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GCG

THE GEOLOGICAL CURATOR

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GCG INITIATES LABEL REGISTER

GEOLOGICAL CURATORS GROUP

(affiliated to the Geological Society of London)

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National Museum of Wales,
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0222-397951

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THE GEOLOGICAL CURATOR

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Articles should be sent to the editor typed and, if possible, camera ready to the A4 format we use as this may help expedite publication.

COLLECTIONS AND INFORMATION LOST AND FOUND.

All items relating to this section in the Geological Curator should be sent to:

Dr. Hugh S. Torrens, Geology Dept., University of Keele, Keele, Staffs. ST5 5BG. Tel. 0782-621111 Ext. 493.

INFORMATION SERIES ON FOSSIL COLLECTION LABELS

All enquiries and items should be sent to:

Ron. Cleevely, British Museum (Natural History), Cromwell Road, London SW7 5BD. Tel. No. 01-589-6323 ext. 418.

NOTES AND NEWS

All items relating to this section should be sent to Tony Cross, Curtis Museum, High Street, Alton, Hants GU34 1BA.

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Typed by Sylvia Robson, Tyne & Wear County Council Museums.

THE GEOLOGICAL CURATOR
Volume 3, No. 2 & 3, November 1981

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EDITORIAL

EDITORS APOLOGY

The editor apologises for the fact that the last two of the three parts of the Geological Curator for 1981 have been published as a joint issue. It is NOT intended for this to become standard practice but is the result of a number of editorial problems which have arisen during the year. Contributors could help the editor considerably by ensuring that copy for a given issue is submitted well before the final deadline.

EDITORIAL

The cover of this issue of the Geological Curator advertises the launch of an important new information series devoted to old geological specimen labels. The immense value of such labels as a tool in geological and museological research is unquestionable. Elsewhere in this issue Ron Cleevely, who is the project co-ordinator, discusses the aims and describes how the series will work.

CORES FOR CONCERN!

Hugh Torrens recently drew my attention to a paper by Warrington and Scrivener (1980) which highlights the great importance of borehole cores in museum collections. They describe the Lyme Regis Borehole (drilled in 1901) the only one in Devon and Dorset from which a substantial quantity of Triassic rock cores have survived. These cores proved to be of crucial importance as they not only provided the authors with a lithological record of the succession but some of them were also suitable for palynological research thereby allowing a further refinement to be made to the Triassic stratigraphy of the region. The cores had been preserved in the geological collections of the Exeter, Taunton and Torquay Museums.

Although there is little data on the distribution of borehole cores in museum collections, there is little doubt that they probably rate amongst the most neglected of all geological specimens. They are typically heavy, bulky and unattractive objects (particularly when covered with dust and grime) which are extremely difficult to store. There probably have been many occasions when such material has been discarded by Curators desperate to conserve precious storage space for seemingly more valuable objects. However, as shown by the case cited above, borehole cores can be a vitally important resource in providing a unique record of subsurface geology. When the astronomical cost of drilling a borehole is considered the resulting cores can truly be regarded as almost worth their weight in gold. Furthermore it can be shown that far from being unattractive objects it is possible, by using simple preparation techniques (see elsewhere in this issue), to transform some of the most uninteresting looking cores into extremely attractive display specimens, yielding a wealth of geological information.

Reference.

WARRINGTON, G. and SCRIVENER, R.C. 1980.
The Lyme Regis (1901). Borehole succession and its relationship to the Trias: sequence of the east Devon Coast. Proc. Ussher, Soc., 5, 24-32

LOST AND NOT YET FOUND !

The editor very much regrets the non appearance of Lost and Found in this issue of the Geological Curator, Hugh Torrens, as usual, put a lot of hard work in compiling the Lost and Found section before committing it to the tender mercies of the Post Office. They, unfortunately LOST it and so far it has not been FOUND. In future the contributions will be xeroxed before being posted. In the meantime we would be most grateful if all contributors for this issue could repeat their contributions and send them to Hugh so that they can be published in the next issue.
N.B. The editor has suggested to the G.P.O. that they initiate their own edition of LOST and FOUND for misdirected and mislaid postal items!

"I'm into stone. There's a hell of a lot of it around."

LETTER TO THE EDITOR

6 July 1981

Dear Sir,

I believe there is a great deal of truth in your editorial of April 1981, when you suggest that we, as geological curators, are largely responsible for our 'fossilized public image'. As you say many basic geological concepts are complex and difficult to interpret in a museum display, but I think that what has been forgotten over the past few decades is that the public find an intense fascination in fossils and the very simplest facts surrounding them; i.e. how old?, and how did it form? In the field of public relations we have allied ourselves with the biologists, when, to the public, our subject has much more in common with archaeology.

Even to the most disinterested person, biology forces itself on him without any effort from the professionals. It provides his food and drink, still often in recognisable form. It decorates his home and office, splatters his arm chirps on his windowledge, and bites him on warm summer evenings.

Geology and archaeology, on the other hand, are hidden, secret subjects. It is this that gives them their fascination, but it means that we must push the subject every inch of the way to bring it to the attention of the public. In the last few years archaeologists have become adept at public relations. They know that Viking, with its romantic association of rape and pillage, is much better than Dark Ages, all mud huts and decay. Every excavation is the biggest or the smallest; will provide unique information without which the human race will for ever be immeasurably impoverished; is a race against time, weather and the developers; and is worthy of a Chronicle programme of its own.

The same rules apply to geology. The local press are far more interested in our latest accession or display if we point out that it is the first, or the oldest, or the hundredth anniversary of something or the other, and they will happily publish a picture of the fossil, providing the picture also includes a human face, preferably young, female and attractive. Despite this, response to these newspaper paragraphs seems to indicate that our message does get through.

I would like to suggest that we organise a positive publicity drive to highlight geology in museums. How about a National Dinosaur Week, during which every museum with geological material could display even the vaguest dinosaur objects ("These ammonites lived in the sea while the dinosaurs roamed the land") plus pictures, models, etc. of the beasts. A national paint or make a dinosaur contest could be arranged in local heats, with a selection of the best from each museum going on to the national judging, perhaps on Blue Peter, or on a Sunday Colour Supplement. I am sure it would not be difficult to interest such bodies in the idea, and local sponsorship may also be forthcoming. Publicity in local papers would be guaranteed for a subject such as this, and teachers would also involve their children.

Recent TV programmes such as 'Life on Earth' and 'The Making of Mankind', with their use of fossil material, have drawn a response from members of our public

- and even County Hall management - which suggests that the time may be well ripe for a programme or two devoted to fossils in their own right.

In the last hundred years natural history has come full circle, and the burning scientific topic is again evolution. Our subject - palaeontology - is central to this argument. The bandwagon is rolling right past us, so why don't we jump on?

Yours sincerely,

Barbara J. Pyrah
Keeper of Geology,
Yorkshire Museum,
Museum Gardens,
York.

FORTHCOMING MEETINGS

ANNUAL GENERAL MEETING 8 DECEMBER 1981

This will be held in the Department of Geological Sciences, University of Birmingham to mark the department's Centenary year.

Further information from Dr. Isles Strachan (021-472-1301)

PROGRAMME.

11.00	Coffee
11.15	The Department of Geological Sciences and its Collections. An introductory talk followed by a tour of the collections and the Centenary Exhibition.
12.45	Lunch.
14.00	Stone Axes and Geology; a talk by Emeritus Professor F.W. Shotton.
14.45	Curation of sub-fossils: problems of bones and beetles. P.J. Osborne (Curator Department of Geological Sciences).
15.30	Tea.
15.45	Annual General Meeting.
16.30	Session ends.

NOMINATIONS FOR OFFICERS & COMMITTEE

There are two vacancies on the Committee. Members are reminded that written nominations should be sent to the secretary (Geoff Tresise) no later than 17 November. As far as is known, all the present officers are prepared to continue to serve but any alternative nominations must reach the secretary by the same date.

Geoff Tresise,
Group Secretary,
Merseyside County Museum.
Liverpool, L3 8EN.

PROVISIONAL PROGRAMME 1982

Friday, 23 April	Museum & Art Gallery, Stoke on Trent. 'Geological Display in the 1980's' (SEE BELOW)
Local Secretaries:	Geoff Halfpenny & Don Steward (0782-29611)
Friday, 4 June	Geological Museum, London Mineral Identification Workshop (SEE NOTE BELOW)
Local Secretary:	Alan Jobbins (01-589-3444)
8 & 9 September	British Museum (Nat. Hist.) & Geological Society 'Vertebrate Palaeontology: History of Collection & Curation' Joint meeting with Palaeontological Assn.
Local Secretary:	Ron Cleevely (01-589-6323)
Early December	University Museum, Oxford Annual General Meeting.
Local Secretary	Philip Powell (0865-57467)

GEOLOGICAL EXHIBITIONS FOR THE MID 80s

Geological Curators' Group Meeting Friday, 23rd April, 1982
at the City Museum & Art Gallery, Bethesda Street, Hanley, Stoke-on-Trent.

The meeting will discuss aspects of the developments in geological displays, their costs, and how these can be overcome. Emphasis will be placed on travelling exhibitions.

The latter part of the meeting will give an opportunity to see the new arrangements at Stoke Museum.

Programme

10.15	Assembly and refreshments (available at the Museum Cafeteria)
10.45	Introduction and opening by the Chairman - Dr. Philip Doughty (Ulster Museum)
11.30	Andrew Millward (Manchester Museum)
12.00	Giles Velarde (Geological Museum)
12.30	David Downe (West Midlands Area Service)
1.00	Lunch (a list of eating places will be available)
1.50	Discussion on the morning programme lead by Dr. Hugh Torrens (Keele University)
2.30	Introduction to Stoke Museum by Mr. Arnold Mountford (Director)
2.45	Geoff Halfpenny (Keeper of Natural History)
3.10	Tea (available at the Museum Cafeteria)
3.30	Visit to the Natural History stores and gallery
4.30 approx.	Meeting ends.

To save the G.C.G. money, delegates will be expected to pay for their own drinks/meals at standard prices, there is, however, no registration fee.

If anyone wishes to attend could they please contact:-

Don Steward,
(GCG Local Secretary, Assistant Keeper of Natural History).

INTRODUCTORY MINERAL WORKSHOP

This will be a one-day course (10.00 to 17.00) designed to familiarize museum staff with minerals and other objects such as 'meteorites', slags, flints, gemstones, pebbles, crystals, hand specimens of rocks etc. It is designed especially for those with limited geological expertise.

The mineral workshop announced for June 1981 had to be cancelled through lack of support. This may well have been due to the fact that members were given very little advance warning, for which we apologise. However to ensure that there is sufficient demand for such a workshop before Alan Jobbins and his colleagues commit themselves to new arrangements, would you complete the slip below if you hope to attend.

Please return as soon as possible, numbers are limited to 20.

.....

I am interested in attending the Mineral Workshop (June 1982)

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Museum:

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GCG/MDA WORKSHOP ON GEOLOGY DOCUMENTATION
report by Andrew Roberts

This joint Geological Curator's Group/Museum Documentation Association meeting was convened to discuss use of the MDS geology specimen card and other approaches to the documentation of geological specimens. It was prompted by an interest in assessing current documentation procedures, raised during the GCG meeting at Leeds in June 1980 (MDA Information, 4 (5), September 1980, 28-31 and Geological Curator 3 (1), April 1981, 14-17) and by the success of a similar meeting of mineralogists in November 1980 (MDA Information, 4 (8) January 1981, 55 and Geological Curator, 3 (1) April 1981, 10-13).

Andrew Roberts opened the meeting by describing the work of IRGMA and the MDA to develop natural science documentation procedures. He noted that the relevant facilities now available through the MDA included standards, recording cards and instructions and computing systems.

The standard for the natural sciences provided a definition of the appropriate recording catagories for specimen documentation, and the relationship between these categories.

The recording cards (including that for geology) were designed to hold a basic record of the available information about each specimen or group of specimens. They were supported by basic instructions guiding their use. They could be applied to form a numerical catalogue of a collection, and a number of manual or computerised cross-reference indexes.

The computing systems included an Object Application Package which was made up of a range of specifications for producing computerised catalogue and index displays.

He noted that it was now five years since the existing MDS record cards for the natural sciences were issued. It seemed appropriate to consider their design and effectiveness in the light of users experiences and to compare them with the recording practice in institutions where they had not been adopted.

The meeting held in November 1980 to review the use of the mineral specimen card has resulted in proposals for superficial changes to the card, and considerable interest in developing more rigorous recording conventions, producing agreed term lists, reducing recording options, etc.

A similar review could be made of the geology card and instructions, which might lead to a more professional and informative product.

Reference was also made to the willingness of the MDA to receive advice on the form of the Object Application Package. This already included an extensive range of index specifications, but could be further developed to more adequately encompass the requirements of the natural sciences. It could also include more sophisticated analytical procedures for manipulating information such as taxonomic names.

He concluded by suggesting that the system already has a sound basis, but that there had been a sad lack of active advancement or co-ordination in recent years. It was suggested that the practical comments of the previous mineral and the current geology meeting were noted for future action, and that analogous consultation were held with users of the natural history card. It was also proposed that consideration be given to the MDA convening a Standing

Committee for Natural Sciences Documentation to take an active part in co-ordinating future developments.

This might offer informed advice to the MDA on the development of its documentation systems, act as a further encouragement to curators to improve their documentation procedures and standards and provide a forum to spur major natural science collections to standardise their recording procedures.

Four users of the geology card then took up the opportunity to provide comments and criticism of its effectiveness.

Tim Pettigrew (Tyne and Wear County Museum Service, Sunderland) noted that Tyne and Wear had begun using the cards in 1977. A pilot computing project had forced them to realise the importance of recording consistency, and the need to standardise conventions. The agreed conventions were relatively simplistic, in keeping with the type of museum and collection being documented (see supplement to GCG Newsletter 2 (3), 1978).

June Roberts (City Museum, St. Albans) also referred to the St. Albans involvement in the computerisation of records. She was dealing with a backlog collection of 6000, of which 2000 palaeontology specimens had now been documented, and 1000 of these processed. She commented on the lack of outside assistance concerning the development of recording conventions, on the absence of some useful categories from the card (eg for previous identity number and associated material), on the presence of some relatively useless categories (Conditions, completeness and dimensions) and the serious limitations of having only one classified identification section.

Mick Stanley (Derby County and - formerly - Kington Upon Hull) commented on similar problems of lack of space in the identification section and the key importance of strict internal conventions. He had originally favoured the recording of higher taxonomic levels, but now felt these to be unnecessary. He agreed with the need for a second classified identification entry together with comprehensive guidance on its use. Strict control of place names and stratigraphic terms was felt to be important.

Alan Howell (Bolton) noted that he had been most involved with the use of the mineral specimen card, but endorsed the need for strict conventions. He felt that both descriptive terminology and stratigraphic terminology needed to be analysed and standardised on a national scale.

Andrew Roberts then summed up the morning's discussion by referring to the need for minor changes to the card design and significant improvement in recording guidelines.

In the afternoon, John Martin (Leicestershire Museum and Art Galleries Service) described the experience of Leicester in developing an independent online computing system. He outlined the manual system used by Leicester for 150 years, and the gradual change of these procedures towards a computer basis.

All departments in the museum had been encouraged to adopt a common recording format, and to develop recording conventions.

The final presentation by Howard Brunton (British Museum Natural History) briefly described the procedures adopted within the Department of palaentology at BMNH. He also raised a number of more general long term problems concerning the computerisation of documentation.

The meeting closed with agreement that the Geology card and recording conventions should be improved, and that the proposed standing committee might be an appropriate mechanism for co-ordinating these developments.

Andrew Roberts,
Museum Documentation Advisory Unit,
Imperial War Museum,
Duxford Airfield,
DUXFORD,
Cambridgeshire,
CB2 4QR.

Originally published in M.D.A. Information 5 No. 3, June 1981.

AN INTRODUCTION TO THE NEW INFORMATION SERIES ON OLD GEOLOGICAL COLLECTION LABELS

by R. J. Cleevely

INTRODUCTION.

When I first contemplated a revision of Sherborn's Where is the ** Collection ? it was hoped that many of the relevant collection labels would feature in the illustrations. In this way, the work would have become a valuable comparative reference tool similar to that produced for entomology by Horn and Kahls (1935-37). Unfortunately, the economic difficulties in publishing a large series of illustrations and the impracticability of accumulating the examples during the first revision compilation has prevented the realisation of such a goal. More recently, Gaston Mayer has successfully adopted the practice in his paper on Badische Palaeontologen, Der Aufschluss 25 (9) 1974, (see his figures 18 and 19 on pp 488-9).

However, last year, a request for help in identifying some hand-written collection labels prompted the idea of producing a series of Reference sheets featuring such items that can be distributed with issues of the Geological Curator. This Information Series is intended to feature examples of the distinctive and characteristic labels used by collectors, dealers and curators of the past, -- many of whom are listed in the Index to Collections mentioned above. Initially, the examples will be restricted to British and European collectors (each category on a different coloured paper; blue for British Collectors and red/pink for foreign examples) with the labels relating to a particular individual appearing on a single sheet together with very brief biographical identification. In order to permit the flexibility that such a series will require, each collector will be numbered and any subsequent sheet that is produced in connection with that person will contain the number followed by a letter from the alphabet e.g. 1, 1a, 1b etc. etc.

By limiting the information on each collector to brief biographical notes, it is hoped that many GCG members, other museum curators and researchers will be encouraged to contribute to the series. A positive step towards establishing the series would be, an undertaking by each of the principal museums with geological collections to produce a few contributions featuring a collector's labels from their significant holdings each year. Subject to the resources of the GCG a large number of contributions from several curators would quickly produce the basis of a valuable research/reference tool. Ideally, once the typical format has become established, it might be possible for contributors to produce the requisite number of copies for GCG distribution with the resources of their own institution. To facilitate the production of comprehensive reference sheets relating to particular collectors, rather than a whole series of separate contributions containing isolated examples of labels from various contributors, I am prepared to act as a Co-ordinator for the series. If you have examples likely to be of interest, perhaps these could be sent to me, so that they can be added to others.

Having proposed what might seem to be a rather elaborate scheme, it remains for me to justify the value of collection labels to both specialist palaeontologists and museum curators and to indicate the advantages that this Reference series should provide. Inevitably, such an explanation re-iterates many of the fundamental principles and reasons involved in Curation.

The existence of collection labels arises from the necessity for ensuring the availability of data relating to specimens. R.H. Lewis (1976) in the introduction to his chapters on museum accession and catalogue records stated:

> "Curators know that a specimen has little, or no value without accompanying information"

he goes on to say that:

> "the more data is associated with an object, the more useful it is likely to be."

Palmer, (1977: 446) independently reiterated this, when he remarked:

> "An object lacking data has little, or no scientific significance, but an object associated with data is a potential source of knowledge about the world and is, thereby, an object of scientific significance".

LOCALITY LABELS.

In virtually the first guide for geological collectors, Lonsdale (1830) recommended that:

> "every specimen should be labelled on the spot ... they are always of value .. especially when their localities are carefully marked .."

Mantell (1854: 835) in his Instructions for Collecting (to prepare his readers for the delightful pursuit of collecting the Medals of Creation) enlarged upon this aspect:

> "A Label, distinctly written, should accompany every specimen, stating its native place, its relative situation, etc., and these labels should be attached to the specimens immediately, on the spot where they are found.
> This injunction may appear to be superflous; but so much valuable information has been lost to geology from the neglect of it, that every observer of experience will acknowlege its necessity.
> It is useful to mark on the labels: the day, and even the hour, when each specimen is collected. This, with a corresponding note in the Memorandum-book, prevents confusion, and will be found to assist the memory. ..
>
> Besides a note of the locality, there ought, if possible, to accompany every specimen, a short notice of its geological circumstances; as, for example, whether it be found in large shapeless masses, or in strata?".

All admirable advice, but one can only wish that Mantell had adopted even a fraction of such ideal practice himself, for then we would know far more regarding the provenance of much of the type material of British Cretaceous Mollusca.

Schuchert (1895 p.15 and 23) in his more elaborate Directions for collecting and preparing fossils emphasized this need for providing detailed locality records and advocated the establishment of a locality record book. He also

advised the use of field labels to record all the important information, or alternatively the use of a locality number to be used in conjunction with a field notebook that contained such details. Schuchert considered that in all large collections the most desirable feature was that each fossil should bear:

1) its systematic name; 2) the geological formation; 3) the locality; 4) when it was collected; 5) by whom it was collected.

Lewis (1976) listed these categories as:
WHAT it is; HOW it was acquired; From WHOM it was acquired; WHEN it was acquired; WHERE it is kept. However, in such general considerations which apply to ALL museum specimens, he did not include other fundamental questions that relate to Geological specimens:
WHAT AGE: WHICH FORMATION: WHERE FROM: WHO Collected it.

MUSEUM RECORDING.

The answers to these questions provide the basis for all museum and private collection information. With regard to geological material, Schuchert (1895) enlarged upon his methods for recording such details (p.23). Upon its acquisition, he recommended that a preliminary record should be kept of the un-studied specimens by giving them a locality number from a field register; more permanent records could be maintained in a museum catalogue. It was suggested that this locality, or field No. should provide the preliminary record label by which un-studied material could be referred to. This practice has been generally adopted for such basic records are mentioned by Burns (1941), Coleman (1927), Lewis (1976:142-55), while the variations perfected by particular museums are represented by those described by Yochelson (1969), and Rushton (1979); or referred to by the In-house Manuals circulating at the IGS, Sedgwick Museum and the Dept. of Palaeontology of the BM(NH). Essentially the two categories represent an Accession Record and a Museum Information File relating to the specimens, their identification and storage.

Palmer (1977) distinguished these forms of Museum records as 'Stored Data', while the information given on specimen labels he termed 'Immediate Data' and the details often written on the specimens themselves he called 'Direct Data'. He also recognised a category of 'Inferred Data' that can result from experience, either a curator's knowledge of collectors and collections, or a geologist's particular knowlege of the objects and their occurrence arising from his field experience and observations. Palmer assessed the various combinations of such records in the light of the security they offered for ensuring the retrieval of the original information relating to the specimen. A variant of the 'Immediate Data' specimen label, is the upright 'L-shaped' folded label, which enables the specimen's identification and locality details to be seen at once, without this information being obscured by the specimens (see fig. 13 in Schuchert, 1895).

The label then fulfils the function of recording significant information relevant to a particular specimen and ensuring its immediate retrieval whenever required. They may have arisen as field labels; or have been prepared as an adjunct to cataloguing, or indexing whether by manual, or modern computer systems (see Brunton, 1979); as secondarily, or specially prepared during curation, or the compilation of descriptive monographs. In some respects, the evidence of the label can also be interpreted as a guide to the efficiency of the curation in achieving the basic tasks mentioned by Waterston (1979: 11): Acquisition;

Identification; Cataloguing; Ordered Storage; and Conservation.

