounted birds and mammals might encourage people to go out and shoot or trap them? Photographs of schedule 1 birds might inspire people to go out and photograph them at the nest. Maybe, if we are to take this attitude, natural history displays should be terminated, altogether? I think not.

Who are we to decide that the public cannot be trusted with knowledge of natural history? It is up to us to help everyone enjoy their natural surroundings. This enjoyment will, in turn, cultivate a respect and concern which will be far more effective protection for wildlife than any amount of prohibitive legislation (or, indeed, any amount of concealing of egg collections!). Again, I would say that the museum's most powerful display tool is 'the real thing'.

Alec Coles

Asst. Curator, Woodspring Museum, Weston-Super-Mare.

BOOK REVIEW

WORLD PALAEOLOGICAL COLLECTIONS
by R. J. Cleevely
1983: BM(NH) and Mansell, London, 365pp.
Price £50.00

BOOK NEWS AND REVIEWS



There has not been a book quite like this one before. A comparable work is Desmond's Dictionary of British and Irish botanists and horticulturalists although obviously the scope and emphasis are different. Whereas Desmond attacks the biographical/bibliographical nightmare purely as a biographical exercise (although much information on the location of collections is included), Cleevely is cataloguing the location of collections using the collectors' names as the retrieval point. Here, the similarity to the work of the British regional Collection Research Units becomes apparent. This publication is restricted though, to geological material on the one hand and unlimited by the geographical location of the institutions on the other.

Another comparison can be made with the recently published Natural History Manuscript Resources in the British Isles by Gavin Bridson, et. al. (reviewed in B.C.G. Newsletter, 2(10); pp.464-5), especially because the publishers, Mansell, have been involved with both books. This enables one to compare prices between the two ventures. "Manuscript Resources" a demy quarto 473 page book costs £97. "World Palaeontological Collections" is in the larger (A4) page size and uses smaller type face (10pt as opposed to 11pt). With more lines to a page the cost works out at almost exactly half that of the former and is more in line with the price of general reference works. If this is the result of jointly publishing with the Natural History Museum then they are to be congratulated in bringing the book within reasonable reach of the intended market.

Surely the first thing that everybody does with such a compendium is to turn to the entries relating to their own institution. Unless one has an infallible memory, or a small collection, the technique is to look in the institutional index which gives a cross reference to the individual collectors responsible for each collection entity. As a sampling method I have used it to assess the accuracy and comprehensiveness of an average entry. Typographical errors are perhaps to be expected in a work of this size and complexity, the problem obviously being in the onerous task of proof-reading. These are not excessive or likely to lead to misunderstanding. The most obvious anomaly which is immediately apparent is the arbitrary inclusion of mineralogical collections. Ron Cleevely states in his introduction that minerals are included, as indeed they are, whereas purely petrological collections are not. It is quite obvious, though, that the collections in the Register of Natural Science Collections in North West England indexed in that source as exclusively minerals are not all given entries. This leads to the rather odd reference to J. Frederick Neck, for example, credited for recent mollusca but not for his minerals, for which he is perhaps more relevant to the present work.

The introduction to the book is basically a statement on the method used and an honest assessment of the shortcomings of the compilation. The ambitious nature of the project means that although the amazing volume of entries is known to be incomplete, one can only admire the work in getting it to a state where it is worth publishing. (I cannot find an indication of the total number of entries and have estimated it as 4,900).

The aim now is to gather in additions, corrections and new entries and especially to cover certain parts of the world which are at present under-represented. A network of correspondents could conceivably fill this gap for the future. The fascination of this catalogue is as in a comprehensive dictionary. Whichever entry is examined, the ones next to it suddenly become more interesting. As an example, one could ask which named collections Professor J. F. Blake curated while in India (an enigmatic reference to which is in Natural Science, 6; p.67). Apparently he went to work with the collection of the Gaekwar of Baroda. As Baroda Museum is not in this catalogue, the challenge is there to find out more about it. Baroda has (or had) collections of "local and Indian rocks, minerals, fossils and casts of fossils" according to Howarth and Platnauer's Directory of Museums (1911). On the subject of Indian Museums, Cleavelly has information on two institutions there, The Indian Museum and the Geological Survey of India. Kenneth Hudson and Ann Nicholl's Directory of Museums (1975) lists 25 in that country as claiming to possess at least some geological material. (Even this modern listing of museums of the world is quite incomplete and badly cross-indexed as a cursory glance at the section on British Museums shows). We clearly have a long way to go. I use the "we" deliberately. It is up to the curatorial profession collectively to ensure that these ventures eventually become complete, and are then updated. Surely nobody can expect one man to do all this work unaided.