Extending the categories mentioned by Schuchert and including the details required for museum records mentioned by Lewis (1976: 142), the details should give:

a) the Identification, i.e. WHAT it is; (with indication of WHO identified)
b) the Age and Formation; its STRATIGRAPHICAL OCCURRENCE;
c) the locality; GEOGRAPHICAL OCCURRENCE;
d) the Collector; possibly from WHOM it was acquired;
e) WHEN it was collected; and WHEN it was Acquired;
f) HOW it was acquired; by Donation, purchase, exchange, bequest, collection;
g) WHERE it is Kept.
h) Reference and Collection numbers.
i) particular Information relating to the use and description of the specimen.

Both Schuchert and Mantell suggested that provision should be made in Field Labels for cross-reference to field note-books containing diagrams of particular sections

THE SIGNIFICANCE AND USE OF ORIGINAL COLLECTION LABELS.

Having outlined the initial purpose of specimen labels, mentioning the range of information they should ideally record, it remains for me to indicate some of the secondary uses to which they can be put. This virtually means the justification for the Information Series on Collection Labels.

Bruton (1979:143) commented that labelling is an integral part of research and that the documentation encompassed on a label provided the data for future generations of scientists. Consequently, it can be argued that the present-day researcher and curator, in order to repay his debt to his predecessors has some responsibility for correctly labelling the specimens he re-examines with their true status. Ideally, the use of distinctive personal labels provided the most effective method of achieving this without harming any of the earlier documentation (see figures 1, 2 and 3). Alternatively, the use of an additional standard label, but accompanied by the initials of the author of the re-determination will also suffice (see Figure 4). Perhaps such determinations should not only be signed, but also dated, so that future workers could decide whether the identification was made with knowledge of major systematic papers.

It must be acknowledged that the majority of subsequent uses of labels by both curators and palaeontologists fall into the category of "Inferred Data". Inevitably, the basis of their re-interpretation, or the ensuing conclusions stems from their own experience, or knowledge of the details given on the label. The brief list given below must be familiar to most curators, who can probably add other examples of how such inferred information may be used.

1. Hand-writing identification and Comparison.

Comparison of hand-writing with a bona-fide example is the most obvious practical method of identifying the author of a particular label. In such cases, there is already an element of recognition, in that the curator is utilising his experience and geological knowlege when selecting suitable

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12 in	.040 in	£28.45
14 in	.050 in	£32.55

HIRSH JACOBSON MERCHANDISING CO. LTD.

91 MARYLEBONE HIGH STREET, LONDON, WIM 3DE.

Telephone: 01-935 4709

cases for comparison. (Recently, when asked for advice concerning the organisation of hand-writing collections, I suggested that in addition to classifying items according to collector, or chronologically, material might be arranged according to hand writing styles; geographical areas; or the zoological nature of the material). It should always be borne in mind when making such comparisons that the hand-writing of an individual can vary through age, situation, mood, or his predilection to follow fashion. On occasion the drastic change in style of some eminent geologists can be explained by their use of an amanuensis towards the end of their careers. (The most dire results of this occur in the Harmer collection, where undoubted Harmer identification in his hand are re-allocated and corrected to accompany quite un-related material).

2. History and Diaspora of Collections.

Recognition that a specimen belongs to a particular collection can provide evidence relating to a collection's dispersal and, by indicating possible lines of investigation, can assist in tracing its subsequent history.

3. Provenance of Material.

Details concerning the palaeontological, geological, stratigraphical, or geographical information provided with a specimen can be helpful in establishing the identity of a particular collector. They may indicate the period in which a certain exposure was available. Alternatively, by indicating the district or formation from which a specimen was collected, it is possible to restrict a search to individuals that were known to specialise in that particular aspect of palaeontology.

The stratigraphical, or palaeontological terminology used on the label is frequently indicative of a period either through fashionable, or authoritative scentific use e.g. the generic name Janira, or Yola for the bivalve now commonly known as Neithea. More precise placing can arise from alteration in place names, or quarry ownership, which will establish the period exactly. In some instances, the nature and type of geographical reference points will suggest the period in which a particular specimen has been collected.

4. Other label Features

In a further effort to limit the period of comparison, it is also possible to utilise aspects of label style, type face and ink to deduce the era in which it was produced.

All these methods contribute towards the establishment of the identity of the original collector, or the source of the specimen. Such information has a considerable bearing on the value of the specimen, for in turn, it is used to evaluate the reliability of the information itself through surviving knowledge as to the attitude and character of the identified collector. It is often widely known that a particular individual was quite meticulous in labelling his specimens, whereas another frequently attributed localities and horizons to his material months afterwards. Other collectors e.g. James Sowerby seldom went into the field but acquired all their material from correspondents, acquaintances, or dealers. The data on such material is suspect, whereas specimens obtained through the employment of a local field collector e.g. Starkie Gardner's use of John Griffiths; or of a local

Aetosteon
latissimum
(Lamarck)
(aut DHONDT 81)
12669

Rev. DHONDT, 19 83

Neithea (Neithea) aequicostata
(LAMARCK, 1819)

Inst. roy. Sc. nat. de Belgique
Kon. Bel. Inst. Natuurwetensch.

Det. DHONDT, A., 19 81
9 Amphidonte
obliquatum

Figs. 1,2 and 3. Examples of labels produced by a specialist to record revision of determinations without annotating the originals.

Examined by Mr. L. Richardson
in Oct., 1937 :—
In my opinion this
is from the Gryphite
Grit of the Cotte-
wolds. A.R.

Brit. Mus. Geol. Dept.

Fig. 4. A standard BM(NH) label used to record additional information; note the use of initials and date.

COMPTOIR CENTRAL D'HISTOIRE NATURELLE
N. BOUBÉE, Naturaliste-Minéralogiste
N°
Exogyra auricularis Goldf
Cénomien
Joly-les-Caves (Belgique)
3, Place St-André-des-Arts · PARIS (6e)

Fig. 5. An example of the un-reliability of information provided by a dealer; the locality should read Folx-les-Caves; the specimen was obtained with the C.T. Trechmann collection, a large part of which was purchased from European dealers.

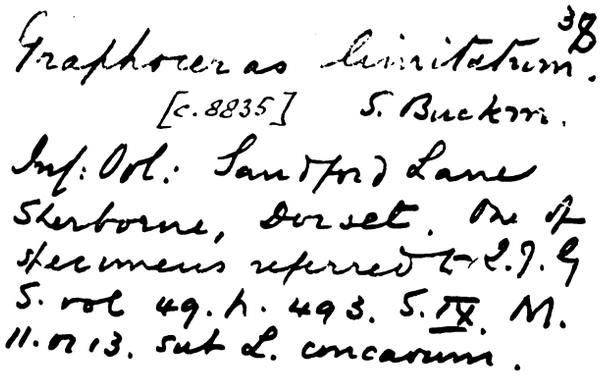


Fig. 6. S.S. BUCKMAN (1860 - 1929)

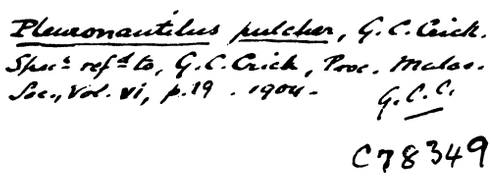


Fig. 7. G.C. CRICK (1856-1917) Fossil Cephalopoda, BM(NH).1886 - 1917.

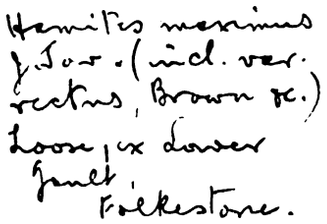


Fig. 8. L.F. SPATH (1882 - 1957) Fossil Cephalopoda: 1919 - 1956.

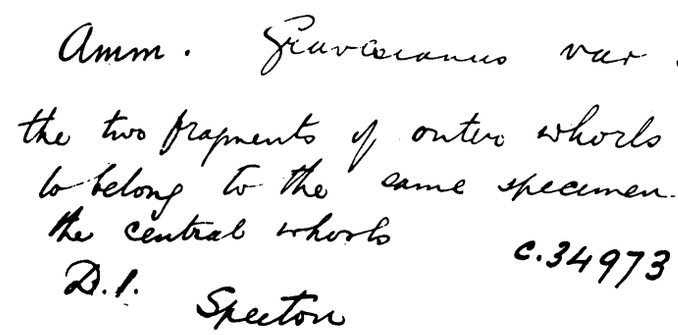


Fig. 9. G.W. LAMPLUGH (1859 - 1926)

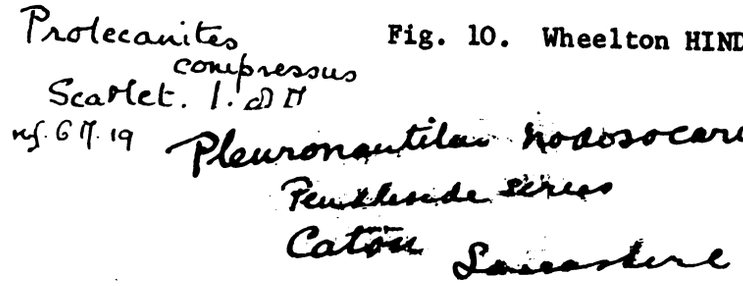


Fig. 10. Wheelton HIND. (1860 - 1920)

A FEW ORIGINAL LABELS FROM THE COLLECTIONS IN THE DEPT. OF PALAEONTOLOGY, BM(NH).

1. Hans Schlesch (1891-1962). Essentially a malacologist, who presented a large part of his collection to the Hull Museum, where it was destroyed during the Second World War; this label from fossil material in the BM(NH).

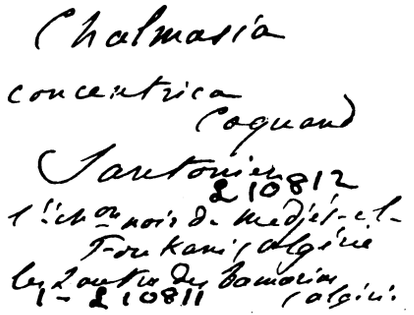
2. Alphonse Michalet. (d.1912). His business as a flower merchant enabled him to collect fossils during his excursions throughout Europe; the BM(NH) purchased material from his collection through the dealer R. Damon in 1897, 1910 and 1911.

3. B. Stürtz (1845-1928). Fossil and mineral dealer in Bonn, who specialized in the Lower Devonian starfish; the BM(NH) purchased fossil bivalves from him in June 1892.

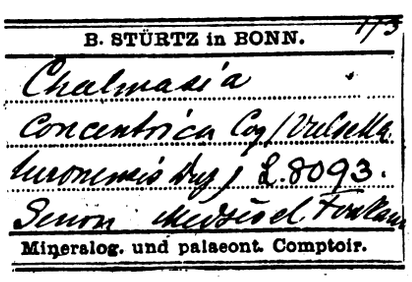
4. K.K. Mineralien Kabinett (1806-1851). This label from the earlier Naturhistorisches Museum, Vienna was supplied with Vienna Basin material acquired from F.E. Edwards in 1867.

5. T.G. Bayfield (1818-1893). An ironmonger, who specialized in collecting Norwich Crag fossils; some of his Cretaceous material was figured by Henry Woods (1908).

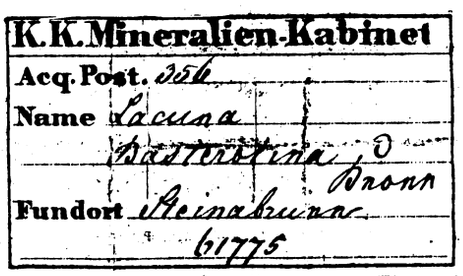
1



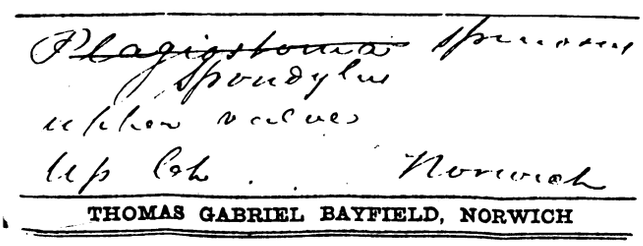
2



3



4



specialist e.g. the Coal Measure Mollusca that Wheelton Hind obtained from J. Ward, is far more reliable. Inevitably, if it is known that a specimen was obtained from a dealer, one can readily discount any associated anomalous data (see figure 5).

Similarly, clarification as to the author of a determination written on a label, whether original, or annotated subsequently, will assist researchers to judge the value of the identification in the light of their understanding of that author's capabilities. Indirectly, it is also possible to gain some idea of the author's concept of species, or even, historically, deduce the prevailing attitude within the science.

A further extension of label dating and identification is the determination of the sequence of data accompanying a particular specimen, this can be especially important with some of the older material e.g. Darwin's Beagle fossils which have details written by various curators at the Geological Society, the Museum of Practical Geology and the B.M.(N.H.). In such instances, it is useful to have a reference sheet, similar to that composed featuring various collectors and curators, who have handled specimens, by the Fossil Cephalopoda section in the B.M.(N.H.). (See Figures 6-10).

Most curators and palaeontologists will be able to enlarge upon the varied uses and methods that can be derived from collection labels. However, even the few listed above demonstrate their usefulness and significance as a basis for making more elaborate conclusions.

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R.J. Cleevely,
Department of Palaeontology,
British Museum (Natural History),
Cromwell Road,
London SW7 5BD.

Editors Note

The first three sheets of the information series are enclosed with this edition of the Geological Curator. Sheet 1 is devoted to J.F. Walker (Great Britain), Sheet 2 is devoted to William Bean (Great Britain) and Sheet 3 is devoted to August V. Klipstein (Foreign). Readers requiring further information or wishing to contribute to the series should contact Ron Cleevely direct. Examples of labels should either be submitted in the form of a clear photo copy or as a photograph i.e. in a form which can be easily reproduced.

EDWARD CHARLESWORTH & THE BRITISH NATURAL HISTORY SOCIETY

1. MATERIAL IN THE YORKSHIRE MUSEUM

by Barbara Pyrah

The British Natural History Society was one of several ventures which Edward Charlesworth (1813 - 1893) started after he came to the Yorkshire Museum as Curator in 1844. Although these publishing or educational activities were carried out privately, Charlesworth evidently saw them as complementing the Museum's activities, seeking permission from the Council of the Yorkshire Philosophical Society before embarking on each venture, and sooner or later being castigated by members of the Council for wasting too much Museum time on the subject.

The B.N.H.S. is first mentioned in the Annual Report of the Y.P.S. for 1849. (1850 pp. 8-9).

"..... the "British Natural-History Society" though not confining its investigations to this County, still, from its having originated with the Keeper of this Society's Museum, and from the benefits which it is likely to confer not only on the Yorkshire Philosophical Society, but on Natural-History generally claims, in a high degree, the support of this Society. One object of the above Society is to employ competent collectors in such districts as are known to be rich in natural productions, either recent or fossil, and to distribute the Collections, thus accumulated, amongst individuals or public institutions, who have promoted the undertaking; it being a part of the plan, that one specimen at least, of each species, shall be the property of this Society, and be deposited in our Museum, thereby securing the preservation of one complete series of all the objects that may be discovered. The Natural-History Society has commenced its labours by collecting Tertiary fossils of the Isle of Wight and adjacent cliffs of Hordwell and Barton. From these sources a vast number of valuable specimens has been obtained, more than 20,000 of which have already been distributed amongst its members.

To this Society the Museum is indebted for an interesting series of Tertiary fossils ..... It includes more than 50 species either quite new or unfigured in any British work; many of these are accompanied by beautiful and accurate drawings, executed, under Mr. Charlesworth's direction, by Mr. Smith, an artist, whose merits as a delineator of objects of Natural-History, are well known to members of this Society."

Surprisingly there is no mention of this undertaking in the Council Minutes of the Y.P.S. for 1849 or 1850. One would have expected Charlesworth to keep the Council Members and Curators informed of his activities, particularly in view of the arrangement whereby the new Society was to deposit a complete series of specimens in the Yorkshire Museum. Eventually, in March 1851 Council resolved "That the Society having received in the last and preceeding year gifts of value from the British Natural History Society of which the executive officer is the Keeper of the Museum, and that application be made to him for information as to the constitution of their Society and the relations which appear to subsist between it and the Yorkshire Philosophical Society." There is no record of the reply to this request.

The British Natural History Society is mentioned in publications by Markham (1976) and by Wrigley (1944). Wrigley refers to the project as "Charlesworth's Illustrations", possibly a slightly misleading title when we consider with how many publishing projects Charlesworth was associated, and the fact that the central policy of the B.N.H.S. was the distribution of specimens. Wrigley described the 'Illustrations' thus; based on specimens in the B.M.N.H. and the Sedgwick Museum.

"Round about 1850 Edward Charlesworth, then living at York, was the secretary and apparently the promoter of the British Natural History Society, which provided its subscribers with Hampshire Tertiary fossils obtained by paid collectors at Barton and in the Isle of Wight. This project was advertised by printed cards, dated 1849 and 1850, bearing on one side a prospectus and on the other, figures of Barton fossils lithographed by Wm. Smith of York. The same lithographer then prepared for the Society a series of excellent enlarged figures of small mollusca from Barton and the Isle of Wight, each species

having two views. At present, 48 of these illustrations are known, printed in fours on twelve sheets. They were sent out singly to subscribers or purchasers, mounted on a card with a printed label of name and locality and with an actual specimen of the fossil mounted in a circular recess, the whole being covered with glass to form a paper bound slide about 4 inches square. Some of these illustrations were mounted on cards with name and locality labels and a small printed prospectus of the objects and subscriptions of the Society ...." In a footnote Wrigley adds "Mr. Elliot[1] has kindly made a search in the Museum of the Yorkshire Philosophical Society, at York (where Charlesworth once was curator), but without result."

Wrigley was concerned with establishing the validity or otherwise of Charlesworth's species; as he says, "the issue to subscribers of an excellent figure, with a printed name, accompanied by an actual specimen, is surely a valid publication." The fact that Mr. Elliot could not find any B.N.H.S. specimens at York in the 1940's is perhaps not surprising as at that period the geology collections, consisting of over 100,000 specimens were at a very low ebb in terms of curation. However specimens did survive and are still present in the collections.

The various Annual Reports of the Yorkshire Philosophical Society list the following donations:-

1849. Large collection of Tertiary fossils from I.o.W. and adjacent Hampshire Cliff.

1851. A large series of specimens from the Coralline Crag, consisting of shells and corals; also numerous shark's teeth, cetacean bones, etc, from the Red Crag of Suffolk. Additional fossils from the Eocene Hampshire Strata.

1850. Large series of Tertiary Fossils from I.o.W. and adjacent Hampshire Cliffs; Mountain Limestone from the neighbourbood of Settle and Clitheroe.

1852. Additional fossils from the Hampshire Eocene Beds, including various land and freshwater species from I.o.W. and two entire examples from Barton Cliff of the Greater Wingshell ....

1853. Fossils from the Crag and other Tertiary formation.

1854. Fossils from the Upper Greensand of Cambridge and from the Magnesian Limestone of Durham.

The Yorkshire Museum's collections contain many drawers of specimens answering to these descriptions (although it bears no printed or MS reference to the B.N.H.S.) which probably represent this material plus smaller amounts given by other donors (the large collections given later by Wm Reed are labelled separately). Only one drawer contains material actually labelled by the British Natural History Society with two separate sets of material represented.

The first consists of 33 examples of the illustrated specimens, some being present in duplicate so that only 23 species are represented. The finely executed illustrations are mounted on a very thick board, into which a circular cell has been cut. A separate piece of black card forms the back of the cell, into which has been placed a small, often minute Hampshire Tertiary gastropod

1. For the identity of "Mr. Elliot" see page 114

or lamellibranch. The front of the mount is covered with glass, and the whole measuring approximately 4 inch x 4½ inch, bound with a pink paper. At some time since they have been rebound with the Museum's sage-green paper, and the original printed "British Natural-History Society YORK" labels pasted onto the back, being replaced on the front by updated Yorkshire Museum labels, Wrigley refers to these mounts as a 'paper bound slides' and the present author has heard them referred to as 'lantern slides' but this is perhaps misleading, and the term 'cell mounts' would be a less ambiguous description.

The second set of material represented consists of 65 small rectangular red boxes, each bearing a green label impressed with "BRITISH NATURAL HISTORY SOCIETY YORK", with a number in ink - the highest number is 102. Each box contains occasionally one, or more usually 2-5, specimens of a species of mollusc. Very small shells are in a small glass tube corked and originally sealed with red wax. The boxes and tubes have more recently (1965-68) been lined with green foam plastic. There are no printed labels, nor any in Charlesworth's hand. On the back of most boxes is written an identification of the shell, this is thought to be in a recent hand. There are no associated lists or documents, but the shells appear to be Hampshire Tertiary fossils.

For the majority of material donated by the B.N.H.S. to the Yorkshire Museum, it is probable that Charlesworth, mindful of cost and time, did not bother to label them with a distinctive B.N.H.S. label, preferring to use the standard Yorkshire Museum system.

It seems probable that Charlesworth acquired very large quantities of Hampshire Tertiary material early on in the history of the B.N.H.S., but made it up into sets as and when required, and thus the method of presentation may vary from one collection to another.

By January 1855 a subcommittee appointed to consider the position of the Curator and secretarial duties reported to Council "It was understood from Mr. Charlesworth that the business of the British Natural History Society had nearly come to a close, and Mr. Charlesworth engages that nothing connected with it should be carried on from the premises of the Society". The B.N.H.S. appears to have remained dormant for a while, but in 1860, two years after his resignation from the Yorkshire Museum, Charlesworth, still in York, wrote to John Phillips "I am just making a fresh start with the illustrated sets of minute Hampshire Fossils - I have not done anything with them for some years on account of the time they take for mounting, but as I have the whole of Smith's beautiful drawings still on the stones, at an annual expense for rent, I have determined to set to work upon them again - I have thought that perhaps you would get me the Oxford Museum on the Subscription List. There is a set in the Woodwardian Museum, and I have understood that Prof. Sedgwick makes a p oint of calling attention to these illustrations whenever he takes his friends over the Geol. Collection." (O.U.M. unnumbered, Oct 5th 1860) An accompanying printed brochure of the B.N.H.S. is dated 1856. It seems that although the British Natural History Society was never really a success, Charlesworth never gave up the idea or the title, for Markham records that in 1883 the B.N.H.S. was again offering Crag and Chalk specimens to subscribers; by that time Charlesworth was in his 70's and in poor health; he had been a free-lance fossil dealer since leaving the Yorkshire Museum in 1858.

I would be grateful for any information on B.N.H.S. material in other museums, particularly material not from the sets of illustrated cell mounts or boxed set of Hampshire Tertiary fossils.

Acknowledgements

My thanks are due for help given by Mr. P. Clasby, the Yorkshire Philosophical Society, and the Oxford University Museum, and for permission to quote from archival material held by these two institutions.

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Manuscript material quoted is in the Oxford University Museum (John Phillips archive) and the Yorkshire Philosophical Society's offices in York.

Barbara Pyrah.
Keeper of Geology,
Yorkshire Museum,
Museum Gardens.
York. YO1 2DR.

EDWARD CHARLESWORTH & THE BRITISH NATURAL HISTORY SOCIETY
2. MATERIAL IN THE CITY OF BRISTOL MUSEUM
by M. D. Crane

1. Tertiary fossils from Barton, Hordwell and the Isle of Wight distributed by the British Natural History Society, York.

We possess a small collection of Tertiary fossils (mainly molluscs) donated by Mrs Elizabeth Hincks in February 1914. These had belonged to her late husband, Rev. Thomas Hincks FRS (1818-1899).[1]

The specimens are contained in small green and maroon card trays, the undersides of which carry green oval or circular labels. The oval labels are embossed "BRITISH NATURAL HISTORY SOCIETY YORK"; the circular labels carry no mark, embossed or otherwise, to indicate their origin. Both types of label are numbered, by hand, in black ink. These numbers served to identify the species in Charlesworth's (1850) List of Tertiary fossils ... distributed by the Society.[2]

It is apparent that at some time in their history the Hincks specimens have become jumbled and that the present associations of specimens (some of which are assumed to be original) and numbered trays bear little correspondence to those given in Charlesworth's List ... . The numbers represented in the Hincks collection were

2, 3, 4, 6, 7, 9, 10, 14, 15, 17, 25, 30, 32, 33 (two), 35, 37, 41, 42, 44, 47, 51, 54, 55, 57, 58, 66, 67, 68, 69, 70, 75, 78, 81, 86, 88, 92, 94, 100, k, t, a5.

2. Collection of Eocene molluscs from Barton, Hordwell, and the Isle of Wight mounted, with illustrations, in c3½" x c4" glass-fronted hardboard cavity mounts. Labelled 'British Natural-History Society, YORK.'

Acquired in 1917, by purchase (15/-), from an anonymous source.

List of species represented:

Arca praetenuis, Charlesworth (Isle of Wight)
Leda (minima, Sowerby) (Barton)
Lucina spinulosa, Edwards (Barton)
Nucula deltoidea, Lamarck (Hordwell)
Syndosmya convexa, Charlesworth (Barton)

Actaeon elongatus, Sowerby (Barton)
Actaeon fenestratus, Charlesworth (Barton)
Actaeon (inflatus, Ferussac) (Barton)
Adeorbis elegans, Charlesworth (Barton)
Bulla acuminata, Bruguiere (Barton)
Bulla attenuata, Sowerby (Var.) (Barton)
Bulla constricta, Sowerby (Barton)

Bulla coronata, Lamarck? (Barton)
Bulla elliptica, Sowerby (Barton)
Bulla hastula, Charlesworth (Barton)
Cancellaria microstoma, Charlesworth (Barton)
Cerithium concinnum, Charlesworth (Barton)
Cerithium filosum, Charlesworth (Barton)
Chemnitzia rudis, Charlesworth (Barton)
Eulima gracilis, Charlesworth (Barton)
Eulima macrostoma, Charlesworth (Barton)
Eulima polygyra, Charlesworth (Barton)
Marginella bifido-plicata, Charlesworth (Barton)
Melania (?) carinata, Charlesworth (Hordwell)
Melania costata, Sowerby (Hordwell)
Melania fasciata, Sowerby (Hordwell)
Melania peracuminata, Charlesworth (Hordwell)
Mitra parva, Sowerby (Barton)
Mitra pumila, Sowerby (Barton)
Nematura pygmaea, Charlesworth (Hordwell)
Odostomia turgida, Charlesworth (Barton)
Paludina chastellii, Nyst (Isle of Wight)
Planorbis lens, Sowerby (Isle of Wight)
Pleurotoma formosa, Charlesworth (Barton)
Ringicula parva, Charlesworth (Barton)
Rissoa Bartonensis, Charlesworth (Barton)
Rotella minuta, Sowerby (Barton)
Sigaretus canaliculatus, Sowerby (Barton)
Strombus Bartonensis, Sowerby (Barton)
Volvaria acutiuscula, Sowerby (Barton)

3. Plaster casts in the J. Chaning Pearce collection.
In the Chaning Pearce collection there are plaster casts of two fossil vertebrates and one of a problematicum from the Red Crag, carrying Charlesworth's printed labels.[3] Presumably several such casts were produced for distribution.
The first of these specimens, Trichecodon huxleyi Lankester, carries three printed labels:

a) "Basal portion of the Tusk of the gigant[ ]
Walrus (Trichecodon Huxleyi) found in the Red [ ]
Suffolk.
Coloured Cast from the original formerly in the Whincopp collection, now in the Cabinet of Wm. Reed, Esq., F.G.S., M.R.C.S., of York.
The original is figured half the natural size in the Quarterly Journal of the Geological Society of London (1865, Pl.xi., fig.3), with a description by Mr. Ray Lankester.

EDW. CHARLESWORTH."

b) "A narrow strip of the investing layer of cement has here flaked off, exposing the surface of the dentine."

and c) "This section shows solid dentine, with no trace of the pulp cavity present in the basal termination of the Tusk of the living Walrus. Consequently, in estimating the entire length of this tusk when perfect, several inches must be allowed for here."[4,5]

The second specimen is labelled

"Terminal portion of the Tusk of the gigantic extinct Walrus, found in the Red Crag of Suffolk.
Coloured cast from the original formerly in the Whincopp collection, now in the Cabinet of Wm. Reed, Esq., F.G.S., of York.
The original is figured half the natural size in the Quarterly Journal of the Geological Society, 1865, Pl.xi., fig.2.

EDW. CHARLESWORTH"[4,5]

The label on the third specimen reads

"Model of a problematical perforated Stone found in the Suffolk Red Crag diggings.
These most curious stones are found ranging in size from one to six inches in length. They are all perforated in the direction of their long axis.

EDW. CHARLESWORTH"

4. Material acquired directly from Charlesworth.
Our published records indicate that Charlesworth donated "Fish Bones and Corals from the Crag" during the period 1836-1844,[6] but we have

not yet identified any of this material in the collection or noted further references in our MS records.

There are also two references to Charlesworth in a MS 'Memorandum book ...'[7]

> 1876, May 23 "Charlesworth (113[A] Strand) sends down 13 species Orford Crag fossils charging 9/9[d]. To complete our collection were about 40 species necessary this is an instalement therefore"
>
> and 1877, Jan 24 "Charlesworth offers more Red Crag Fossils. (referred to the Committee for the purchase in February by omission)"

Again, we have not yet identified any of this material in the collection, or noted any further references in our other MS records.

Notes and references.

[1]See obituary notice by S.F. Harmer 1899 Proceedings of the Bristol Naturalists' Society, NS 8 (3) (for 1897): 265-268.

[2]R. Cleevely, this issue.

[3]Charlesworth and Joseph Chaning Pearce (1811-1847) appear to have been close friends and there are almost certainly other specimens in Pearce's collection acquired from Charlesworth. Further references to their association will be found in Crane, M.D. [in preparation] Richard Owen, Gideon Mantell and the Belemnoteuthis controversy.

[4]Lankester, E.R. 1865. Trichecodon huxleyi, a new mammalian fossil from the Red Crag of Suffolk. Quarterly Journal of the Geological Society of London, 21: 226-231, 232 pls. x,xi. [Three specimens from Whincopp's cabinet are figured one-third of natural size.]

[5]For biographical information on Whincopp and Reed see Pyrah, B. 1974. Geological collections and collectors of note. Yorkshire Museum. (With notes on some Yorkshire Museum collectors by H.S. Torrens, pp.56-58.) GCG, no.2: 52-60 and Pyrah, B. 1979. Collections and collectors of note. Yorkshire Museum; Charlesworth catalogues. GCG, 2 (4): 156-172.

[6]See Bristol Institution. Proceedings of the twenty-third annual meeting ... February 12th, 1846 ... p.21.

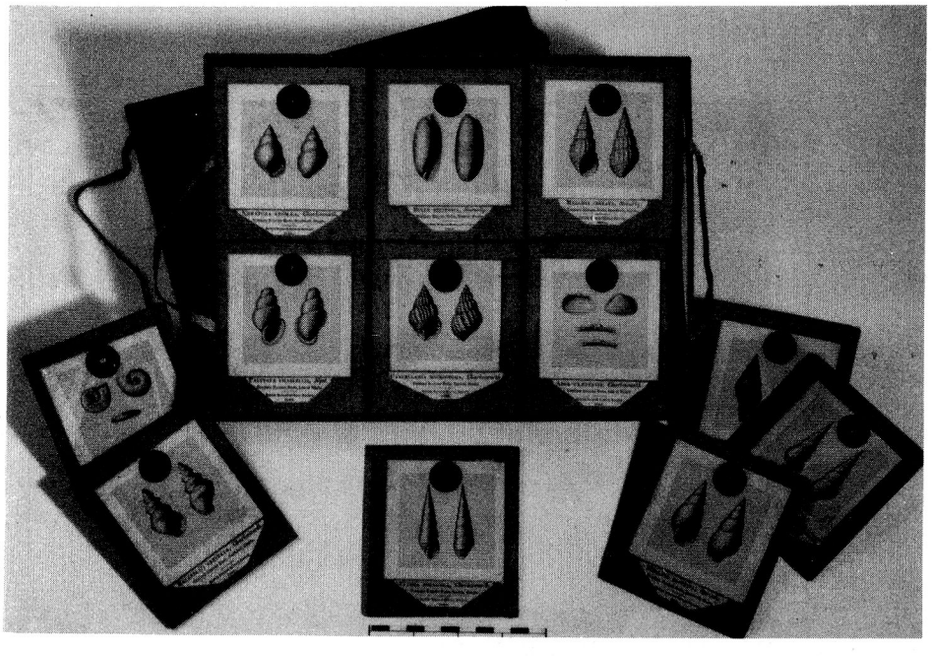
[7]MS 'Memorandum book ... 1874-1898' kept by E.B. Tawney and E. Wilson.

M.D. Crane, City of Bristol Museum & Art Gallery, Bristol BS8 1RL.

Plaster casts of vertebrate fossils and a problematicum from the Red Crag. All are in the J.C. Pearce collection.

The scale on all photographs is in centimetres (top) and inches (bottom).

Card tray carrying embossed label 'BRITISH NATURAL HISTORY SOCIETY YORK', Hincks collection.



Specimens of molluscs from the Tertiary of Barton, Hordwell and the Isle of Wight in glass-fronted cavity mounts, with illustrations. The box in which the material is housed is almost certainly original.

EDWARD CHARLESWORTH & THE BRITISH NATURAL HISTORY SOCIETY

3. MATERIAL IN THE BRITISH MUSEUM (NATURAL HISTORY)

by R. J. Cleevely & J. Cooper

INTRODUCTION.

From material surviving in the Yorkshire Museum, Barbara Pyrah (this issue p.*88*) has provided an account of Edward Charlesworth's involvement in establishing the British Natural-History Society. The real purpose of this organisation would appear to have been the opportunities it offered Charlesworth to establish himself as a dealer, (principally in fossils) rather than the alleged promotion of the study of natural history in Britain, or even its indigenous fauna and flora. Pyrah (1979) has shown in her account of the Charlesworth Catalogues at York, that he eventually achieved this goal and was directly involved in the acquisition and dispersal of many of the significant late nineteenth century fossil collections.

More precise details of the methods by which the B.N.H.S. operated can be gleaned from the examples of its literature accumulated by A.G. Davis and Arthur Wrigley that are preserved in the B.N. (N.H.). It is also fortunate that the collection of one of the subscribers to the Society, the London-based Frederick Harford, was presented to the Museum by his daughter in 1895 and contained virtually a complete set of the specimens offered.

THE FOUNDATION OF THE BNHS AND HOW IT OPERATED

A printed brochure (in the Daubeny Collection, Drawer C38, at Oxford University Museum) states:

"The experiment of attempting to procure fossils in large numbers, by raising a "collecting fund", and then distributing, among the subscribers, series of the specimens found, was set on foot in September, 1848.

... Between that date and the present time, twenty thousand Fossils have been distributed in sets, varying in extent from one hundred to three hundred specimens each. Twenty thousand more are subscribed for, and are now being collected; and altogether, the results thus far attending the establishment of the Society must be regarded as highly satisfactory."

This publication also demonstrated Charlesworth's intention of enlarging the scheme:

"Arrangements are now being made for collecting and distributing in a similar way the fossils of the Mountain Limestone of Yorkshire, Lancashire and Kildare. (It is intended to include any other localities from which suitable specimens can be procured)."

It also clarified the basis of his economics and explained the nature of his assessment as to the comparative value of the fossils to be distributed to subscribers:

"Though the value of a collection of specimens illustrating any one locality or geological formation, will as a general rule, be greater in proportion to

the greater number of species which it includes, still those particular fossils which are the most abundant, are often the most useful for the purposes of study.

The principle followed by the Society is that of fixing the lowest amount of subscription, for which really useful series of specimens may be obtained. Larger collections being received by those subscribers who bear a proportionally larger share of the cost of the undertaking. In the present case it is proposed that the collections shall be made up for subscriptions of 8s., 16s., 24s., 32s., and 40s." (reference to the Mountain Limestone material)

Tertiary fossils are collected with comparatively little labour, because the matrix is usually clay, sand, or marl, but the fossils of the Mountain-Limestone have to be extracted from a hard rock, and on this account, collections equal in number of species or specimens to those from the Hampshire Tertiary beds, must not be expected for the same amount of subscription. There is, however, no reason to doubt but that the value of the proposed collections will be such as to make a subscription to the "Mountain-Limestone Fossil - Collecting Fund", a highly advantageous means of obtaining the characteristic organic remains of this Formation".

THE HISTORY OF THE BNHS FROM ITS PUBLISHED LITERATURE.

Charlesworth was editor of the Magazine of Natural History from 1837 until 1840. This work brought him into contact with many eminent scientists and developed his taste for involvement with the natural sciences on a national scale. Not satisfied with his appointment as curator to the Yorkshire Philosophical Society (in his eyes an institution of only local significance) one suspects that the organisation of the BNHS was Charlesworth's way of elevating his parochial position to one of national significance.

The first evidence of the existence of the Society that is available is provided by its "List of Tertiary Fossils from Barton, Hordwell, and the Isle of Wight, obtained by the Collectors of the "British Natural History Society" (Fig.3) dated 21 December 1848. Undoubtedly, other material must have been distributed before this date in order to obtain resources to finance the collection of material. Presumably, much of the initial publicity for the B.N.H.S. was in the form of the Advertisement, or Prospectus Cards of which we have later examples. (Figs. 1, 2 and 6, middle). These provide a relatively clear idea of its operations for example the one issued in July 1849 (Fig. 2) states:

"The British Natural - History Society proposes to carry on researches by having a permanent staff of Collectors located in such districts as are prolific in objects of Natural History, either fossil or recent. Its Members receive in return for their subscription suites of the specimens so obtained.

The Society has a collecting station on the Hampshire Coast, and has already distributed more than 12,000 of the beautiful Fossils of Barton Cliff and Colwell Bay besides extending the list of British Fossils by the discovery of many new and interesting species.

For further information address "The Secretary of the British Natural - History Society, York".

These cards may be had at the rate of three for six postage stamps."

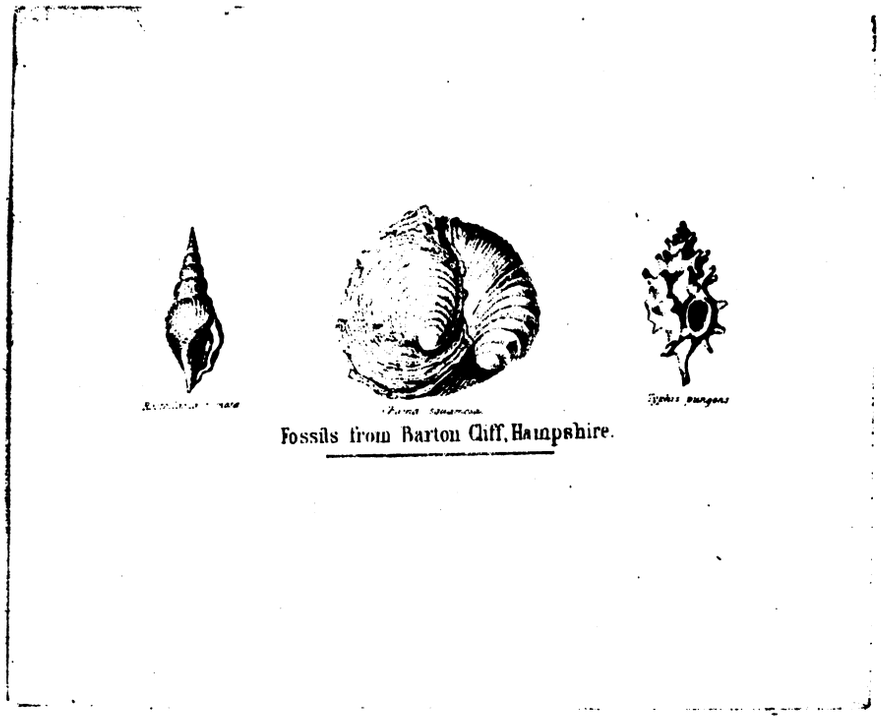
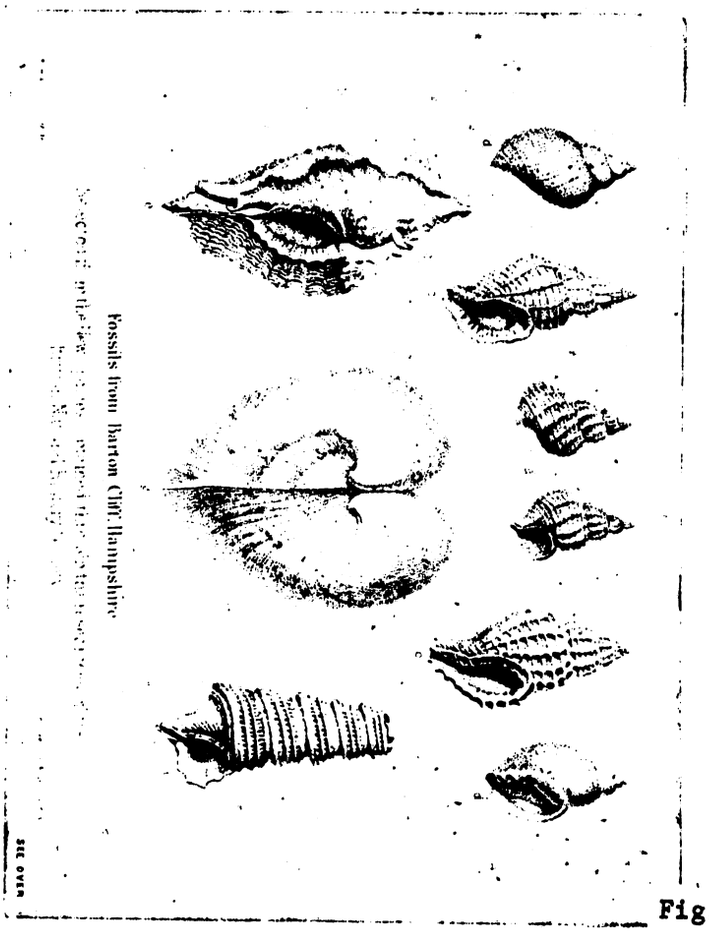
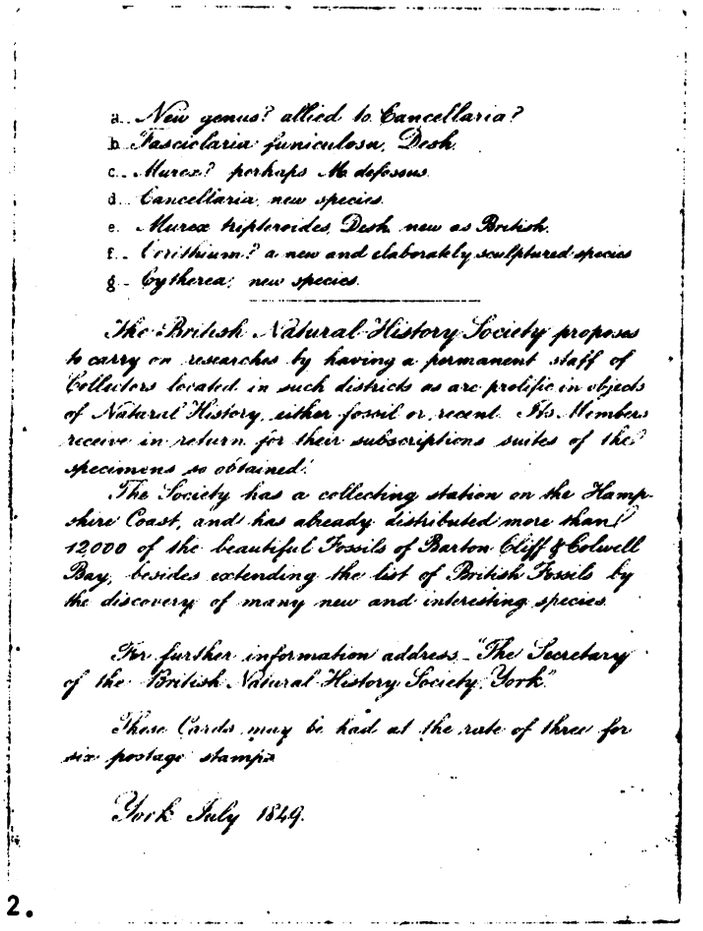


Fig. 1. Front of Prospectus Card issued in May 1850 with figures labelled: left to right: Rostellaria rimosa; Chama squamosa; Typhis pungens. There is also a version of this card with only these figures and no mention of the BNHS, which is presumably an early proof. The reverse of this card carried a detailed outline of objectives of BNHS and the proposed method of subscription charges etc.





a. New genus? allied to Cancellaria?
b. Fasciolaria funiculosa, Desh.
c. Murex? perhaps M. defossus.
d. Cancellaria, new species.
e. Murex tripteroides Desh. new as British.
f. Cerithium? a new and elaborately sculptured species.
g. Cytherea; new species.

The British Natural History Society proposes to carry on researches by having a permanent staff of Collectors located in such districts as are prolific in objects of Natural History, either fossil or recent. Its Members receive in return for their subscriptions suites of the specimens so obtained.

The Society has a collecting station on the Hampshire Coast, and has already distributed more than 12000 of the beautiful Fossils of Barton Cliff & Colwell Bay, besides extending the list of British Fossils by the discovery of many new and interesting species.

For further information address "The Secretary of the British Natural History Society, York."

These Cards may be had at the rate of three for six postage stamps.

York July 1849.

Fig. 2.

Front of the Prospectus card issued in July 1849. The figures are identified as:
a) New genus ?, allied to Cancellaria ?
b) Fusus excisus Lamk, new as British.
c) Murex ?, perhaps the defossus.
d) Cancellaria, new species.
e) Murex tripleroides Desh., new as British.
f) Cerithium ?, a new and elaborately sculptured species.
g) Cytherea, new species.

Reverse of the same card, see text p.100 for transcription.