The layout of the book is straightforward. The introduction is followed by three sections. They all make interesting and relevant reading on the "History of Earlier Guides to Geological Collections", "History of Fossil Collecting" and "Reasons for compiling this index". The basic research interest of Ron Cleavelly is in the mollusca. This is reflected in many of the examples used. One of the problems lies in the bibliography. There are eighteen pages of references but these are divided into the appropriate subject areas. However, these do not always correspond with the text and so one searches through several lists before arriving at the correct source. Indeed, one of the references, at least, is not in the bibliography. This refers to the supposedly apocryphal story (under the section on Fossil Collecting and Collections) recounted by Sowerby of Buckland's experiences while collecting a large ammonite. This is reproduced here because of the amusing nature of the account. The full reference is Sowerby, J. (1816) The Mineral Conchology of Great Britain etc., Volume 2 (part 23), p.69 (not 1818 as given in the text).

A reviewer, naturally, is always delighted to pounce on errors or omissions. Being very conscious of such occurrences in my own work with the North West Collection Research Unit this would be a case of stones versus glass houses. However, in the opinion that these should be brought to the attention of the compiler in order to facilitate an update, in the event of a second edition, a few noticed are as follows:

Abbot, W. J. L.

The gemmological material in the Wellcome Museum has been transferred to Merseyside County Museum.

Bullock, William.

I believe that some of Bullock's minerals are in the Hunterian Museum, Glasgow.

Wood, G. W.

The collection (which appears to have been lost) was at Stand Grammar School, Manchester, not Manchester Grammar School. Let's hope it turns up somewhere!

AMMONITES Bucklandi.

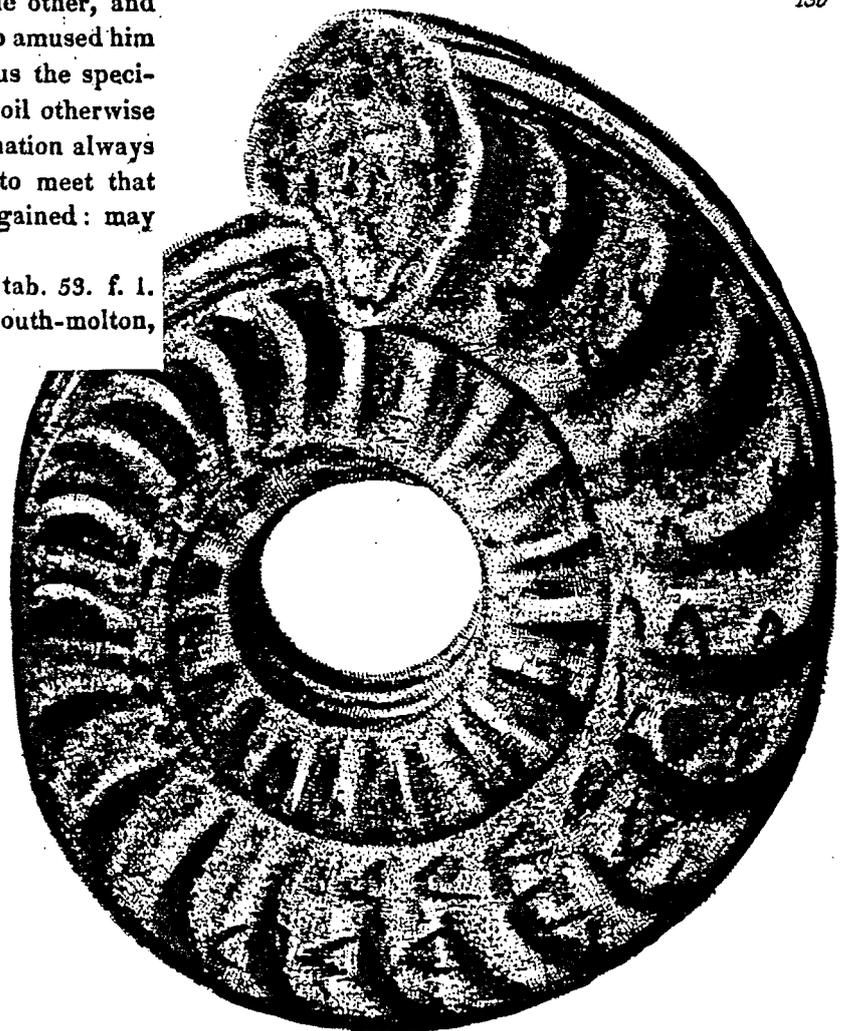
TAB. CXXX.