It would seem that by using illustrations of the fossils as bait and featuring seven different species to attract the potential subscriber, he may have even covered his own advertising costs by providing high quality illustrative material which was a commodity in its own right. His brief suggestion that many of the fossils available would be either new species, or else new records for Britain, can only be recognised as good marketing policy.

The original fossil list, which was presumably only printed after soliciting sufficient subscribers to finance the collection of the fossils offered, had a footnote:

"It is proposed that the Society in the event of its permanent establishment should adopt the above name."

By May 1850, the advertisement card (Fig 6, bottom) proclaimed:

"The British Natural - History Society. Established for the prosecution of researches in Natural History and for the promotion of a taste for this pursuit by distributing among its Members collections of both fossil and recent specimens correctly named and accompanied by references to works in which the species are described and figured."

On the reverse, occurs finely printed details of its objectives and the methods of fulfilling and financing these through various levels of subscription:

"The British Natural-History Society is intended to occupy an entirely new position among the scientific associations of this country. The Linnean Society, the Palaeontographical, and various other kindred Institutions, circulate by the aid of the Printer and Draughtsman, information about the objects of Nature. The British Natural-History Society proposes to circulate the objects themselves. Its funds will be applied to researches in the boundless field of discovery presented by the Seas, the Cliffs, and such inland districts of the British Islands as promise best to repay the cost of exploration; and while numerous forms of organic life hitherto unknown will thus be discovered, the Subscribers will severally receive a share of the objects so gathered together, the value of which will be enhanced to the receivers, by the accompanying record of localities, and the identification of the species when practicable with published figures and descriptions. The Society has a collecting station on the Hampshire Coast in active operation, and above 25,000 specimens of the beautiful Tertiary Fossils of Barton Cliff (Christchurch), and Colwell Bay, (Isle of Wight), have already been distributed among its Members.

At present the operations of the Society are limited to the exploration of the Hampshire Tertiary fossiliferous beds, but in the event of stations being established in other parts of the Kingdom, and the attention of the Collectors extended to the existing British Fauna, it will be optional with the Members to receive the equivalent of their subscriptions in collections of either fossil or recent specimens. As some species occur but rarely, and others in comparative abundance, a graduated subscription proportioned to the extent of the collection which the Subscribers may severally wish to possess, appears to present the only equitable mode of opportioning the specimens collected. Funds are provided in advance for the weekly expenditure of the Collecting Station, and after

allowing for printing, postage, and various other incidental expenses, the following scale of subscription is founded upon the outlay incurred, and total number of Fossils procured, from the 1st of Sept. 1848, to Sept. 1849:

Subscribers of 12s. 6d. receive a series of 100 specimens, including 40 species; of 25s., 160 specimens, including 75 species: of £1. 17s. 6d. 200 specimens, including 100 species. *

(Footnote reads: "This scale applies prospectively and to subscriptions received since the 1st of March, 1849.")

"The collections, accompanied by printed catalogues, will be ready (either in London or York) for transmission or delivery to the Subscribers within four months from the payment of the subscription.

Catalogues of the Fossils obtained, with more detailed information can be had upon application to the Provisional Secretary, Edward CHARLESWORTH, Esq., York, to whom, or to the Treasurer, EDW. SMALLWOOD, Esq., York, Subscriptions may be remitted by Post-Office order.

It is hoped that the receivers of these Cards, if friendly to the attainment of the objects above set-forth, will aid the Society, by circulating this brief notice of its proceedings among those who may be thought likely to co-operate in effecting its permanent establishment. The co-operation of Foreign Naturalists is earnestly invited, and as Tertiary Fossils are light, and capable of being packed in comparatively very small space, their transmission abroad, would be effected at very trifling cost.

These cards may be had at the rate of 5 for 8 penny stamps, this being their cost to the Society allowing for prepayment of postage.

York, May 1850."

Among points worth noting are that in the earlier list of fossils available. A Mr. Edmund Higgins is mentioned as Charlesworth's colleague in the scheme. By June 1849, - it had become necessary to modify the more generous terms in the first list of reducing the number to sixty species for 12s. 6d. and 95 species for 25s. In an effort to explain the difficulties in providing the larger sets, the list contained a footnote:

"The number of suites which can be made of the 60 and 95 species, are in the proportion of 6 of the former to 1 of the latter, and as the larger series necessarily embraces a greater proportion of the less common Fossils, the 35 additional species (marked by hand = x) are estimated as equivalent in value to the first 60."

Charlesworth recognised that particular collectors might only be interested in subscribing in order to obtain the desiderata for their collections and attempted to provide for these individuals by keeping lists of material received by his subscribers. He also pointed out that species of which there were only a few examples were set apart for this purpose of providing the rarer desiderata and therefore did not feature in the general lists.

THE SUBSCRIBERS AND THE SERIES OF SPECIMENS THEY RECEIVED

The style and extravagent claims made in the BNHS literature are reminiscent of the more blatant documents used to extol the virtues of dubious business

companies when they are first floated to attract gullible investors, but perhaps the vocabulary simply reflects the more colourful use of the English Language in Victorian times. Certainly, we can only wonder as to the identities of possible subscribers and whether they were largely private collectors, or established museums and institutions. The evidence supplied by Barbara Pyrah (this issue) indicates that Charlesworth sought the co-operation of both the Oxford and Cambridge Museums; (A.G. Brighton supplied a list of BNHS material at the Sedgwick for Wrigley in the 1940's.) Presumably the Yorkshire Philosophical Society received their promised "complete series of specimens" as some compensation for permitting their Curator to operate the BNHS scheme from York. However, the BM(NH) collection [1] was largely obtained through the presentation of the fossil collection of Frederick Harford - who is more renowned for his interest in Cretaceous fossils - by his daughter in 1895. Fortunately, this is almost a complete series, only lacking No. 84 Voluta spinosa (a very common fossil); letters bw & x (respectively Cythera obliqua, Ancillaria and Cytherea) and a 7 = Panopea intermedia. One of the copies of the later List of Tertiary Fossils in the BM(NH) once belonged to Harford and is annotated in Charlesworth's hand:

"Species not included in this Catalogue sent to Mr. Harford:
Solen affinis; Vulsella; Cancellaria quadrata; Clavagella;
Fasciolaria; Cerithium ...."
(the first three of these are still in the collection).

Two other items of BNHS ephemera are fortunately preserved in the Harford material. One merely used as a piece of scrap paper to convey locality information, is a published list of Subscribers in Edinburgh to the BNHS in October, 1851 (Fig. 4). Twenty three names are listed, including Professor Simpson, Hugh Miller, Wyville Thomson and Professor John Fleming; virtually all, excepting Hugh Miller and a Charles MacLaren participated in the Tertiary fossil scheme.

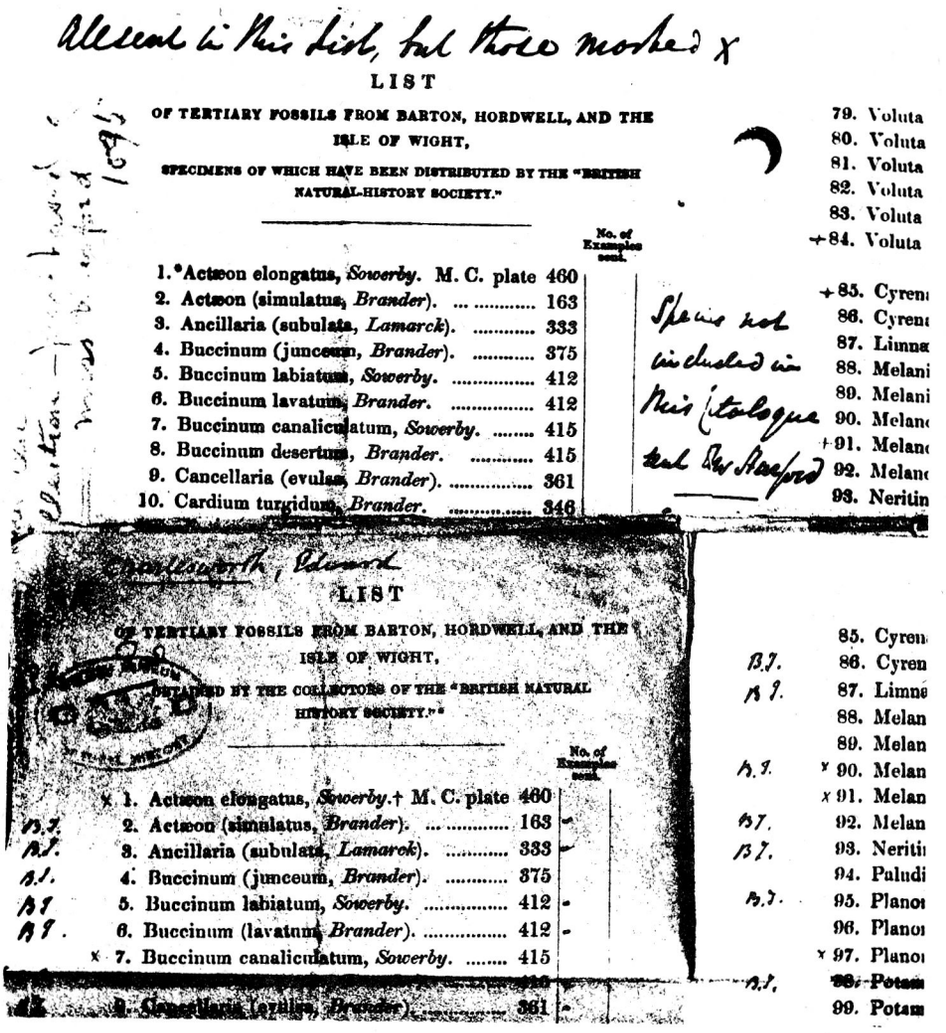
This leaflet extends our knowledge of the methods by which the BNHS obtained its finance and distributed its specimens.

"The subscriptions for the Tertiary Fossils of the Isle of Wight .. is 12s. 6d. or a multiple of that sum ...
Of the Hampshire Tertiary Fossils more than 40,000 specimens have now been distributed in collections varying from 100 to 300 specimens.

In sending to any considerable distance from London, or York, the plan is adopted to enclose all the Collections for Subsribers residing in the same Town, or District in one parcel. This is addressed to one of the Honorary Local Secretaries, by whom its contents are distributed. The cost of carriage to each Subscriber is thus reduced to a very trifling amount."

From the amounts ascribed to the various individuals it is possible to learn that a few had received more than four sets and that one Scot was addicted to Tertiary specimens from Hampshire having made seven subsriptions. Curiosity as to possible subscribers would be answered if Charlesworth had ever completed his promise:

FOOTNOTE 1.
The only evidence discovered at the B.M.(N.H.) for transactions with Charlesworth, at that period, are:
a) 'List of (British) fossils offered to the British Museum.' (1858 in Mss. Catalogue of Geological Collections, Vol. 1, no. 13: 2 sheets. (Crag material).
b) 'Catalogue with Notes upon a collection of Crag Fossils .. offered to the Trustees'. (1869). In Mss Catalogue of Geological Collections, Vol. 1, no. 17: 5 sheets. (List of fossils from the Red and Coralline Crag).



Allocat in this List, but those marked x

LIST

OF TERTIARY FOSSILS FROM BARTON, HORDWELL, AND THE ISLE OF WIGHT,

SPECIMENS OF WHICH HAVE BEEN DISTRIBUTED BY THE "BRITISH NATURAL-HISTORY SOCIETY."

		No. of Examples sent.
1.	*Actæon elongatus, Sowerby.* M. C. plate	460
2.	Actæon (simulatus, *Brander*).	163
3.	Ancillaria (subulata, *Lamarck*).	333
4.	Buccinum (junceum, *Brander*).	375
5.	Buccinum labiatum, *Sowerby*.	412
6.	Buccinum lavatum, *Brander*.	412
7.	Buccinum canaliculatum, *Sowerby*.	415
8.	Buccinum desertum, *Brander*.	415
9.	Cancellaria (evulsa, *Brander*).	361
10.	Cardium turgidum, *Brander*.	346

Species not included in this Catalogue but Mr Sharpe

79. Voluta
80. Voluta
81. Voluta
82. Voluta
83. Voluta
+84. Voluta
+85. Cyren
86. Cyren
87. Limna
88. Melani
89. Melani
90. Melan
+91. Melan
92. Melan
93. Neritin

Woolworth, Edward

LIST

OF TERTIARY FOSSILS FROM BARTON, HORDWELL, AND THE ISLE OF WIGHT,

OBTAINED BY THE COLLECTORS OF THE "BRITISH NATURAL HISTORY SOCIETY."

			No. of Examples sent.
x	1.	Actæon elongatus, *Sowerby*.† M. C. plate	460
B.J.	2.	Actæon (simulatus, *Brander*).	163
B.J.	3.	Ancillaria (subulata, *Lamarck*).	333
B.J.	4.	Buccinum (junceum, *Brander*).	375
B.J.	5.	Buccinum labiatum, *Sowerby*.	412
B.J.	6.	Buccinum (lavatum, *Brander*).	412
x	7.	Buccinum canaliculatum, *Sowerby*.	415
		[illegible]	[illegible]
	9.	Cancellaria (evulsa, *Brander*).	361

B.J. 85. Cyren
B.J. 86. Cyren
B.J. 87. Limne
88. Melan
89. Melan
B.J. x 90. Melan
x 91. Melan
B.J. 92. Melan
B.J. 93. Neriti
94. Paludi
B.J. 95. Planor
96. Planor
x 97. Planor
B.J. ~~98. Potam~~
99. Potam

Fig. 3. Superimposed extracts from BM(NH) copies of the December 1848 and November 1850 Lists of Tertiary Fossils issued by the BNHS.

Subscribers in Edinburgh for Sets of the Fossils, &c., now being Collected by the British Natural-History Society.

	Isle of Wight and Hampshire Tertiary.	Mountain Limestone of York and Lancashire, &c.	Crag of Norfolk and Suffolk.	British Marine Shells.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Anderson, Robt., Esq., 7 Gayfield Square	0 12 6	0 8 0		
Beattie, George, Esq., 5 Lothian Road	0 12 6	0 8 0		
Cobbold, Spencer, Esq., 20 Dublin Street	1 5 0	0 8 0		
Cowan, John, Esq., 4 Ainslie Place..	0 12 6	0 8 0	0 8 0	
Cunningham, Jas., Esq., 50 Queen Street	1 17 6	0 8 0	0 16 0	
Cunningham, Rev. W. B., Prestonpans	0 12 6			
Dalmahoy, P., Esq., 69 Queen Street	1 5 0			

Fig. 4. Extract from the October 1851 List of Edinburgh Subscribers; reduced in size in this photograph.

"A general list, showing the Collections for which each Member has subscribed is in preparation, and arranged in the following manner:
1st. Public Institutions; 2nd. Subscribers in England and Wales:
3rd. Subscribers in Scotland; 4th. Ireland; 5th. Honorary Local Secretaries."

The second piece of ephemera is a notice of despatch informing Harford that "the Tertiary Fossils to which you are entitled for your Second Subscription of £1. 17s. 6d. The parcel is forwarded to 27 Cornhill and ought to reach you on or before the 21st March 1850".

These two pieces of ephemera indicate that the society prospered gaining new subscribers in addition to second subscriptions from the original membership.

The typical red boxes with their distinctive BNHS label (Fig. 5), together with the glass tubes and their red sealing waxed corks used for the smaller specimens were only entitled to be retained by subscribers upon payment of their cost to the Society. This fact could explain why so few sets of BNHS material have been recognised in collections despite the seemingly extensive participation in the scheme.

The main period of BNHS distribution would seem to have occurred between 1848 and 1860; this would have followed the demise of the first London Clay Club (1836 - 1847), - see Elliott (1970). With their strong interest in Tertiary fossils, one would expect to learn that such collectors might have subscribed to the Society, but we have been unable to discover any indication that they did no either from correspondence, or collections. Presumably, those such as Wetherell, Bowerbank and the Sowerbys were too discerning, or could very easily obtain their own material. Yet, if the figures and dates quoted in the British Natural History Society literature can be relied upon; there would appear to have been at least 125 subscribers for 25,000 specimens by May 1850. For even the highest subscription rate unit of 200 specimens each would produce that number. If the figures are accurate, half of these specimens would have been distributed between July 1849 and May 1850. Using the figures given in October 1851, the inferred total of 40,000 fossils could only have been dispersed between some 200 subscribers (? = £375 - £500). Although it is necessary to recognise that many of these were probably repeating their subscription and were not necessarily new subscribers. However, even with Charlesworth's business acumen, the printing of the various items relating to the Society and the administrative records, as well as financing the collecting, must surely have required substantial contributions.

Yet, the BNHS would appear to have been an intangible organisation, with little attempt being made to maintain Society records, or to provide an effective constitution (see Pyrah, this issue). It is very unlikely that such an organisation could have operated under similar conditions at the present time without incurring investigation. The only two officers would seem to be the organiser Edward Charlesworth, under the guise of Acting-Secretary, or Secretary; and the Treasurer, initially Edmund Higgins, later Edward Smallwood and then possibly Robert Hudson. Either official had to be responsible for pricing the fossils, judging their comparative rarity and economic value, equating this with subscription levels and making up the boxes and sets; that is if the intricacies of the graduated subscription scheme were really adhered to and meant something.

However, as Barbara Pyrah infers, it was more likely that Charlesworth simply made up sets from his broad collections as the material was ordered.

Evidence that the scheme grew is provided by the publication of lists. The original, recorded 102 fossils, 35 of which were only available to those paying the higher subscription. A later, and second list, dated November 1850, offered in addition to Nos. 1-102; a series a - z; aa - zz; and a^1 - a^{12}. a footnote explains:

"The want of uniformity in the arrangement of the Supplementary List arises from its having been added to at different times, and from its being necessary that a letter or number if once used to denote a species should not be changed."

The reason for Charlesworth's reference is that the greater part of the single alphabetical list was used for fossils either new, or not yet identified with any published species. Consequently such material was not generally available and therefore appeared at the bottom of the sheet. Similarly the a^1 - a^6 letters were used for non-Molluscan material found in the Tertiary deposits. The Harford collection also contains a number of additional specimens in unlisted red boxes, several of which are labelled as new species.

(The BM(NH) collections contain 175 specimens from the 1-102 series; 31 specimens from the 25 in the a-z series, (lacking b,w, & x); 26 specimens on the 25 in the aa - zz series; and 12 specimens from the 12 fossils in the a^1 - a^{12} series, but lacking a^7: Panopea intermedia.

THE "CHARLESWORTH ILLUSTRATIONS"

One of the later phases of the Society's activities relates to the project that is now referred to as 'Charlesworth's Illustrations of Hampshire Fossils'. According to Newton (1895: 326) about the year 1850, Charlesworth, became interested in the study of some of the more minute forms of English Tertiary Mollusca. Another card containing drawings of two of these small fossils was used to promote the new venture (see Fig 6, top). The text of this card is as follows:

"From the Tertiary Eocene Beds of Barton, Hampshire

If the requisite number of Subscribers can be obtained, researches will be undertaken by the British Natural History Society for the purpose of forming a series of Collections of MINUTE Tertiary Fossils, it being proposed to illustrate all the species included in these collections by lithographic figures, elaborately executed, and drawn on a scale sufficiently large to display the most minute characters in the form and ornamental markings of the originals. The specimen or specimens of each species, with the magnified figure will be securely fixed to a separate Tablet 4 by 3 1/2 inches; the Fossil and the face of the Lithograph being protected by plate glass, cemented at its margins to the Tablet, and bound over the paper. Mounted in this manner, these collections will form an extremely instructive and beautiful display, and constitute an entirely new feature in the "illustrative department" of British Natural History: while all access of dust (so destructive to delicate Natural-History objects) being prevented, their preservation may be insured for an almost unlimited period of time.

The figures illustrating the fossils will be proofs on India paper from drawings on stone, by Mr. Wm. Smith of York. The Subscription for the collection (with the illustrations, tablets etc), consisting of not less than 40 Species, will be £5.

When sufficient specimens are collected and mounted to complete to the extent of 20 species each, the collections subscribed for, a portion of the series will be issued, at which time one half of the Subscription is to be paid, and the remaining half when the specimens to complete the series are ready for delivery. Subscribers not already contributors to the Society's Collecting Fund to pay one-fifth of the Subscription in advance.

A considerable proportion of the Fossils will consist of new species. These will be named and described by Mr. Charlesworth, in a Catalogue which will accompany the Collections.

Subscribers are requested to address "The Secretary of the British Natural History Society, York."

An annotation stated;

"Sets of 20 Species will be issued for subscriptions of £2. 10s. 0d."

The brochure (mentioned by Pyrah) this issue p. 91 in the Phillips collection at Oxford, relates to this later venture and, although published some time after the scheme had been underway, is dated April 1856.

"Among the fossil productions for which Barton Cliff, in Hampshire, has long been famous, there occur numerous small Shells, the majority of which, until recently, have escaped the observation of the numerous geological explorers of this interesting locality.

Some of these minute Fossils are remarkable for the beautiful and elaborate way in which their surface is sculptured; others possess great scientific interest, from their belonging to generic types previously unknown in the British Eocene formations, such for examples, as the genera Rissoa, Odostomia, Eulima etc.

Sets of these Fossils are now being issued to Subsribers illustrated by magnificent lithographic figures, most carefully executed by Mr. Wm. SMITH, under the superintendence of Mr. CHARLESWORTH. The lithographs are separately mounted on millboard tablets, 3 by 4 in., and protected by glass; the name of each Fossil and locality being printed along the bottom margin. The Fossil is placed under the glass also, in a circular depression, so that the object and its magnified representation are shown together. Mounted in this manner the Collection fills a neat mahogany box, four inches deep, and about twelve inches square; the tablets being laid on trays one above another, each tray holding six tablets, so that the whole Collection though packed away in small compass, may be taken out and examined with the greatest facility.

These Illustrated Collections are issued in two series; one of twenty, and one of forty Species; the Subscriptions for the former being £2. 10s. 0d. and for the latter £5., to be paid to the Secretary of the British Natural History Society, when the Collections are ready for delivery.

BRITISH NATURAL HISTORY SOCIETY.
York, April 1856."

Among the two lists of subscribers are the names of Mrs Beddome, Frederic Harford, Dr. J. Lee and Joseph Prestwich (under the 20 Species collection); and John Leckenby, Professor Sedgwick, Professor J. Tennant and Dr. (T.) Wilson

of Philadelphia (under the 40 species list); in addition, under Public Museums etc., are Hull Museum, Newcastle Museum, Liverpool Free Museum, Warrington Town Museum and Dublin Trinity College Museum.

Morris (1854) also used the title Charlesworth's Illustrations in the list of sources he gave for the species recorded in his Catalogue of British Fossils. It is thought by us that Wrigley's use of this title derived from a pencilled label in S.V. Wood's hand placed upon his set of sheets containing the figures that was acquired by A.G. Davis (see Wrigley Mss, BM(NH)). An additional label carried the legend: 'Enlarged figures of minute Fossils obtained from the Tertiary Beds of Hampshire through researches carried on by the British Natural History Society. The Drawings on Stone by Mr. Wm. Smith, of York, [2] are from specimens in the Museum of the Yorkshire Philosophical Society.'