SPEC. CHAR. Depressed, inner volutions exposed, with large obtuse radii; back carinated, and a furrow on each side of the keel; aperture quadrate.

VOLUTIONS about five, their sides wholly exposed, the back flattish, with two concentric grooves, and an intermediate keel; the radii are swelled towards the back, over which they are suddenly reflected, and gradually lost, as in several other carinated Ammonites; the keel is obtuse and entire.

Found in the Blue Lias of Bath and the neighbourhood, measuring from a foot to 21 inches or more in diameter, and rather remarkable for having frequently lost the inner whorls; which circumstance, by a sort of friendly pun, has given rise to the name given it, in honour of a meritorious and enlightened Geologist, the Rev. W. Buckland, who having found a large specimen, was induced by his ardour to carry it himself, although of considerable weight, and being on horseback it was not the less inconvenient; but the inner whorls being gone so as to allow his head and shoulder to pass through, he placed it as a French horn is sometimes carried, above one shoulder and under the other, and thus rode with his friendly companions, who amused him by dubbing him an *Ammon Knight*; and thus the specimen was secured, by diverting the tedious toil otherwise hardly to be borne. May his zeal for information always be rewarded: may his abilities continue to meet that attention they have hitherto so deservedly gained: may his horn be exalted with honour.

Mr. B. lately found *Ammonites striatus*, tab. 59. f. 1. in the transition slate of Filliagh, near South-molton, Devonshire.



Brocklehurst, Marianne
Jurassic brachiopods, Cheshire County Museum Service

Greg, Robert Phillips
Meteorites from 223 falls purchased from him by
Dr. Oldham in 1865 (Geological Museum, Calcutta)

Blackstock, William	} Mineral entries not included (from N.W.C.R.U. data)
Bright, J. A.	
Brown, (Prof.) Campbell	
Caine, Caesar	
Stanley, Edward Smith (13th Earl of Derby)	
French (Mrs.) I.M.M.	
Echwige & Reed	
Kerr, (Dr.) James	
Lagh, Thomas	
Robinson, Bethel	

Having not actually read every entry in the index, there will be other additions which I will communicate to Ron Clevely directly. The "Reasons for compiling" are obvious and should touch a chord in every curator. Perhaps the best justification is contained in a quote from J. W. Mighels after he suffered fire damage to his collection. The "money and books... and goods... and buildings... can be replaced but collections, I fear, never!" (Unfortunately, the details of this event are not known to me and I cannot find a reference to it in the bibliography).

In the field of palaeontology, there are certain parameters which do not apply to living organisms. Whereas modern-day species can be extinguished permanently, fossil remains can be temporarily lost for environmental reasons. The effect is basically the same. The result is that to consult the characters of a species, recourse must be made to the preserved material in museums. One of the prime driving forces in producing this index is therefore to provide the researcher with the means of gaining access to the specimen. As a schoolboy I spent a large proportion of my spare time fossil hunting in the vicinity of Ulverston (Cumbria). The exposures to the north were of Silurian rocks, especially a quarry exposed c.1796 in order to build the canal nearby. I had always assumed that these particular facies were non-fossiliferous. It was only later that I realised that John Bolton (1791-1873) had collected what he could find there and geologists from the Survey had got the rest. Only dynamite or the passage of millenia will allow the collecting of more examples. The researcher obviously has to locate extant material from each area in which he is interested. This is where the World Palaeontological Collections comes into its own. I now know that some of John Bolton's material is in South Kensington; that the I.G.S. is the place to go. In fact, a specimen of the fossil bivalve Cardiola interrupta is exhibited in the Geological Museum's display on "British Geology" from the very quarry that I climbed over as a youngster.

Another interesting entry relates to John Ruskin's collections. Basically, as a man of artistic and literary bent, his collections are not scientifically of great interest. He said of himself that he "knew more of scenery than most geologists and more about geology than most artists". However, despite this ambiguous position he amassed a lot of geological material. The situation at Coniston is that parts of Ruskin's collections are still preserved at both the museum in Coniston (The Ruskin Museum) and at Brantwood (Ruskin's home) a point over which much confusion has arisen in the past. Also, if some of his material is not now in Kirkcudbright, where is it now? Another trail to follow for the enthusiastic collection researcher.

Quite obviously, this is a book without which the library of any geology or general natural history department in a museum would be incomplete. Ron Cleevely has done a magnificent job in compiling the entries from disparate sources. His perseverance in this task has at last come to fruition much to the gratification of the many people who have encouraged him, as well as to himself. Buy it! What is more important, buy it and then send in all the additional data which you have not been communicating. The goal of cataloguing the whereabouts of all natural history collections is, I believe, achievable. This book meets one of the aspects more than half of the way.