Since this comprises the only publication on this material by Charlesworth and since it only consists of sheets, each containing four proofs of different drawings, the general usage of a title such as 'Charlesworth's Illustrations' can only be considered as most apt.

Many of the original sheets of drawings had a guard of tissue, while few of the full set of twelve sheets with 48 drawings had all the drawings with the molluscs positioned in the same direction. Few of the complete sheets have survived, but one hopes that this is not entirely due to the suggestion by Wrigley that the best method of dealing with them was to cut them up for further arrangement.

Perhaps the series of "illustrations" is best known through their distribution as the "Cell Mounts", or "Lantern Slides" mentioned by Pyrah (this issue p.11); see Fig. 7. Apart from their historical interest and connection with Charlesworth and the British Natural - History Society, this series is of considerable concern to Tertiary palaeontologists as a result of its nomenclature. The distribution has been recognised by some palaeontologists (see Wrigley, 1944), "as surely a valid publication", but Newton (1895:326) took the opposite view: "descriptions .. to substantiate the manuscript determinations (of the drawings).. never appeared, so that the unpublished names .. retain up to the present time very little scientific value". Newton proceeded to re-describe and occasionally re-name Charlesworth's species. He also obtained the co-operation of the Curator at York in an effort to verify type material, but concluded:

"This material, .. did not appear to include ... types, any more than that acquired by the BM(NH)." Newton ascribed the first use of Charlesworth's names to their mention in Morris (1854), whilst Wrigley was content to refer to the Illustrations themselves, giving a date "circa 1851". However, there is still considerable reluctance to accept some of Charlesworth's nomenclature until it has been verified by further study. It is hoped that one of us (John Cooper) will soon be in a position to publish a chart of the varying usage of names attributed to the species.

FOOTNOTE 2.
An advertisement on the inside cover of No. III, May 1847 issue of the London Geological Journal, which was produced by Charlesworth, carried the following notice:
"WILLIAM SMITH wishes to establish himself in York as a Natural-History Draughtsman, including Drawing on Stone, Wood, and Paper. He will be happy to undertake the delineations of Fossils or other projects of Natural History on very moderate terms, and engages to take the utmost care of any specimens which may be entrusted to him for this purpose. W.S. begs to refer to the lithographic Plates in the London Geological Journal for his competency in the art, and for general reference he has permission to mention the Editor of the above work, and Mr. Patterson of the York School of Design." (Pls.6-9; Pls. 14-17 & 19 in Lond. Geol. Jl.)

6, Northgate Street,

Ipswich, April 6, 1869.

The Mayor,
Edward Packard, Esq., Ipswich.

Dear Sir,

For a period of something like 30 years I have had very little access to a field of Geological research in which I once was an active worker—the rich Fossil-bearing strata of Norfolk and Suffolk. But the last meeting of the British Association took me to Norwich, and finding by the proceedings at that meeting that the English Crag is still a subject ever presenting new phases of interest to the Geological world, I arranged to occupy myself for a time with a re-survey of the whole Crag region; and, moreover, to make myself acquainted with the principal public and private collections of Crag Fossils in the two counties. In carrying out this purpose I am now here, and during my stay hope to impress upon the minds of those who take a part in the management, or who feel an interest in the beautiful Institution associated with the name of Henslow, that the Ipswich Museum is the place of all others in which a man of science would expect to have presented to his notice, the most perfect known collection of the interesting Fossils of the Suffolk Crag.

Almost every large town in England now has its public Museum, and the great movement which is steadily and surely making its way—that of Science teaching for the Masses, must more or less be associated with Public Institutions in which collections of natural objects can be seen and studied, and where it is presumed these objects will be arranged in accordance with the latest advance of scientific knowledge.

Long before this movement had assumed its present importance, I took the greatest interest in the establishment of these aids to the advancement of a knowledge of Natural Science.

I was an active co-operator with the late Mr. R. D. Alexander—the late Capt. Roope, some members of the Cobbold family and others, in the establishment of the original Ipswich Museum; and I contributed my share of specimens and gratuitous work. This was, I think, in 1836, years before the present, and in every respect more important institution had its rise. Since then I have made myself acquainted with nearly every public Museum in this kingdom—Edinburgh, Newcastle, York, Leeds, Hull, Scarbro', Liverpool, Manchester, Birmingham, Worcester, Cambridge, &c., &c.; and abroad, beginning with the Museum at Boulogne, and ending with that in the city of Mexico, I have visited some of the best known Museums in Foreign Countries; and with this rather extensive experience to give some authority to my opinion I am bound to state my conviction, that for the pleasing impression it produces on a visitor, as well as for the amount of instruction which is to be gained within a limited space, the Ipswich Museum undoubtedly bears away the palm.

Nevertheless, considered in reference to one of the main object contemplated in its foundation, the Ipswich Museum cannot be regarded as a success. In illustrating local Natural History, and stimulating local research, I am afraid it has accomplished very little. The lamented and distinguished Edward Forbes, who filled the Natural History Chair in the university of Edinburgh, thus writes in his Essay on the Educational use of Museums:—

"When the inquirer goes from one province to another, from "one county to another, he seeks first for local collections. In "almost every town, of any size or consequence, he finds a "public museum; but how often does he find any part of that "museum devoted to the illustration of the productions of the "district? The very feature which of all others would give "interest and value to the collection, which would render it "most useful for teaching purposes, has in most instances being "omitted, or so treated as to be altogether useless."

Now the town of Ipswich, as everybody knows, lies upon or close to that inexhaustable mine of Fossil remains known as the Crag. From this store-house of the living forms of a bye-gone world, no less (at a rough estimate) than 800 different species of Shells, Corals, Zoophytes, Sea-urchins, &c., have been figured and described during the last twenty years by Mr. Searles Wood, Prof. Owen, the late Prof. Edward Forbes, and other men of science; and of this 800 species, something like 700 have been found within ten miles of Ipswich. Of the above 800 Suffolk Crag Fossils, about 120 is the present extent of the collection in the Ipswich Museum. But in this 120 species it must be allowed there are included some of the rarest and most prized of the Fossil Productions of Suffolk. The glistening and remarkably formed Molars of the Extinct Elephantine Quadruped the Mastodon—the huge triangular teeth of the giant Sharks of the Crag Seas—the rare Shells, Hinnites, Pecten Princeps, &c., dug out of the Deben river cliff at Ramsholt, by Mr. Colchester, regardless of expense, are local productions of which the Museum has just cause to be proud. But the Museum's weak point is the want of a crag collection embracing a larger series of species, and this series so labelled and arranged as to help the student on the road to knowledge. A school boy, with a love of Natural History, spends his half holiday in a Suffolk Crag Pit, and he leaves it not with a Mastodon tooth in one pocket and a Pecten Princeps in the other, but with a box full of the ordinary Crag Shells; it may be 30 or 40 different sorts. These, as his first step in the path of science he wants to name. He goes to the Museum, there finds himself foiled, and then discouraged, turns to perhaps some less desirable way of killing time than hunting for Fossil Shells. This is no hypothetical instance put forward to illustrate my argument. I know it to have happened in the case of the Ipswich Museum, and as a boy I was at school at Ipswich, where the authorities warmly encouraged fossil hunting. But when a fossil was found, the standing difficulty was, in the absence of any Public collection accessible to School Boys, how to arrive at its name.

In proof of the great interest which surrounds everything relating to the Crag of Suffolk and Norfolk, I need only refer you to Sir Charles Lyell's work on the Antiquity of Man. At page 208, he tells us that in the study of the more recent Geological Formations, and in connecting these with the deposits of the present day, the most complete series of consecutive documents to which we can refer are found in the Crag deposits of Norfolk and Suffolk. The Fossil Shells, he says, of the different Crag Periods clearly point to a gradual refrigeration of climate from a temperature somewhat warmer than that now prevailing in our latitudes to one of intense cold; and the successive steps which have marked the coming on of the increasing cold are matters of no small Geological interest.

Sir Charles Lyell then proceeds to give an account of the Crag, treating of it as including three formations, the Coralline Crag, the Red Crag, and the Mammaliferous Crag; and he enters into a variety of details concerning the relative proportions of the number of species of Shells in these several Crags, and their bearing upon the question of temperature.

There now remains the essentially practical question of what outlay is necessary to put into order the present series of Crag Fossils, and at the same time so to add to their number, as to make the collection valuable for the purposes of reference, and worthy the high reputation of the Museum.

Next to the series of Crag Fossils in the British Museum, which includes the celebrated collection made by Mr. Wood when living at Hasketon, Woodbridge, the best collection extant is in the possession of Mr. William Reed, F. G. S., of York, made for him principally by me at a cost of about £150. It consists of about 350 species of Shells, Corals, &c., besides the more expensive Class of specimens, such as Teeth of Mastodon, Rhinoceros, &c., &c., the rare Shells, Cassidaria, Isocardia, &c., &c. The Suffolk Crag collections in the Museums of Liverpool and Philadelphia, were also made by myself. They include perhaps 250 species, and their cost may be set down at from £30 to £40. But the Ipswich Museum has 100 species and upwards to start with, including some of the more expensive kinds; and I find, from conversation with various possessors of Crag collections in Ipswich and surrounding district, that if there is a prospect of donations of Crag desiderata being incorporated with a properly arranged Museum collection, most liberal contributions will be offered to an extent which will, at least, double the total number of species in the Museum. Then for the sum of £10 I could add another 100 species, bringing up the total to more than 300 species. The careful examination of all the specimens now in the Museum—drawing up a descriptive Catalogue, arranging and labelling the prospective contributions, added to the time which may have to be spent in going through Cabinets, both in Ipswich and the county, for the purpose of selecting prospective donations of Museum desiderata, and which alone may occupy a week, I estimate at £25, making in all £35; the understanding being that this sum covers expenses of every kind.

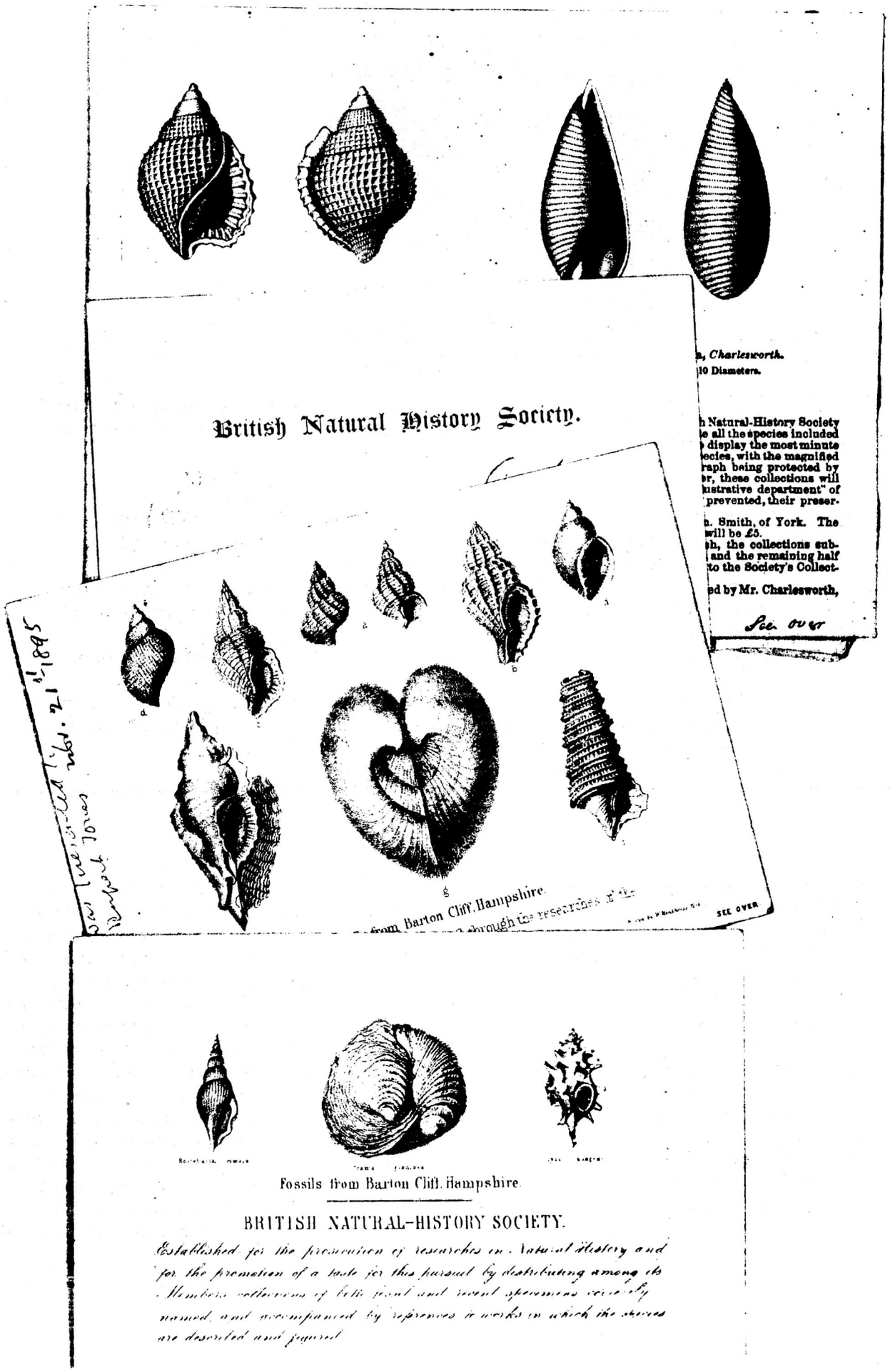
The terms on which I undertake Museum work, whether within the walls of the building or away from it are at the rate of one guinea for every six hours; and upon these terms my estimate of £25 is based.

I have named the sum of £35, but I by no means wish to press for that amount being applied to the extension of the Crag collection if there is any difficulty about its being provided. On the other hand there is an ample field to increase the Crag collection to a greater extent than the limit I have suggested and which limit is merely fixed upon to bring the outlay within a very moderate sum.

I shall be most glad to have the opportunity conferring with yourself and the Members of the Committee at the Meeting to morrow, and giving you any further explanations that you may desire.

I am, dear Sir,
Very truly your's,
EDWARD CHARLESWORTH.

FIGURE 6


British Natural History Society.
Fossils from Barton Cliff, Hampshire.
BRITISH NATURAL-HISTORY SOCIETY.
Established for the promotion of researches in Natural History and for the promotion of a taste for this pursuit by distributing among its Members collections of both fossil and recent specimens correctly named, and accompanied by references to works in which the species are described and figured.

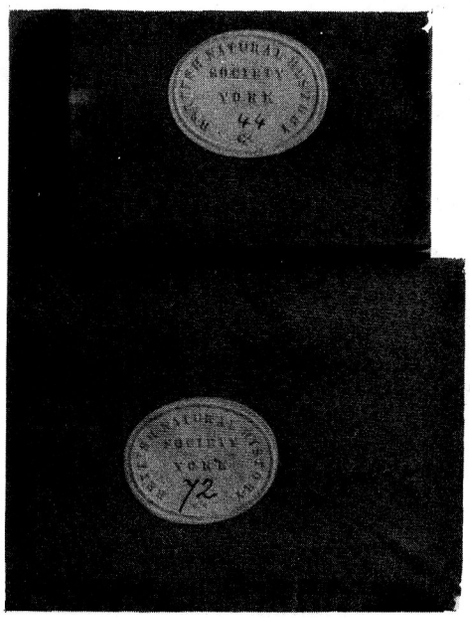


Fig. 5. Typical BNHS labels with hand-written numbers relating to printed lists; the small boxes are red in colour and the label is a pale-yellowish green.

Fig. 6. Ephemera associated with the BRITISH NATURAL HISTORY SOCIETY.
Top: Card used to encourage subscriptions to Charlesworth's series of Minute Tertiary Fossils.
Centre: Card (Type 'B') issued in July 1849 showing figures of the Barton fossils and advertising the collecting activities of the BNHS. ←
Bottom: Card issued in May 1850 (Type 'A') with detailed outline of the objectives of the BNHS.
All these cards in BM(NH) and originally belonged to either Sir Joseph Prestwich, the Rev. Ashington Bullen, or Prof. T. Rupert Jones.

One of the problems is the suspicion, that in order to fulfill his obligations under the BNHS subscription scheme, Charlesworth may have been forced to distinguish species to maintain numbers. Certainly, some of the fossils featured in the drawings are now recognised to be different forms of the same species, or else synonymized with other species. At one time, it had been wondered whether the distribution of the labelled specimens was also consistent, but the evidence of the sets that we have seen suggests that there was little irregularity in the nomenclature and identification of the standard species distributed. The B.M.(N.H.) has examples of the minute shells obtained from the collections of Professor Prestwich, F. Harford and H. Stockton; Wrigley (1944) designated material from each of these collections as syntypes in his re-description of species of Eulima. It is perhaps necessary to clarify Wrigley's comment concerning the use of BM(NH) and Sedgwick material (mentioned by Barbara Pyrah, see this issue p.91), which could be misconstrued to mean that Wrigley considered that the Illustrations were based upon fossils in these institutions, rather than that Wrigley's own 1941-43 investigation of the BNHS was conducted on such material.

ATTEMPTS TO EXPAND THE ACTIVITIES OF THE BNHS

It is possible that the BNHS labels found in the Hull Museum (Fig. 8) by Mick Stanley, (which incidentally prompted these articles) represent a very late phase of the Society. The address they give: The Whittington Club, Arundel Street, London, is a road leading from the Strand down to the Temple and the Embankment. It would suggest that the specimens were distributed during the period that Charlesworth operated from 113a Strand, - see Pyrah (1979), during the 1870's. This supposition might also be confirmed by the fact that the fossils concerned come from the Silurian of Dudley, Worcestershire and that at that time Charlesworth had purchased the GWILT collection (1875), which contained specimens from the GOODHALL collection collected at Dudley.

The April 1850 brochure ended with the hopeful statement:

"It is probable that sooner or later, specimens will be collected by the Society in all Geological formations, and in all branches of Natural History, so as to give Subscribers forming collections, the widest possible range of objects to select from."

That same year, in a letter to Dr. Daubeny dated 19th August, Charlesworth wrote:

"I leave to-day for Arran and Loch Fyne at which places I hope to make arrangements for collecting British Marine shells. We propose distributing sets of Marine shells in the same way as the Tertiary Fossils."

The comment in the same letter:

"Many of the Edinburgh naturalists have joined the Society during my stay here"

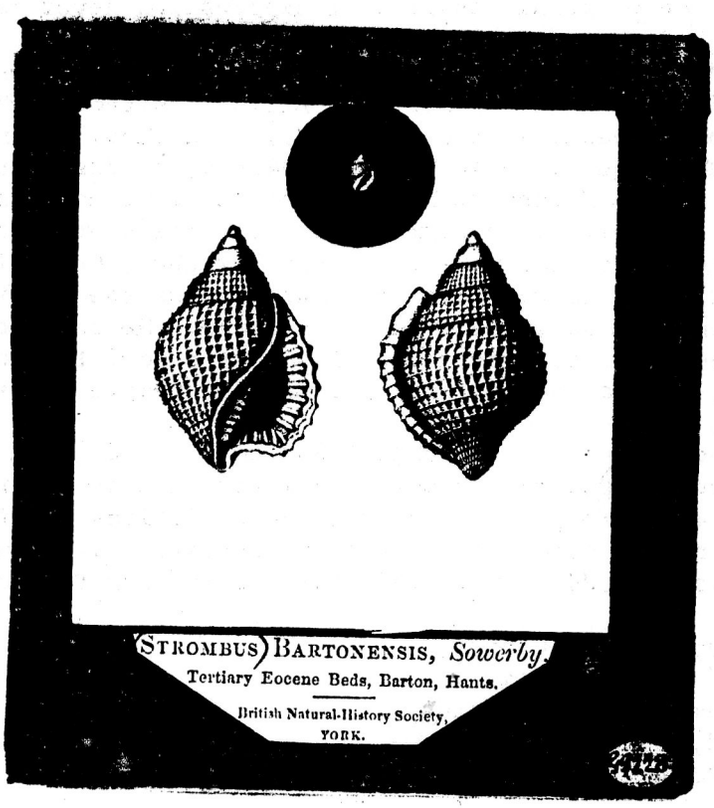


Fig. 7. Example of a 'Cell Mount', or Lantern Slide distributed by the BNHS for description see Pyrah (this issue p.90-91)
The Yorkshire Museum has 33 examples featuring 22 species whilst the B.M.(N.H.) has 51 examples of 28 species.

helps to explain the list of Edinburgh subscribers, already mentioned. This list, published in 1851, has subscription schemes for categories other than the Hampshire Tertiary fossils, including those for the Mountain Limestone of York and Lancashire etc., the Crag of Norfolk and Suffolk; and British Marine Shells. These additional schemes offered basic sets for a subscription of eight shillings. Copies of a Catalogue of British Marine Recent Shells recording some 406 species were distributed in April 1855; one for general reference on light-weight paper to facilitate postage and another on a stronger paper to be cut up and used for specimen labels. Lists of other Land and Fresh - water species were also planned.

Incorporated within the letter to Daubeny is a plea to bring the Society to the notice "of anyone interested in Nat. History" for as Charlesworth explained:

"the present number of members ... is only one third of the number required to carry the plan out in an efficient measure".

This may be the reason for the eventual demise of the BNHS project. Yet, Charlesworth continued to adopt a similar method for dealing with subsequent collection of Crag material. In 1878, he published the short Fossil Exploration of Suffolk Crag (Orford Castle) and Hampshire Eocene Cliffs, and in an introduction, after a reference to the earlier BNHS continued:

"The Orford Castle Fossil Exploration Fund is a modification of the 1848 scheme ... It differs ... in this - that Orford Castle subscriptions are not asked for until the collections are delivered or ready for delivery."

Among questions to which we would like to know the answers are the identities of the paid and competent collectors used by Charlesworth at Barton Cliff and Colwell Bay. However, it is certain that the idea of employing "some practical Naturalist" to direct collecting operations for all forms of animal life envisaged in the original fossil list explanation never materialised.

One recent question that can be answered is that of the identity of Wrigley's (1944) "Mr. Elliott". He is Dr. G.F. Elliott currently the Deputy Keeper of the Palaeontology Dept. at the B.M.(N.H.). He recalled that when in the R.A.F. and stationed close to York in 1943-44, he frequently spent his spare time working on the Yorkshire Museum's collections and was asked by Wrigley for his help. Almost to confirm Barbara Pyrah's statement that: "in the 1940's ... the collection were at a very low ebb", Dr. Elliott mentioned that the last thing he was able to do was rescue the fossil material after the collections had suffered from bomb-damage. He remembered having to use an un-labelled Jurassic specimen of Pinna as a tool to knock out the shattered glass panels, so that access could be made to remove the specimens.

The protracted history of the BNHS (1848 to c. 1878) just goes to show that you cannot keep a good scheme down. However we deny all rumours that the Tentiary Research Group is financed by subscriptions for London Clay specimens or Fossils from any other Lower Tertiary formation .... but we are working on it !! Perhaps a BM(NH) Curatorial Staff Collecting Fund might result?

R.J. Cleevely and John Cooper,
Department of Palaeontology,
British Museum (Natural History),
Cromwell Road,
London SW7 5BD.

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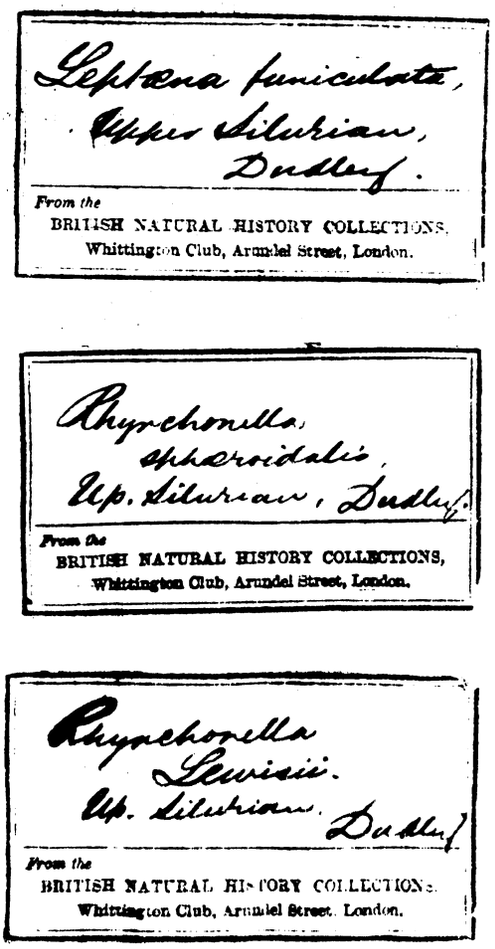

Fig. 8. BNHS labels from material in Kingston upon Hull Museum. Xerox provided by M.F. Stanley.

APPENDIX 1

CHRONOLOGICAL LIST AND LOCATIONS OF BRITISH NATURAL - HISTORY SOCIETY EPHEMERA.

REFERRED TO IN THE TEXT.

1. December 21 1848.
LIST OF TERTIARY FOSSILS FROM BARTON, HORDWELL, AND THE ISLE OF WIGHT OBTAINED BY THE COLLECTORS OF THE "BRITISH NATURAL HISTORY SOCIETY". (Nos. 1-102; Freshwater Species: 85-102)
1. Oxford University Museum; 2 B.M.(N.H.): Pamphlet Cain. Moll.

2. June 1849.
Advertisement Card: BRITISH NATURAL - HISTORY SOCIETY, (with (3) drawings of Fossils from Barton Cliff, Hampshire on front and details of the Society on the reverse), 125mm x 90mm. York, June 1849. B.M.(N.H.)

3. July 1849.
Advertisement Card entitled: Fossils from Barton Cliff, Hampshire. Selected from the New Species obtained through the researches of the British Natural - History Society; figures a-g. (Legend on the reverse, together with brief details of the BNHS). 125mm x 90mm. York July 1849.
B.M.(N.H.): Presented by Prof. T. Rupert Jones, 21 Nov. 1895.

4. March 1850.
British Natural - History Society; Despatch notice + Brochure dated York, March 1850; signed by Robert Hudson and addressed to Fc. Harford.
B.M.(N.H.)

5. April 1850.
BRITISH NATURAL - HISTORY SOCIETY; Brochure giving aims of Society dated York, April 1850: (3pp + (i))
Oxford University Museum: Daubeny Coll'n. Drawer C38.

6. May 1850.
Advertisement Card: BRITISH NATURAL - HISTORY SOCIETY, (with (3) drawings of Fossils etc. as item 2.); dated York May 1850. 125mm x 90mm.
B.M.(N.H.): three copies, including one presented by T. Rupert Jones in 21 Nov. 1895.

7. August 1850.
Letter to Professor Daubeny from Edw. Charlesworth at Edinburgh dated 19th August 1850; (4pp).
Oxford University Museum: Daubeny Coll'n.

8. November 1850.
LIST OF TERTIARY FOSSILS FROM BARTON? HORDWELL, AND THE ISLE OF WIGHT, SPECIMENS OF WHICH HAVE BEEN DISTRIBUTED BY THE "BRITISH NATURAL - HISTORY SOCIETY"
(Left-hand side: Nos. 1-78; Right-hand side: Nos. 79-84 and Freshwater Species: 85-102; SUPPLEMENTARY LIST; a - m; aa - zz; a^7 - a^{12}; FOSSILS EITHER NEW, OR NOT YET IDENTIFIED WITH ANY PUBLISHED SPECIES: e-z; a^1 - a^6.) Dated: York November 1850.

B.M.(N.H.): a) Harford copy with annotations by Charlesworth.
b) Pamphlet Cain. Palaeont., presented 21 Mar. 1914.

9. October 1851.
Subscribers in Edinburgh for Sets of Fossils etc., now being Collected by the British Natural - History Society.
B.M.(N.H.): Pamphlet Cain. Palaeont.

10. Un-dated (? pre- 1856)
Advertisement Card: (Minute Tertiary Fossils) FROM THE TERTIARY EOCENE BEDS OF BARTON, HAMPSHIRE: (with lithographic figures of Strombus Bartonensis Sowerby, and Bulla hastula Charlesworth). 148mm x 116mm + tissue cover. Un-dated.
B.M.(N.H.)

11. April 1856.
British Natural - History Society brochure (single-sheet ?) (Small shells/Minute Fossils); with List of Subscribers. Dated April 1856.
Oxford University Museum: Phillips Collection; Brochure used as paper for letter to John Phillips by Edw. Charlesworth dated 5th Oct. 1860.

APPENDIX 2

LIST OF LITHOGRAPHS ACCOMPANYING THE CELL MOUNTS

Sheets (four Drawings to one sheet) of minute Tertiary fossils issued by the British Natural - History Society.

BM(NH) copies: Some only zerox copies = VI and part of X;
The drawings All positioned one way = I, II & XII; in others a bracket links the relevant pairs.
Tissue facing present = I, III & V
All unlabelled.

BM(NH) material
H = F. Harford Collection Cell Mounts; 18 + 2 duplicates
S = H. Stockton Collection Cell Mounts; 12 + 2 duplicates
P = Prestwich Collection; Drawings + specimens in boxes
(P) = ? from Prestwich Collection & lacks specimen; 15 + 4 duplicates

Yorkshire Museum material
Y = details provided by Barbara Pyrah.

I.	1. Actaeon elongatus Sowerby	H	*	*	Y
	2. Actaeon inflatus Ferrusac	H	S	P	Y
	3. Ringicula parva Charlesworth	H	*	P	Y
	4. Marginella bifido-plicata Charlesworth	H	S	P	Y
II.	5. Cerithium concinnum Charlesworth	H	S	*	Y
	6. Rossoa bartonensis Charlesworth	H	S	P	Y
	7. Nucula deltoidea Lamarck	H	S	*	Y
	8. Nematura pygmaea	H	*	*	Y
III.	9. Bulla ovulata Lamarck	*	*	*	Y
	10. Eulima gracilis Charlesworth	*	*	*	*
	11. Pleurotoma formosa Charlesworth	*	*	P	*
	12. Sigaretus canaliculatus Sowerby	*	*	*	*
IV.	13. Adeorbis elegans Charlesworth	*	*	*	*
	14. Planorbis Lens Sowerby	*	*	*	*
	15. Mitra pumila Sowerby	*	*	*	*
	16. Rotella minuta Sowerby	*	*	P	*
V.	17. Arca praetenuis Charlesworth	*	*	(P)	Y
	18. Syndosmya convexa Charlesworth	*	*	P	*
	19. Lucina spinulosa Edwards	*	*	(P)	Y
	20. Kellia pisiformis Charlesworth	*	*	P	*
VI.	21. Bulla coronata Lamarck	*	*	*	*
	22. Melania (?) carinata	*	*	*	*
	23. Melania peracuminata Charlesworth	*	*	P	*
	24. Odostoma turgida Charlesworth	*	*	P	*
VII.	25. Paludina chastelli Nyst	*	*	P	*
	26. Bulla constricta Sowerby	*	*	*	*
	27. Bulla attenuata Sowerby (var.)	*	*	*	*
	28. Chemnitzia rudis Charlesworth	*	*	P	*

VIII.	29.	Volvaria acutiusculus Sowerby	*	*	*	*
	30.	Bulla elliptica Sowerby (Var.)	*	*	*	*
	31.	Odostomia pupa Charlesworth	*	*	*	*
	32.	Actaeon fenestriata Charlesworth	*	*	*	Y
IX.	33.	Strombus bartonensis Sowerby	H	*	*	Y
	34.	Bulla hastula Charlesworth	H	*	P	Y
	35.	Bulla elliptica Sowerby	H	S	*	Y
	36.	Bulla acuminata Bruguiere	H	S	P	*
X.	37.	Eulima polygyra Charlesworth	H	S	*	Y
	38.	Eulima macrostoma Charlesworth	H	S	P	Y
	39.	Cerithium filosum Charlesworth	H	S	P	Y
	40.	Cancellaria microstoma Charlesworth	H	S	P	Y
XI.	41.	Melania fasciata Sowerby	H	S	*	Y
	42.	Leda minima Sowerby	H	S	*	Y
	43.	Mitra parva Sowerby	H	S	*	Y
	44.	Melania costata (?) Sowerby	H	*	*	*
XII	45.	Volvaria	*	*	*	*
	46.	Bulla	*	*	*	*
	47.	Cardita (? = Arca minutula)	*	*	*	Y
	48.	Pleurotoma	*	*	*	*

S. G. PERCEVAL, A CRUSADER FOR MUSEUMS
by John Thackray

Spencer George Perceval was born at Bindon House, Langford Budville, Somerset, on 8 July 1838. His father, Ernest Augustus, was the fifth son of Spencer Perceval, the Prime Minister murdered in 1812; his mother, Beatrice, was the only daughter of Sir John Trevelyan of Nettlecombe Court, Somerset. In 1847 the family moved to Chapel Cleeve, where they lived until 1863 when they went to Severn House in Henbury, Bristol. Spencer was educated at Radley College, Berkshire and, Trinity College, Cambridge, where he was awarded a B.A. in 1862.

Perceval's interest in geology started early in life. He collected his first minerals in the Brendon Hills about 1852, and by the time the family moved he had built up a good collection of iron and manganese ores, malachite, galena and quartz from the area. A few years later he wrote a detailed catalogue of this collection and presented both to Taunton Museum on condition that the minerals were displayed in a special showcase and the catalogue kept available for visitors. He visited Taunton himself in 1871 to lay out the specimens and their labels. By this time he was becoming well known as a collector of West Country minerals. He took a particular interest in fluorite, celestine, agate and mendipite from Clifton, Blue Anchor, Wickwar, Priddy and other localities. Further afield he had found and published brookite from Treffgarn Rocks, Pembrokeshire, and rutile from Cushcamcurragh in County Mayo, Ireland.

At the same time his interest in fossils was growing. He collected and purchased fossils on a visit to Lincolnshire in 1858, and collected around Cambridge the following year. In 1860 he discovered Devonian corals on Sandhill Farm, Withycombe, and over the next three years recovered fourteen species from the small outcrops. The only Devonian corals previously known in West Somerset were those found on the Quantock Hills by J.D. Pring, so Perceval was rightly proud of his find. When he gave the best of these specimens to the Natural History Museum in 1904 he also presented a series of watercolour paintings depicting some of the more colourful polished corals.[2] He started collecting Carboniferous corals about the same time, working around Clifton, over the Mendips, and up in Northumberland while on a visit to his uncle, Sir Walter Trevelyan.

W.C. Trevelyan (1797-1879) of Wallington Hall, northeast of Newcastle, was an accomplished geologist and botanist, one of the founders of the local natural history society, a leader of the temperance movement, and a great influence on the young Spencer Perceval. In a long series of somewhat sycophantic letters Perceval reports his discoveries, asks for advice, and seeks approval. He recounts tales of temperance among the working classes and tries to reconcile Genesis with geology - subjects perhaps closer to the older man's heart than his own.

Perceval was less enthusiastic when Trevelyan encouraged him to get a job, first on the Geological Survey and later as a museum curator. He used his poor state of health as an excuse and promised to try again when he was stronger. Although he lived to the age of 83 Perceval seems to have been on the verge of illness most of his life. 'Weakness of the nervous system' is mentioned once or twice, and it is suggested that a 'walking tour' would be helpful. Perceval often comments in his letters whether or not a place suits him well, and writes at one time that he must leave home for the sake of his health. His sister, writing after his death, simply says that he was of a reserved and nervous disposition.

In spite of this, Perceval travelled a fair amount within the British Isles. Every year from 1866 until the 1890's he made some geological excursion, visiting his uncle three times, Scotland twice, Wales four times and Ireland once. His only foreign trips were to Boulogne in 1875 and through Belgium into Germany and back via Paris, a tour described in an undated letter to Trevelyan.

Perceval lived in Henbury for forty years. By the end of 1902 he had decided to move and started to pack up his collections. This was an enormous job in spite of the large number of donations he had made over the years to museums up and down the country. In addition to the fruits of his own field-work he still had the large collection of minerals left to him by his uncle, which he had tried unsuccessfully to dispose of. He gave the bulk of his fossil collection to the Natural History Museum in 1904, but kept the minerals in store until he died in 1922, when they passed to the same establishment. The final years of Perceval's life were spent in rented accommodation in Clifton, Bristol.

Two of Perceval's other interests can only be touched in here. He was a collector of antiquities on the broadest scale. He accumulated flint tools, ceramics, seals, paintings, watches, engraved gems, prints etc., etc., and, as with his fossils and minerals, gave and sold objects to museums all over Britain. His other passion was for books and manuscripts, particularly those connected with natural history. He was collecting autographs of men of science as early as 1866, but does not seem to have had much interest in old books until his uncle left him the geological portion of his library in 1879. Perceval built up a special collection illustrating the history of museums, making a particular study of the Leverian Museum and the dispersal of its collections. Among the manuscripts he owned were a huge mass of Joseph Banks' papers bought in 1887, letters of Thomas Webster bought the following year, and the letters and papers of William Baker of Taunton which he acquired in 1882.

But standing above Perceval the collector and Perceval the scholar stands Perceval the champion and scourge of museums. He had very strong ideas about the role of museums in geology and the importance of their collections and exhibitions, and he did not hesitate to denounce them and their officers when they fell below the standards he set. His two main areas of concern were the standards of curation and documentation in museums and the building up of museum holdings by the acquisition of important local collection. He saw improvement in the first as a necessary preliminary to success in the second. Perceval carried out his one man crusade by correspondence, backed up where possible by personal visits, and in the correspondence columns of the local press and of magazines such as Nature and The Academy. Of the ninety short publications I have traced, thirty seven either criticise particular museums or make suggestions for their better management. Soon after he had resigned from the curatorship of Bristol Museum, E.B. Tawney wrote to Perceval: 'The Bristol local collections I shall consider safe so long as you are known to be in the neighbourhood, for they know they will be spitted in the style of a ready writer to the newspapers if they transgress.' Perceval realised that he was fighting a losing battle; signs of optimism are few and far between in his letters. 'I am as one crying in the wilderness as regards museum reform and progress', he wrote to F.W. Rudler.

One of Perceval's regular complaints was that collections were poorly looked after. Dirt and dust, unlabelled or badly labelled objects, specimens that had fallen over, all these drew forth his wrath. His first letter to Trevelyan

in 1866 bemoans the fact that the geological collections at Taunton Museum were sadly neglected, untouched since his first visit three years earlier. The second letter makes the first of a fifty-year series of complaints about his bête-noir, Bristol Museum: 'The specimens in the present museum, especially the minerals, are in a filthy state.' He visited the museum at Lichfield in 1874 and, appalled at its condition, did several months voluntary curatorial work, for which, by his own account, he got little thanks. A visit to Glastonbury Museum in 1889 resulted in a very sharp letter to the Central Somerset Gazette on the chaotic state of the collections. He wrote to Trevelyan in 1873: 'Museums require exposing, one after another.' He was careful to keep an eye on the many presentations he made over the years. J.R. Moss, curator of a museum in Dublin, had to admit that he could not find the pieces of magnetite that Perceval had presented a few years earlier as no registers had been kept at the time. When he visited Taunton Museum in 1902 he found that the manuscript catalogue of his Brendon Hill minerals had disappeared. It turned up again in 1908, but he was not mollified and printed the catalogue in 1909 with a vitriolic preface describing the history of the collection.[3] Accuracy of labels, as regards identification, locality and provenance also caught his eye, and if the curator did not act swiftly on his comments a letter was likely to appear in the press.

Perceval had little sympathy for the problems faced by a hard pressed museum curator, and many of his comments were acidic. Some were 'incompetent', some 'lazy', and some 'complacent'. The staff of the Mineralogy Department at the Natural History Museum were 'not sufficiently enthusiastic', while some curators did not want to acquire collections, 'it would be too much trouble'. One of his correspondents agreed with his comments about the staff at Bristol and suggested that, in the 1860's, 'the animals in such places are hardly more stuffed than the attendants.' In spite of all this Perceval certainly believed that every museum should have a full-time curator. He was critical of cases where a town accepted a collection but made no provision for someone to look after it, as for example Tenby did in 1877. Part-time curators, some of whom spent as little as an hour or two a week on museum business, he likewise abhorred.

Another point that Perceval returned to time and time again was that local museums should concentrate on building up collections of real local interest. The Albert Memorial Museum in Exeter he thought 'attempted too much' and so was unsatisfactory as a local museum. Other museums, those at Eastbourne and Taunton for example, he dismissed as 'mere curiosity shops' with no policy behind exhibitions and acquisitions. His own donations were always appropriate to the recipient. He expected curators to carefully cultivate collectors living in their area to ensure a steady flow of donations, and also to promote local fieldwork and research. One of his characteristic printed letters expresses amazement that the curator of Tenby Museum knew nothing about an excavation in the town in which Pleistocene bones were being found until he, on a brief visit, pointed it out. While investigating the sources of the pebbles in the Triassic pebble beds around Birmingham in 1872 he was surprised to find that the museum of the Midland Institute had no collection of these local specimens, in spite of having other things from distant parts of the world. Without more ado, he gathered a collection and presented it to them. He suggested several times that the British Association should bring pressure to bear on local scientific societies to force them to vigorously support their museums in the build up of local collections. But this, as with so many of his other schemes, came to nothing.

Fig. 1. Copies of two letters from S.G. Perceval to the Geological Museum relating to his rejected donation of a 'geological table top.' See also the cover of G.C.G. Newsletter, 2 No. 7, and Geological Curator 2, 9/10 p.542.

Henbury
July 14. 1902

Dear Sir

As specimens such as the Table Top are not now added to the Museum I shall be obliged if you will let me know why it was unpacked?

You should at once have written to me to request me to pay the carriage, and to ask me where I wished it sent.

But to unpack a specimen you did not intend to keep and then to return it without the Board or shavings on which it had travelled so safely, was an outrageous proceeding - as it must have been known that destruction must ensue. I can only conclude that it was done to pay me out for the trouble I had given - and to get rid of a most generous donor

Yours faithfully
Spencer. Geo: Perceval

P.S. Far better not to have packed the Specimen at all

HENDURY
BRISTOL
July 9. 1902

Sir

The beautiful Table Top I sent to the Museum most carefully packed with Shavings on 3 loose boards - and as an additional protection on a Solid outer board.

The Table has been returned without the outer board and without the Shavings utterly smashed. I shall be obliged if you will let me know who is responsible for this outrage?

Yours faithfully
S. G. PERCEVAL

Perceval had a remarkable knowledge of his fellow-collectors and their doings, and his letters are full of information on the subject. As he got older he tried to encourage friends such as J.D. Pring (died 1893), J. Phillis (1819-after 1900) and H.C. Harford (1798-1879) to safeguard their collections by giving or bequeathing them to museums. Where an important collection passed into the hands of a relation or friend of the original owner Perceval was once again on the attack. In 1873 he organised a subscription to purchase the Higgins collection of Rhaetic fossils from Aust for Bristol Museum. He corresponded with Mrs. Crosse about her late husband's minerals, and arranged for the Natural History Museum to have the pick of the Westmoreland Collection of Red Chalk fossils. Perceval was not always successful. In 1895 he wrote to Mrs. E.J. Dixon suggesting that the jaw of Saurichthys that had belonged to her late husband should be given to a national museum. He added, most eloquently, 'the affairs of life and the occurrence of unforeseen accidents render the retention of isolated specimens of special scientific value, hazardous in the hands of private individuals, especially when they do not form part of an illustrative series, nor are in the hands of a collector who is constantly adding to his stock.' [4] The lady kept the specimen.

There is no doubt that Spencer Perceval was a rude and unreasonable man. Smith Woodward described him as 'apt to be troublesome', while J.S. Pritchard of Bristol wrote: 'I will have nothing to do with such a very rude man as the would-be donor. I wonder at our museum accepting anything at his hands.' He was always ready to see an action in the worst possible light, and even a short delay in answering a letter could lead to an angry outburst. His character undoubtedly meant that he was taken less seriously than he deserved. Lazarus Fletcher described him as 'a human curiosity', and the fact that he seemed to complain about everything and everyone must have reduced his credibility. If he had written and acted with a little more tact he might have achieved more. In spite of all his failings museums needed, and still need,[5] people like Perceval snapping at their heels. They are uncomfortable for those of us in the profession, but we are the better for them.

Sources

Collections of letters addressed to Perceval are to be found in the British Library, Dept. of Manuscripts (Add Mss 41494-6); British Museum (Natural History), Palaeontology Library; Cambridge University Library, Department of Manuscripts (Add Mss 6310-1, 6330-5); Trinity College Cambridge Library, the letters from H.L. Nelthropp; Bristol Central Reference Library, letters relating to Joseph Banks' Journal; Fitzwilliam Museum, Cambridge, Department of Manuscripts, letters acknowledging gifts to museums and libraries.

Letters written by him are to be found at the Institute of Geological Sciences London, to F.W. Rudler (GSM 1/530); British Museum (Natural History), Palaeontology and Mineralogy Libraries; University of Newcastle upon Tyne Special Collections Library, to W.C. Trevelyan; and elsewhere.

Perceval wrote 14 short papers and notes in Geological Magazine between 1866 and 1878, when he fell out with Henry Woodward. He wrote a note in Mineralogical Magazine in 1880, and published Joseph Banks' 'Journal of an Excursion to Eastbury and Bristol' in the Proceedings of the British Naturalists Society in 1900. Many of his letters to the press are to be found in his scrapbook on museums, preserved in the Fitzwilliam Museum, Department of Manuscripts; others are pasted into his volumes of correspondence.