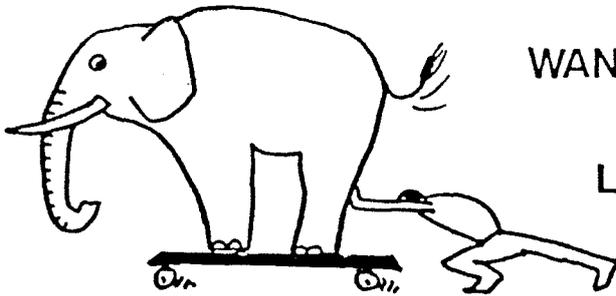
E. G. Hancock.

World Directory of Palaeontological Collections.
Notice to Institutions in the British Isles and
Scandinavia.

As a means of providing a world-wide specimen data base for palaeontological research, the International Palaeontological Association is compiling a World Directory of Palaeontological Collections. In general, the aim is to collate information on those institutions that hold significant collections of fossils, particularly type material. Regional coordinators are responsible for distributing questionnaires within various parts of the world. For the British Isles and Scandinavia the coordinator is Dr M.G. Bassett (Dept. of Geology, National Museum of Wales, Cardiff CF1 3NP) who is currently distributing questionnaires to all known institutions in the region. It is possible that a few institutions holding significant collections have been overlooked; if any such organisation has not received a questionnaire by the end of April 1983, they are invited to contact Dr Bassett for information.

For other parts of the world, information can be obtained directly from the Convenor of the Committee, Dr B.D. Webby, Dept. of Geology and Geophysics, University of Sydney, NSW 2006, Australia.

STOP PRESS!! The Palaeontological Association Circular No. 112 (April, 1983) has just arrived with the notice above. This apparent duplication may be avoided by a network of coordinators as already proposed in this review in order to cover the countries which are at present under-recorded. The different perspective of a convenor based in Australia may also help to counteract our western approach. The only problem lies in the confusing similarity in title which may be counterproductive when it comes to marketing the product.



WANTS, EXCHANGES,

LOST & FOUND



Dear Sir or Madam,

I trust this letter is not too much out of turn. For the past fifteen years I have been researching into the natural history of the English freshwater crayfish, and am currently attempting to gather together all records of its occurrence throughout Great Britain. It would be most helpful and kind if you could let me know of any records of crayfish kept in your natural history collections.

Many thanks in anticipation.

Yours sincerely,

Wyn Thomas,
Lecturer in Zoology,
Goldsmiths' College,
University of London,
New Cross,
London.
SE14 6NW

Species Recording Cards.

Once again, many thanks to all members for examples of species recording cards and general information about species recording at local B.R.C.'s. It seems that techniques, cards and maps vary quite considerably to suit local needs and hopefully there should be something in the review article to interest all of us. Trouble is, Steve reckons there isn't enough room in the current issue for the article, so it should appear next time. Meanwhile, there is still an opportunity for more contributions, so don't miss the boat!

Derek Whiteley

TICKS WANTED

K. P. Martyn is presently compiling distribution data on ticks for the Biological Records Centre, Monks Wood. He has asked if it would be possible for members of B.C.G. to send records or specimens, to be included in his data. (All specimens would be returned.)

Contact: K. P. Martyn, Arachnida & Myriapoda Section, Dept. of Zoology, British Museum (Natural History), Cromwell Road, London SW7 5BD.

FREE FORMALIN

Recent advice from the National Union of Teachers has resulted in a number of schools in South Yorkshire discarding what appears to be perfectly good quality formalin. South Yorkshire County Council, through the operation of its chemical collection service, has been involved in the disposal of this chemical. The Council's policy is to recycle waste materials wherever possible and is therefore willing to offer the formalin it collects free, to any non-commercial body i.e. Museum, University etc. specially within South Yorkshire, which is willing to arrange the transportation. The quantities involved are small i.e. 1-10 litres and it arrives intermittently. However, the approaching school holidays may result in an increase in the amount collected.

Anyone interested in receiving some formalin (the quality of which cannot be guaranteed, but that which is obviously contaminated or defective will not be included) should contact my colleague S. Stonbra 0226 41484 Ext. 3080, or write, for his attention, to the Chief Environment Office, Environment Department, County Offices, County Way, Barnsley, South Yorkshire.

Peter Lingwood

Museum Association Conference Swansea 1983
Specialist Groups Meetings - Tuesday 20th September

Dr. Michael Isaac, of the University College of Swansea and Royal Institution of South Wales Museum, has arranged the following informal programme for BCG members attending the 1983 Museums Association Conference at Swansea.