Appeal for information

I would be glad to hear from museums or libraries that have specimens, books or manuscripts presented or sold to them by Perceval. I would also be very glad to know of the existence of letters written by Perceval in museum archives. I hope to write a paper about Perceval as a collector of books and manuscripts, in the not too distant future.

Acknowledgements

I gratefully acknowledge the help given to me by Michael Crane and Hugh Torrens in preparation of this paper.

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John Thackray,
Geological Museum,
Exhibition Road,
London S.W.7.

SOME NOTES ON THE DISPERSAL OF THE ORDNANCE SURVEY OF IRELAND COLLECTIONS

by C. E. O'Riordan

BRIEF HISTORICAL BACKGROUND

In 1832 Captain J.E. Portlock was chosen to take charge in Ireland of the geological branch of the Ordnance Survey, which itself, had been set up some seven years previously. Extensive geological surveying was carried out in County Derry and parts of Counties Tyrone and Fermanagh, and a large collection of specimens was formed. Collectors were also employed in the fields of botany and zoology.

A museum was established in the Ordnance Survey Office at Belfast in about 1837 to accommodate the material. Probably due to the expense of the survey, its activities were severely curtailed and the office and museum in Belfast were broken up in 1840 and everything connected with this department removed to the Ordnance Survey Office, Phoenix Park, Dublin.

Portlock, however, continued with his classic Report on the Geology of the County of Londonderry, and parts of Tyrone and Fermanagh which was published in 1843. Portlock's official geological work ended with the publication of this report. Prior to this, however, preliminary notices were published in 1835 and 1837 which included botanical and zoological information.

In 1844 Sir Robert Peel's government decided to detach the geological surveys of Great Britain and Ireland from the Ordnance Survey Department and these were soon consolidated with the Geological Survey of Great Britain and Ireland. H.T. De la Beche was appointed Director General.

In accordance with the Minister General's and Board of Ordnance's order of 24th February 1845, Captain Larcom of the Ordnance Survey formally transferred the collections to the Geological Survey Office, Dublin. This transfer was acknowledged by H.T. De la Beche on 20th October 1845, thus placing the collections in the custody of the Geological Survey.

At this time the Government decided to establish in Dublin an institution somewhat on the plan of the then Museum of Economic Geology in London. However, it was to be more extended in scope, because in addition to its museum functions, students were to be given lectures by a staff of professors. Initially, it was placed under the Office of Woods and Forests, but later it was transferred to a newly created Department of Science and Art.

The Museum's Director was Sir Robert Kane who was appointed in 1845. Two years later, Lord Castlemaine's house in 51 Stephen's Green (now the headquarters of the Office of Public Works) was chosen as a suitable location for the Museum, and on January 9th 1847 the Ordnance Survey Collections were handed over by the Geological Survey Office to the Museum of Economic Geology.

The galleries were completed in 1852 when the arrangement and classification of the collections were begun. In the following year the name was changed to the Museum of Irish Industry. Its two chief functions were exhibition and education. The 'exhibitional division' consisted of three distinct collections (1) the geological collections (2) the industrial collections (3) Portlock's zoological and botanical collections. The geological collections comprised (1) palaeontological collections of the Geological Survey of Ireland (2) duplicate specimens from

the Museum of Economic Geology, London (3) Ordnance Survey fossils collected by Portlock (4) rocks collected by the Geological Survey in the South and by Portlock in the North of Ireland (5) the Krantz cabinet of European rocks. The Geological Survey material, which was being augmented all the time, was solely in the charge of the Geological Survey staff.

Following reports of a Royal Commission and a Select Committee of the House of Commons in 1864 the Museum of Irish Industry was abolished as such and some of the Ordnance Survey collections were transferred to the Natural History Museum of the Royal Dublin Society (now the National Museum of Ireland). The formal date of the transfer was 25th September 1867. The educational function of the Museum of Irish Industry was later subsumed into the new College of Science.

DISPERSAL OF THE ORDNANCE SURVEY COLLECTIONS

(1) The Botanical Collections.

About 1834 Thomas Hopkirk was appointed botanist to the geological branch of the Ordnance Survey. As illness prevented him from taking up active duty, David Moore was appointed in his place. From 1834 to 1837 Moore collected widely, in Counties Derry and Antrim, and particularly around Lough Neagh. When the Survey ceased botanical operations Moore obtained a post as curator in the Botanic Gardens, Glasnevin.

Though no specific mention is made in the Ordnance Survey records as to the disposal of the 3,000 odd specimens which were deposited in the Ordnance Herbarium, it seems that they were eventually transferred to the Museum of Irish Industry, and remained there until the Museum was abolished. It is presumed that they were transferred to the Natural History Museum with the zoological material in 1867 because reference is made in in Index of Authors in the second edition of Cybele Hibernica as follows: "Moore, David, Ph.D. Herbarium prepared for the Ordnance Survey and containing a nearly complete series of the wild plants of Derry and Antrim, now preserved in the Science and Art Museum, Dublin ..... Herb. Moore."

In 1970 the Herbarium of this Museum (now National Museum of Ireland) was transferred to the Botanic Gardens, Glasnevin. Miss M. Scannell (Head of Herbarium) confirms that there is material in the Herbarium labelled "Flora of Antrim by David Moore".

(2) The Zoological Collections

The names of the individual Ordnance Survey collectors are difficult to trace. However it is known that eminent naturalists such as William Thompson, Robert Ball and Alexander Haliday were involved in the identification and classification of the fauna.

The zoological collections originally consisted of over 8,000 specimens of vertebrates and invertebrates as well as some birds' eggs. These were handed over to the Museum of Irish Industry, Dublin in 1847 except for over 100 duplicate specimens of mounted birds which were presented to the Museum of Trinity College, Dublin.

Subsequent to the abolition of the Museum of Irish Industry the zoological collections were passed to the Natural History Museum of the Royal Dublin

Society in September 1867. That Museum, as previously stated, now forms part of the National Museum of Ireland.

(3) The Geological Collections

The dispersal of the geological collections was somewhat more complex, and the individual sub-collections are best treated separately.

Minerals

The Ordnance Survey mineral collection consisted of an "office set" of some 800 specimens and, in some cases, up to six additional sets amounting to some 900 specimens and 200 further samples making a total of 1900 in all. The collection was transferred to the Museum of Irish Industry in 1847. Some of these specimens were eventually transferred to the Natural History Museum, presumably in 1867, because sixty-three specimens in the collection can be definitely recognised as Ordnance Survey material. Most have the MSS numbers. The fate of the remainder of the mineral collection is not known.

Rocks

No mention is made in the Ordnance Survey MSS of any rocks in the collection. Twenty-five rocks are itemised in the Inventory Catalogue (No 2) of the Collection of Irish, British and Foreign Rocks in the Industrial Museum of Ireland, as being collected by the Ordnance Survey. About half were collected in Counties Antrim, Derry and Tyrone and the remainder in County Donegal. None of these specimens are in the National Museum Collections, and in view of their absence from the MSS Catalogue it is unlikely they were ever deposited in this Museum.

Fossils

Only a very brief summary of the major taxonomic groups and numbers of fossils in each group is mentioned in the Ordnance Survey MSS. Five sets are listed and a further 70 boxes of duplicate fossils. One of these sets, containing 1614 specimens was sent to the Museum of Economic Geology in London (now the Institute of Geological Sciences).

According to Tunnicliff (1980) the fossil collection was split, probably between 1854 and 1857. Apparently some of the Portlock material was transferred to the Ulster Museum in Belfast. Further material was transferred to the Geology Department of Trinity College Dublin. Tunnicliff (1980) has catalogued the Lower Palaeozoic Fossils now extant in these collections although not all the fossils have been accounted for.

Mc Henry and Watts (1895) refer to a "portion of the famous Portlock Collections" in the Geological Survey of Ireland Collections which were displayed in the National Museum of Ireland from 1890 to 1934. These particular collections were exhibited by the Geological Survey in the National Museum, but were curated and maintained by the Survey staff.

In June 1922 the Museum was closed to the public for two years because the adjoining Leinster House was taken over by the new Irish Free State Government in order to hold the Dail (Parliament) there. In 1924 the entire Geological Survey exhibition was dismantled, packed and removed into storage in the Geological Survey Office, by officers of the Geological Survey. Included in this removal was the Survey's Portlock material. There are no Portlock fossils

in the National Museum's own collections.

APPEAL

It is quite likely that sets of specimens from the Ordnance Survey Collection have been deposited in other Museums or Institutions in Ireland or the United Kingdom. These notes, it is hoped, will encourage curators to supply additional information concerning these collections, if they are, in fact, still extant.

ACKNOWLEDGEMENTS

I wish to thank Mr. D. Felton and Miss G. Griffiths for searching through the Museum catalogues and providing lists of Ordnance Survey material in the National Collection. Thanks are also due to Miss M. Scannell, Head of Herbarium, National Botanic Gardens, Dublin for information concerning Ordnance Survey material in Herbarium (SBN).

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Colm O'Riordan,
Keeper,
Natural History Division,
National Museum of Ireland,
Kildare Street,
Dublin 2.
Republic of Ireland.

* See review of this Catalogue by D.J. Siveter on p.

WHAT A CALAMITE!
A CAUTIONARY TALE OF DOCUMENTATION

by Alan C. Howell

What follows is basically a rather embroidered appeal for information concerning the whereabouts of nine thin sections of the fossil plant Calamites, from Hollins Lane, Worsley, (Gtr. Manchester). Originally there were ten sections in the Bolton Museum collection received from the curator, W.W. Midgley, in 1912. From the single surviving example it seems that the missing sections should bear printed identification labels giving locality and orientation details, but no accession number. Though they were known to be absent their wider significance relative to published material was quite unsuspected and researching their history has taken some considerable time. The story is worth repeating, as it contains salutory lessons for everyone concerned with specimen documentation.

The story starts in 1900 when James Lomax the Bolton preparator exhibited a Calamitean cast at a meeting of the Manchester Geological Society (Lomax 1901). He states that he had found it in the collections of Bolton Museum, where it was labelled "Calamite, from the Brassey Mine, Hollins Fold" (Westphalian B). The specimen was remarkable for its part petrified structure and the fact that it showed the origins of several roots from the base of a calamitean stem. Similar roots were previously known separately as Astromyelon and though the link with Calamites was not a new discovery, British specimens demonstrating this were a distinct rarity. Lomax states that the specimen had been seen by D.H. Scott and other palaeobotanists who had seen nothing like it before. He goes on to say "Through the kindness of Mr. W.W. Midgley, F.R.M.S., the Curator of the Chadwick Museum, Bolton, the specimen is put in my hands to cut up in the best way to show the morphological structure of the tissues".

In fact this notice in the Transactions of the Manchester Geological Society only came to the writer's attention some three years after interest in the Hollins Lane specimen had first been aroused. The trail was originally opened by an enquiry from a palaeobotanist seeking the whereabouts of sections cut from a Calamites specimen which had been in the Chadwick Museum, Bolton. This came as a revelation at the time but reference to the paper mentioning the specimen (Maslen, 1905) revealed a photograph of the Calamites before sectioning and a text figure drawn from one of the sections. James Lomax of Bolton was acknowledged as the preparator of the sections examined which were all "in the possession of D.H. Scott". The sections were noted as being numbers 1092-1103 in Scott's collection, which subsequently went to the B.M.(N.H.). This latter fact was duly pointed out to our enquirer. Maslen's paper gave no locality or stratigraphic data for the specimen but the Scott collection catalogue at the B.M. (N.H.) provided considerably more information on slides 1092-1103:-

"Sets of sections from the fine specimen of the basal part of a stem, of which I have a cast and photograph from Mr. W.W. Midgley, Curator of the Chadwick Museum, Bolton, who writes Feb.22 1900: 'It was found in the Hollins Lane Colliery, Worsley (Duke of Bridgwater's) about 15 years since, by the late Mr. Jno. Rushton, an intelligent underlooker at the pit' ".

As mentioned earlier some three years elapsed between hearing of the Maslen paper and the discovery of Lomax's Manchester Geological Society contribution. In this time the Bolton Museum accession registers had been searched (several

times!) without success, for the original accession of the Calamites. No cast or photograph of the original specimen had been located in the collection. In fact there was no evidence that the specimen had ever been here except the single thin section and the 1912 accession entry from W.W. Midgley recorded as "Ten sections cut from Calamite root specimen in Museum collection, from Hollins Lane, Worsley". This of course held no particular significance until after the Maslen paper was seen and did nothing to assuage curiosity about the specimen but rather increased it. Why was the original entry of the specimen to Bolton Museum not recorded and what relationship did our (mostly missing) sections bear to the ones in the Scott collection? A further visit to the B.N.(N.H.) solved most of the mystery.

Other research brought to the writer's attention three volumes of Letters to D.H. Scott in the Seward Library of the palaeobotany department. As luck would have it three letters from W.W. Midgley concerning the Hollins Lane Calamites are preserved there. These include the one partly transcribed in the Scott collection catalogue. Apart from giving the provenance of the specimen, as quoted earlier, the letter states that two 'duplicate' sets of sections were to be made, one given to D.H. Scott and the other retained in Bolton. It goes on to say that (Jno. Rushton) "sold it, along with other coal plants to the late R. Pennington Esq., F.G.S. of Bolton and Castleton, Derbyshire". Bolton Museum purchased the contents of Rooke Pennington's private museum in 1888 (see Hancock etal, 1976). Unfortunately the collection was never catalogued so the lack of an accession entry at Bolton is hereby explained. However, it is impossible to explain why Midgley later retained Bolton's set of sections in his own personal collection until he presented them to the museum in 1912. This remains true, nevertheless, as the sections are listed in the catalogue of his own collection (which the museum acquired in 1930) together with a note of their 1912 transfer. The continuing absence of nine of these sections has also eluded explanation. They may have been lost by exchange or perhaps borrowed by some researcher.

As a final corollary it must be added that several inconclusive hours have been spent trying to locate "Hollins Lane" or Hollins Fold" Colliery. The most promising candidate is Hollins Field pit (SD 757 027). This was undoubtedly "Duke of Bridgewater's" and did reach the Brassey Mine. Field could be abbreviated to 'Fd' or 'Fld' which Lomax could have taken for 'Fold' a common local place name. On the other hand there was a lake across the road from Hollins Field pit, the abbreviation for which may have been misconstrued as 'Lane' by people here at the museum.

The moral of this story is clear. If this specimen had been properly documented a tremendous amount of curatorial time and resources would have been released for more useful tasks. Additionally, the absence of the nine missing sections would not be unexplained.

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Alan Howell,
Keeper of Natural History,
Bolton Museum and Art Gallery,
Le Mans Crescent,
Bolton BL1 1SA.

FRIENDS OF THE SEDGWICK MUSEUM

For a decade since A.G. Brighton retired as curator the present Museum staff have continued vigorously with his tested, now routine curatorial techniques; and have been strongly supported by the University in this work. Almost ½ million specimens are fully catalogued and available both for teaching and for international research. The Museum today is in a position to develop other facets of museum science, such as computer based index systems and teaching-related interdisciplinary displays, the latter within the framework of the new Department of Earth Sciences at Cambridge. We are aware that many geologists, both in Great Britain and in other parts of the world, have not only an affection for the S.M., but a real interest in its future development. Therefore we announce here the formation of a club, "Friends of the Sedgwick Museum", which will have to be self-financing eventually, and which would be intended to provide regular news of work in the Museum and also give members an opportunity to participate in and influence to varying degrees some of the activities. We invite interested geologists, palaeontologists and museum workers, whether ex-Cambridge or not, amateur or professional, to write to the undersigned for further details.

R.B. Rickards,
Friends of the Sedgwick Museum,
Dept. of Earth Sciences,
Downing Street,
Cambridge, CB2 3EQ.
England.

ERNEST WESTLAKE (1855-1922), GEOLOGIST & PREHISTORIAN

with a synopsis of the contents of his field notebooks

by J. B. Delair

Ernest Westlake was born on November 16th., 1855, at Fordingbridge, Hampshire, to Thomas Westlake (1826-1892) --- the Quaker proprietor of a successful sail-cloth manufacturing firm in that town --- and Hannah Sophia Neave (died 1857). His uncles were Richard Westlake (died 1915) and William Colston Westlake (died 1893).

Thomas Westlake had been born at Southampton in 1826 and, about 1837, went to school in Hitchin. In 1843, when he was seventeen years old, Thomas settled in Fordingbridge and entered the sail-cloth manufacturing business of his Quaker uncle Samuel Thompson (died 1867), with whom he ultimately became a partner, remaining so until he died[1]. By inclination, he was keenly interested in astronomy[2], and in due course acquired an equatorially mounted 12½" reflecting telescope (made by Calver), and built an observatory to house it[3]. This was described in 1880[4] and 1885[5], and the telescope the following year[6]. For many years exact records were kept at the observatory of local daily temperatures, rainfall, etc., the majority of which were duly published in the local press[7].

Commercially, Thomas Westlake's commitments were such that he could never indulge his scientific interests to his complete satisfaction, so it was with considerable encouragement that he advised Ernest, his son, to take-up the scientific career denied him upon admitting that, after a year or so in the family business, Ernest apparently possessed no aptitude for commerce at all. Thus it was that Ernest entered University College, London, to study, among other subjects, geology and mineralogy under Thomas Huxley and John Tyndall. He did not proceed to a degree but, as evidenced by his later activities, left London with a strongly developed sense of the importance of field-geology and the methods necessary for pursuing it effectively. Indeed, in all that he undertook, it is clear that Ernest was pre-eminently a field-worker.

Returning to live at the family home in Fordingbridge --- Oaklands House --- geology became one of Ernest's ruling passions; and, being released through his father from the problem of actually having to earn a living, was able to devote virtually all his time to the subject. In 1877 he accordingly became a member of the Geologists' Association[8] and, in 1879, was elected a Fellow of the Geological Society of London[9]. From the late 1870s onwards, Westlake embarked upon a far-ranging programme of familiarization with British geological strata, an effort which included not only innumerable visits to museums, private fossil collections elsewhere, and coastal and inland exposures all over southern Britain (and also some abroad), but the detailed measuring and drawing of cliff, quarry, well, and road- and rail-cuttings, as well as the collecting of suites of fossils from the many horizons examined. In due time, these records filled many notebooks (still extant) while, concurrently, an extensive collection of fossils (now divided between Salisbury Museum and the Geology Department of Southampton University) was built up --- both by personal collecting and the acquisition of specimens from others.

By 1883, Westlake had accomplished sufficient detailed research to enable him to produce a very able summary of geological phenomena traceable in the neighbourhood of Fordingbridge[10] --- an account amplified in 1887[11] and 1908[12].

In the early 1880's he became greatly interested in the zones and fossils of the Chalk formation, which, at the time, had not been worked-out in the detail familiar to us today. Through remarkable energy and diligence, Westlake visited all the British Chalk exposures he could reach, even those as far distant from Fordingbridge as Beer (Devon), Flamborough (Yorkshire), Norwich (Norfolk), Eastbourne (Kent), the Isle of Wight, and Ireland. He also made trips to France to study the Chalk et Le Havre and other French localities. Improvements made to the rail line from Alderbury, S.E. of Salisbury, to West Moors station, E. of Wimborne, shortly after it had been absorbed into the London and South-Western Railway in 1883[13], entailed additional cutting and widening through the Wiltshire Chalk between Alderbury and Downton, and provided splendid opportunities for field-work at the many construction sites. Westlake seized these, and his notes on and the suites of fossils collected from these exposures exemplify the extent of his exertions at that time.

In 1882, jointly with T.W. Shore, Westlake presented an account of an artesian well at Southampton to the British Association[14]. His notebooks for this and subsequent years contain details of numerous other well sections inspected in Hampshire, Dorset, Wiltshire, and elsewhere. A particularly interesting well section made in 1887 near the gasworks west of Fordingbridge was incorporated two years later into his survey of the geology of the Fordingbridge area[15], and was reproduced by Clement Reid in 1902[16] and William Whitaker in 1910[17].

Investigations of the Chalk and its fossils revealed in quarries and rail and road improvement schemes in late Victorian Hampshire and the adjacent counties were vigourously prosecuted by Westlake throughout the 1880's with great thoroughness, such details as the dip of the strata and their relative elevations above mean sea-level also being recorded. Huge numbers of fossils were collected from the various sites and enabled Westlake to prove the existence of certain Chalk horizons at particular localities for the first time. A notable Chalk exposure he recorded at Stoke Hill was published by Stevens in 1888[18], its general accuracy being confirmed in 1906 by H. Osborne White[19], who, moreover, also verified Westlake's corrections to certain of Barrois's earlier statements about British Chalk zones at specific localities[20]. These corrections had mostly been embodied in a rather remarkable tabular summary of Upper Cretaceous fossils from England and Ireland issued by Westlake in 1888[21], a year after the publication of a paper on an unusual Chalk terebratulid in C.J. Read's collection at Salisbury[22].

The significance of Westlake's work on the Hampshire and Wiltshire chalk was acknowledged by Clement Reid in 1903[23], and by Jukes Browne in 1904[24] and 1908[25]. Indeed, many lists of Chalk fossils from specific exposures recorded by these authors were, in fact, supplied by Westlake, largely based upon his previous field-work at the localities in question. Such recognitiion was in sharp contrast to the almost cursory acknowledgement of his work given by Griffiths and Brydone in 1911[26] and by Brydone alone in 1912[27], although the former work does record Westlake's contributions on Chalk fossils to the Winchester College Natural History Society's records[28] and the latter his aforementioned observations at Stoke Hill[29].

On March 28th., 1885, Westlake was one of five individuals --- the other being T.W. Shore, W. Whitaker, the Rev. W.L.W. Eyre, and the Rev. T. Woodhouse --- who founded the still flourishing Hampshire Field Club[30]. For a few months he served as one of its joint secretaries, and then (until 1898) as local secretary for the Fordingbridge district. As early as May 1885 he distributed

among members a drawn section of the Chalk of the Winchester area, but, although he remained a committee member until 1890, seems thereafter to have contributed relatively little[31].

Also joining the Hampshire Field Club at this early date was A.(probably Albert) Westlake of Grosvenor Square, Southampton, who continued membership until 1894 or 1895[32]. For a four or five year period commencing in 1890, Ernest's uncle, Richard Westlake, who was a J.P. resident in Portswood, also joined the Hampshire Field Club[33], while it is also worth noting that Ernest's other uncle, William C. Westlake, became a member in 1892[34], --- shortly before his demise.

It was about this time that Ernest became Secretary and Treasurer of the Hampshire Friends' Mutual Improvement Association, of which the vice-president was Elizabeth Westlake of Grosvenor House, Southampton, presumably related to A.(?=Albert) Westlake of the same address mentioned above.

The same period also saw Ernest's collections of fossils and minerals become more widely known, for they were considered important enough for inclusion in the list of the most noteworthy Hampshire collections made by William Dale in 1888[35].