- 11.00 Assemble at the University College of Swansea and Royal Institution of South Wales Museum, Victoria Road for COFFEE
- 11.30 - 12.30 Visit displays at the above Museum
- 12.30 - 2.00 Lunch on the campus
- 3.00 - 4.00 Visit campus museums. Reconvene at 2.00pm at the Zoology Department Museum, Ground Floor, East Wing of the Natural Science building (East). Dr. Isaac will lead a tour of the Zoology and Geology Museum, Herbarium, Marine Aquarium and Botanic Gardens (with snake pit!)

Contact Dr. M. Isaac (address as above) tel. 0792 53763.

* * * * *

Don't delay - book NOW for the

HARRISON ZOOLOGICAL MUSEUM VISIT ON 25TH JUNE

There are still some places available for the BCG visit to the Harrison Zoological Museum in Sevenoaks, Kent. (See your last newsletter for full details). This is a rare opportunity to visit an important private zoological Museum, and BCG were very pleased to receive Dr. Harrison's invitation to the Museum and Wildfowl Reserve founded by members of his family.

So check your diaries and then send £1.10 (for lunch) to Penny Wheatcroft, who will also attempt to coordinate transport. Booking should be completed by 20th June 1983 - telephone reservations accepted.

Contact: Penny Wheatcroft
Keeper of Natural History
London Road
Forest Hill
London SE23 3PQ

Tel: 01 699 2339.

BIOLOGY CURATORS' GROUP - OFFICERS AND COMMITTEE 1982/3

Chairman

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

Secretary

Penny Wheatcroft
Horniman Museum
London Road
Forest Hill
London SE23 3PQ
01-699-1872/2339/4911

Editor

Steve Garland
Sheffield City Museum
Weston Park
Sheffield S10 2TP
0742-27226

Treasurer/
Membership Secretary

John Mathias
Leicestershire Museums
96 New Walk
Leicester LE1 6TD
0533-554100

Museums Association
Liaison Officer

Charles Steel
Booth Museum of
Natural History
194 Dyke Road
Brighton BN1 5AA
0273-552586

Production Editor

Geoff Hancock
Bolton Museum
Le Mans Crescent
Bolton BL1 1SA
0204-22311 extn. 361

Committee Members

Martin Brendell
British Museum (NH)
Cromwell Road
London SW7 5BD
01-589-6323 extn. 332

Charles Copp
City of Bristol
Museum
Queens Road
Bristol BS8 1RL
0272-299771

Rosina Down
Museum of Zoology &
Comparative Anatomy
Dept. of Zoology
University College
Gower Street
London WC1E 6BT

Geoff Halfpenny
City Museum
Broad Street
Hanley
Stoke-on-Trent
ST1 4HY
0782-29611

Peter Lambley
Norfolk Museums
Service
Castle Museum
Norwich NR1 3JU
0603-611277

Howard Mendel
The Museum
High Street
Ipswich IP1 3QH
0473-213761

Peter Morgan
National Museum of
Wales
Cardiff CF1 3NP
0222-26241

Co-opted Members

Bari Logan
Royal College of
Surgeons
Lincoln's Inn Fields
London WC2A 3PN
01-405-3474
(Guild of
Taxidermists)

James Bateman
County Museum
Fletchers House
Woodstock OX7 1SN
0993-811436
(Museums Association)

Peter Davis
Hancock Museum
Barras Bridge
Newcastle upon Tyne
NE2 4PT
0632-322359

The aims of the Biology Curator's Group are:

- (i) to facilitate the exchange of information between individuals concerned with the management of biological collections and records, their research, conservation and interpretation.
- (ii) to present the view of curators of biological collections.

Copy dates for future issues based on three copies per year:

31 August for October issue

31 December for February issue

30 April for June issue

Editorial - a mini editorial to save space. Many thanks to all our contributors, especially Geoff Halfpenny and Don Steward who have worked hard to produce an excellent account of Stoke-on-Trent Museum, Natural History Department, as our "Featured Institution". Our frantic cries have produced responses from several members and we publish several very interesting short papers concerning various topics. All these have helped in the production of the biggest BCG Newsletter ever (I think)! However, we still need more copy for the next one; or even ideas to follow up.

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

© Biology Curators' Group

Back Numbers: Contact the Editor for details of cost and availability.

Advertising Rates: Full Page £25.00
Half Page £14.00
Insert £15.00

Subscriptions for 1983 are £4.00 for individual membership and £7.00 for institutional and overseas members.