An honorary member of the Hampshire Field Club from its earliest years was Dr. Humphrey Blackmore of Salisbury. It is not clear whether Ernest first met Blackmore, who was already a well-known antiquarian and the curator of Salisbury Museum, through the Hampshire Field Club or had met him earlier, but it is a fact that Blackmore was one of two honorary curators of geology at the Salisbury and South Wilts Museum by the early 1890's, the other being the Rev. W.R. Andrews[36]. It can be no coincidence that a fine collection of Wiltshire Chalk fossils from localities examined by Westlake exists in the Salisbury collections, and there can be little doubt that it, or a large part of it, was donated by Westlake himself.

At least as early as 1882, Westlake also began investigating the gravels and other post Tertiary deposits in the Avon valley, particularly with regard to the occurrence of flint implements. It is not known who or what stimulated Westlake's interest in this field of enquiry, although perhaps it was the knowledge that John Evans had recorded the existence of flint implements in Westlake's home town as early as 1864[37], and that Blackmore had reported similar finds from Milford Hill, E. of Salisbury just one year later[38], even though the actual discoveries had been made in 1856. These Milford Hill specimens proved to be dissimilar in character to those obtained from fossiliferous brickearths at Fisherton, near Salisbury, in 1863[39], and a general realization was not long in emerging that flint implements not only exhibited different characters but were representative of different cultures from different periods of prehistory. Thus, the Fisherton flints were correlated with others from Menchcourt in France, and those from Milford Hill with specimens from St. Acheul, also in France[40]. All these implements were assigned to the Old Stone (Palaeolithic) Age which, geologically speaking, largely falls into Pleistocene times.

Between 1879 and 1889, Benjamin Harrison of Ightham, Kent, discovered many crudely chipped flints in high plateau gravels. He argued that the chipping had been made by human egency, a view supported by Joseph Prestwich who described Harrison's finds in 1889[41] and 1891[42]. Accordingly, an earlier

(pre-Pleistocene) Eolithic Age was envisaged as having preceded the Palaeolithic, and the alleged antiquity of Man was extended backwards into the Pliocene period. In 1890 and 1894, Blackmore discovered several "eoliths" at Alderbury in gravels 180 feet above the level of the Avon[43], and the possibility that evidence could be found in the Avon valley for the existence of Pliocene Man was then obviously thought to be very real.

Westlake, perhaps encouraged by Blackmore, enthusiastically took-up the search for palaeoliths and "eoliths", radiating out in his quest from Fordingbridge in many directions. Many of his field trips to likely implementiferous localities are recorded in his field notebooks, one such being devoted entirely to finds of flint implements. These notes reveal that Westlake undertook these researches no less vigorously than his aforementioned investigations of the Chalk formation and well diggings. Ultimately, he amassed a very large assemblage of chipped flints of all shapes and sizes, including numerous examples from Woodgreen and Breamore, localities rendered archaeologically famous by these efforts[44]. Many specimens were collected from sites apparently never recorded in the literature and certainly omitted from Rowe's Gazetteer of British palaeolithic localities[45]. Westlake's palaeoliths falling into this category are currently being catalogued at Southampton University.

Westlake's "eoliths" --- including between four and five thousand flints from Aurillac in the Cantal, France --- are still undescribed and remain, little known, at his last home at Sandy Balls, Godshill. The French specimens were collected by Westlake in 1904, when he visited the Cantal expressly to obtain evidence of Tertiary (pre-Pleistocene) Man. His excavations there lasted almost an entire year[46]. The flints occurred in deposits considered by most to be of Miocene age, and were thus roughly coeval with chipped flints previously found in supposed Miocene strata near Pontlery, France[47], [48], and in a ferruginous conglomerate in Burma, allegedly of late Miocene or early Pliocene age[49]. Later still, "eoliths" were reported from yet earlier (Oligocene and Eocene) horizons[50], [51], [52], and generally appeared much like those collected by Westlake from the Cantal. These discoveries called the validity of "eoliths" as genuine human artifacts into question, and it was not long before their natural origins were advocated[53].

Acceptance of "eoliths" as crude human handiwork is presently at a low ebb, and it is undoubtedly an exaggeration to claim, as did Morley-Hewitt in 1965[54], that Westlake was "Largely responsible for the recognition of eoliths, the earliest stone tools used by man in the Eocene period of geology", since Harrison, Prestwich, Blackmore, and others before him claimed to recognize them as artificial objects, while, conversely, there were --- even in Westlake's day --- many who regarded 'eoliths" as natural productions. There is, of course, no doubt that Westlake did collect thousands of well-documented chipped flints "eoliths": the specimens still exist. The agency originally responsible for their present condition is the real controversy, not their physical occurrence. Attitudes to "eoliths" may well have changed, however, had the written results of a major study of Westlake's Cantallian material, undertaken by the late Prof. Reid-Moir just prior to World War II, not been destroyed by enemy action before it could be published. Among the items so lost was an unpublished geological memorandum by Westlake detailing his fieldwork at Aurillac. Regrettably, Reid-Moir died before he could rewrite his findings, a tragedy heightened by the fact that he had actually announced his intention to monograph Westlake's "eoliths" in 1941[55]. Reid-Moir evidently agreed with an earlier assessment of the specimens by Sollas, who had concluded that they

were genuine, if crude, human implements[56]. As late as 1955, D.F. Baden-Powell held a similar opinion[57].

By way of further effort to establish that primitive men chipped flints resembling "eoliths", Westlake spent two years (1908-1910) in Tasmania collecting numerous examples of extinct Tasmanian handiwork[58]. Scientifically valuable, this collection is now in the Pitt-Rivers Museum, Oxford, and was generally reviewed by Henry Balfour in 1924[59]. Westlake's interests were very varied. His notebooks contain many entries relating to the f'eld occurrence of particular plants and flowers, lepidoptera, hymenoptera, and coleoptera. He made large collections of these and also another of marine shells[60], although except for a few of the latter, all accidentally perished in a fire at Oaklands House shortly before World War I. Westlake also formed a large private library in which books on natural history subjects loomed large, the section devoted to geology and allied topics being especially prominent and replete with many rare publications and early editions. His notebooks also contain entries on psychical phenomena and dowsing, his interest in the latter being, perhaps, related to his interest in wells. On May 1st., 1891, Westlake married fellow Quaker Lucy Ann Rutter of Mere, Wiltshire, and went to live for a while in Hampstead, London. While there, he spent many long hours in the British Museum compiling a "Bibliography of the Divining Rod, circa 1100 to 1900 A.D.", for which he perused numerous references in the English, Dutch, French, Hungarian, Spanish, German, Italian, Latin, Norse, Swedish, Danish, and Bohemian languages. Together with his library, this massive manuscript (unpublished) is still preserved at Sandy Balls, Godshill. It was probably through his involvement with dowsing that he contributed, in 1900, an appendix to a paper on the divining-rod by W.F. Barrett[61], which ably demonstrated his familiarity with that subject.

Westlake had two children --- Aubrey Thomas, born 1893, and Margaret Agnes, born 1896 --- and in later years became deeply interested in child education in general. One of the outcomes of this was his acquisition in 1919 of his final home --- the woodland estate of Sandy Balls near Godshill, just east of Fordingbridge[62].

Westlake died tragically in a road accident in Holborn, London, on November 29th., 1922, having just passed his 67th birthday. He was buried on Woodling Point in the heart of his Godshill estate[63]. Several obituaries of him appeared at the time, of which that in the Proceedings of the Hampshire Field Club may be taken as typical[64].

Although Westlake's name is seldom if ever remembered today in connection with British geology --- being much overshadowed by those who developed the science in the 1910's and 1920's --- it is clear that during the decades when he was most active he made significant and locally important discoveries. Those activities, moreover, occurred during a period when quarrying of all kinds was in full spate and when the railway network was being extended at a great pace. Today, the majority of the quarries and brickpits are silent, and in many instances overgrown, while almost all the railway routes Westlake explored have been closed and dismantled: even some of the tunnels and cuttings he visited have since been filled-in and returned to agricultural land. That the greater part of the material he collected and his field notebooks together with various miscellaneous field memoranda have survived enables us not only to put his work into proper perspective but to complete from these largely unpublished accounts much of the geological record which would otherwise have been entirely lost. Accordingly, a synopsis of the entries in Westlake's field notebooks is appended below.

Acknowlegements

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The photograph of Ernest Westlake is by kind permission of Dr. Aubrey Westlake.

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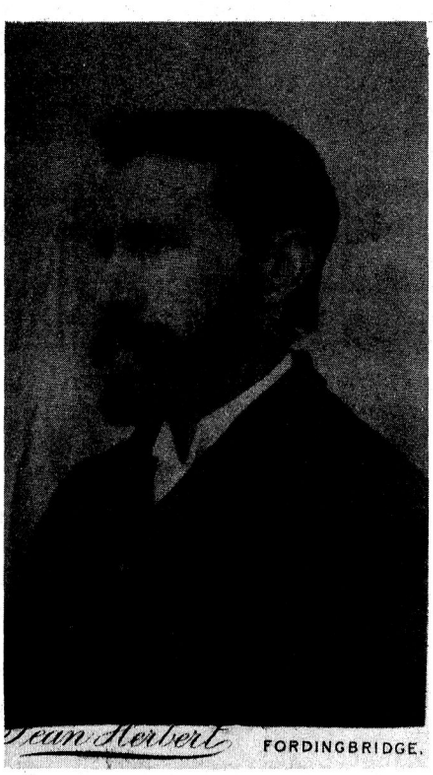


A photograph of Ernest Westlake taken in about 1880.
(The original belongs to Dr. Aubrey Westlake)

SYNOPSIS of Ernest Westlake's Geological Note-Books.

Although unpaginated, Ernest Westlake's sixteen geological field notebooks collectively record a remarkable wealth of site-observations and associated details. This data can roughly be grouped under eleven distinct headings, such as quarries, coastal exposures, wells, collections, etc., and this, is, the system adopted on the pages following. In the present synopsis these headings are distinguished by the capital letters A to K.

The data itself ranges from perfunctory to copious, although most entries generally fall about halfway between these extremes. Many entries, however, are replete with sketch-maps, or drawings of sections and specimens, or occupy several pages in the notebooks. Records of particular sites or suites of fossils, therefore, are sometimes considerably more extensive than the bare entries comprising the following synoptic lists perhaps convey. Due to space limitations, however, it has not been possible to detail all aspects of Westlake's notes, even though every recorded exposure and collection has been catalogued. The exposures are recorded under their respective headings by counties arranged alphabetically, the collections are listed alphabetically by (a) museums and (b) collectors, and the section devoted to fossils (section K) is arranged stratigraphically. The numbers of the notebooks containing details of specific sites and collections are given in parenthesis throughout.

It has not been possible to identify all the collectors listed (section J), while conversely, some of the names represented are well known and the whereabouts of their specimens is adequately documented. To what extent Westlake may have absorbed some of the more obscure collections into his own is not as yet clear, but continuing research on his collection at Southampton University may clarify the position in due course. The fate of some of the other ill-known collections mentioned is also being investigated. The results, if any, of these enquiries, and a brief summary of the loose geological memoranda made by Westlake in addition to the notebooks here reviewed will be issued on some future occasion.

Oct.1981.

J.B. Delair B.Sc,
Caledonian Land Surveys Ltd.,
19 Cumnor Road,
Wooton,
Boars Hill,
N. Oxford.

A: CHALK PITS & LIMEKILNS.

BERKSHIRE.

Caversham (6).

Great Shefford (4)

DEVON.

Nr. Beer Head (8)

DORSET.

Spetisbury (5)
Between Lulworth and Wool (8)
Middle Holwell (16)
Nr. Horton (16)
Nr. Old Down cottages (16)
Ashton (16)
Barnfield Farm pit (16)

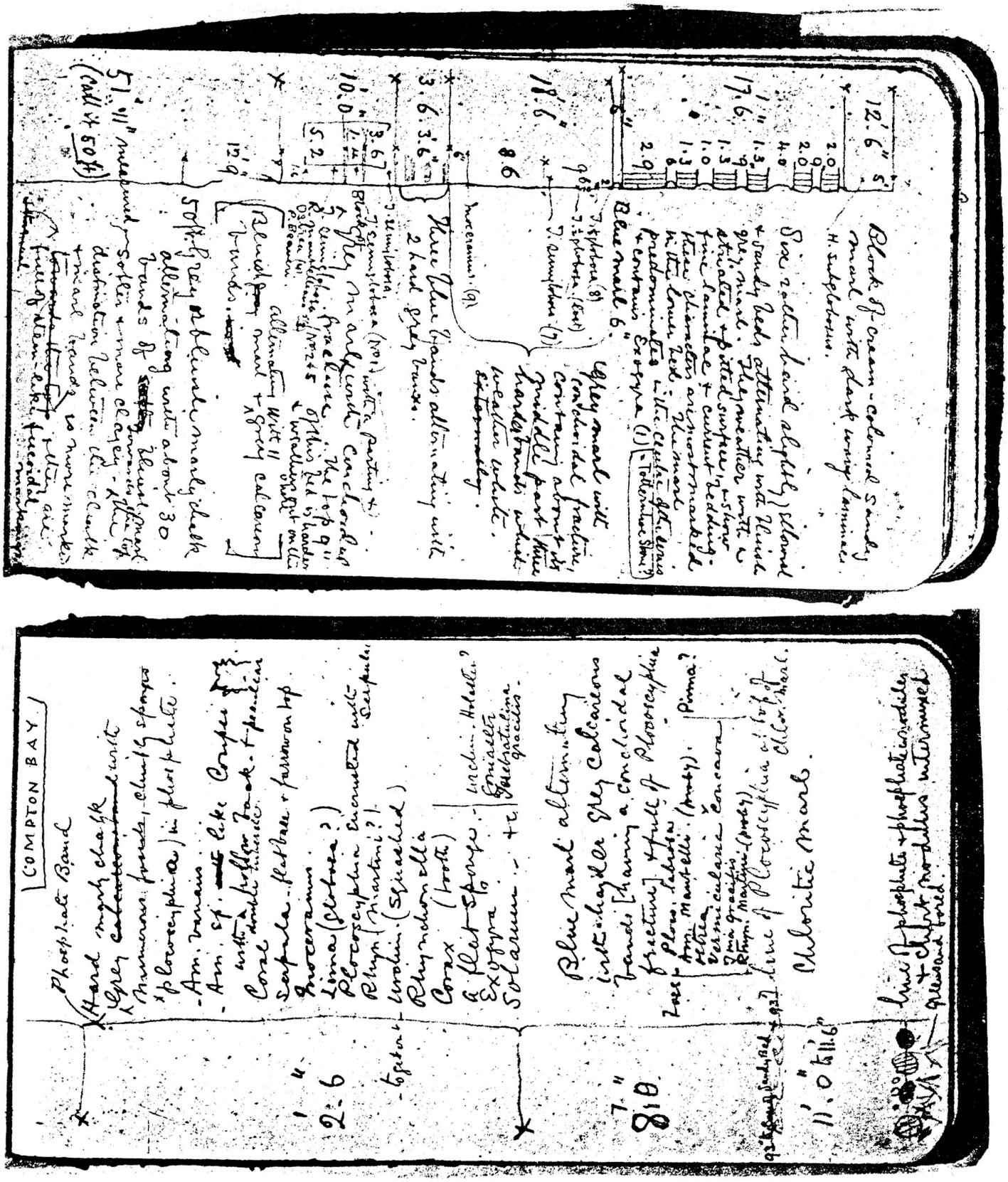
Bailey Gate (5)
Burwood (16)
Knowle Hill, Verwood (16)
Arlington Park (16)
S. of Hinton Martell (16)
Haggates (16)
Sandridge (16)

HAMPSHIRE.

1 mile W. of Dunbridge (1)
Ramsdell (2)
Nr. Itchen Abbas (2)
Bottom of Stoke Hill (2,5,6)
Sackville Court Farm pit, upper Clatford (2)
N.E. of Southside Farm, Middleton (2,6)
Bransbury, nr. Longparish (2,6)
Fox Hill Farm pit (2)
S. of Micheldever Sta. (2)
Yew Tree Hill pit (2)
W. of Ibthorpe Farm (2)
By Fox Farm, E. of Andover (2)
Cockalorum Kiln, Hurstbourne priors (2)
Nr. Tangley (2)
Freefolk - Portal's pit (2)
N. pit, Stockbridge (5,6,11)
Winchester goodsyard pit (5)
Langrish (6)
Lion's Lodge, upper pit, North Charford (6,9,10).
Wooldredge's limekiln (6)
Slates Farm pit (6)
Henstring Farm pit (6)
Cross Keys pit (6)
S. of Frenche's Farm, Andover (6)
Pill Hill, Hurstbourne (6)
Pit on Col. Earle's estate, N.W. of Andover (6)
Round Hill Farm pit, Outwick (9)
Testcombe Bridge pit (5)
Nr. Hambledon (6)

Nr. Kimbridge (1)
Mill Norrington (2)
Binley (2)
St. Mary Bourne (2,6)
Bruy Hill (2)
S.W. of Bere Hill (2,5,6)
Drayton Lodge (2,6)
Van Dyke pit (2)
Hurstbourne Priors (2)
N.E. of Marsh Cottage, Stockbridge (2)
Paulsgrove (2)
Ibthorpe Farm pit (2)
Upton Common (2)
Beehouse Hill, Hurstbourne Priors (2)
Pill Heath Kiln, nr. Upton (2)
Bedlam Copse (2,6)
Holdings (2)
Mottisfont (5)
Marsh Court Farm pit (5)
Chilcomb (5,10,14,15)
Buriton (6,14)
Lion's Lodge (Opper), Lower pit, South Charford (6,14)
Meonstoke pits (6)
Hursley (6)
Marwell (6)
Pit at top of Stoke Hill (6)
Berrys lower pit, Butzer Hill (6)
Field pit nr. Bedlam Copse (6)
Whitsbury (8,9,11,14,16)
Pit S. of Whitsbury (9)
N.E. of Round Hill Farm (9)
No. 3 pit, Leckford (5)

Two pages from book 2 of Ernest Westlakes field notebooks. These examples exemplify the meticulous observations made by Westlake. They are part of a measured section made at Compton Bay in Dorset. A complete record of the notebooks (in the form of photocopies) is housed in the Geology Department at Southampton University. The original books are in the care of Dr. Aubrey Westlake at Fordingbridge.



HAMPSHIRE (cont.)

Gurnet's (Blandford's) pit, Bishop's Waltham (9)
Knight's pit Bishop's Waltham (9)
Lower Brook (9)
Outwick (10)
N.E. St. Catherin's Hill (11)
Gile's Hill (11)
Moor Farm pit (11, 14)
Bordean Hill limekiln (14)
E. of Lockerley (14)
Fryern Court pit (14)
St. Cross Lane, Winchester (16)
East Dean (14)
N. of Searchfield Farm (14)
Mount Lane, nr. Lockerley (16)
Nr. Oakley (14)
Lockerley Green (16)
Gambledown Farm pits (16)
Steven's Castle Down pit (9)
Wyatt's pit, Bishop's Waltham (9)
Pratt's pit, Bishop's Waltham (9)
Timsbury (9)
Yarnfield pits, Breamore (10,15)
Twyford Hill (11)
Nr. Whiteshape Bridge (11)
Nr. Rockstead Farm (11,16)
Nr. Lockerley (14)
Cliffords Copse pit (14,16)
Compton Down, Winchester (15)
Cornpits Farm pit (16)
Manor Farm pit (14,16)
Lynch Hill, nr. Whitchurch (16)
Dean Hill (16)
Glebe Farm pit, West Dean (15)
West Park pit (16)

NORFOLK.

St. Jame's Hill, Norwich (3)
Mousehold pits (3)
Whitlingham (3)

OXFORDSHIRE.

Crowmarsh Gifford (4)

SURREY

Nr. Box Hill, Dorking (7)

SUSSEX.

Amberley, nr. Arundel (2)

WILTSHIRE.

pits between Alderbury and Dean (1)
Redlynch (1,9,10,14)
E. of Chute Lodge (2)
E. of Downton Sta. (5)
W. of Heytesbury (14)
Nr. Brookheath (14)
Ray's Farm pit, Charlton (14)
Marsh's pit, W. of Redlynch (14)
South Burcombe (14)
W.S.W. of Bulbridge Farm (15,16)
Fovant (16)
Bishop's Down (16)
S.E. corner of Wilton Park (14,15)
East Harnham pits (1,5,6,11,14,16)
Odstock (2)
Homington Down (2)
pits between Salisbury and Porton (1)
Camp Down (Camp Hill) (2,5)
Woodfalls Farm pit (5)
Meloe pit, Downton (9,10,14)
Lovibond's pit, Clarendon (14)
North Charlton (14)
Field pits N. of Lion's Lodge pits (14)
S. pit at Barford (14)
No. 1 pit, Bulbridge (14,15)
Teffont (16)
Lowden's Farm pit (16)
N.E. of Salisbury racecourse (14)
Coombe Bissett (15)
West Harnham pit (1,5,11,14,16)
N. of Homington (2)
Nr. Odstock (5,14,15)

WILTSHIRE. (Cont.)

S.E. of Bishopstone (6)
Bemerton Manor Farm pit (6,16)
New Court Farm pit (6,14)
Field Barn pit, nr. Cleobury Down (6)
Wockley limepit (12)
N. of New Court Farm pit (14)
Keeper's Lodge pit, Clarendon (14)
E. of Little Netley Copse, Farley (15)
Nr. Shrewton (15)
West Grimstead (15)
Quidhampton (2,14)
Harding's pit, Highfield (5)
Stratford-sub-Castle (5)
No. 1 pit, Wishford (6)
N. of Titchborne Farm (9,11)
Whiteparish (9,11,16)
Wick Farm pit (11)
East Tytherly (14)
Wick Down (14)
Nr. Woodford (14)
Middle Woodford (14)
N. of Old Sarum (15)
Gallows Hill (15)
Charlton Plantation pit (15)
N. of Ugford (16)
Milston (15)
E. of Chilhampton (16)
Brigmerston (15)

N.E. of Bishopstone (6)
Charlton Farm pit (6,11,15)
Matrimony Farm pit (6)
Field Barn pit, nr. Cledbury Down (6)
S.E. of Wishford (14)
Three Mile Hill, Pitton (14)
Nr. Piper's Barn, Clarendon (15)
Nr. Livery Farm, Farley (15)
East Grimstead (15,16)
Devizes Road, Salisbury pit (1,14,16)
Clarendon Wood pit (5)
S.E. of Netherhampton (5,15)
Whitesheet Hill pit (6)
No. 2 pit, Wishford (6)
Whelpley Farm pit (9)
Claybury Ring pit (11)
E. of Alderbury (14,15)
Fisherton whiting-pit (14,15)
E. of Pepperbox Hill (14)
Lower Woodford (14)
Upper Woodford (15)
N. of Wilsford (15)
Shootend, nr. Alderbury (15)
Nr. Fussell's Lodge Farm (15)
E. of Ranger's Lodge Farm, Milford (15)
King's Manor Hill (15)
Standlynch Farm pit (15)
Arn Hill, Warminster (15)

B: OTHER STONE QUARRIES.

DORSET

London Daws, Encombe (12)
Kirves Hole, Portland (1)
Kingsbarrow quarry, Portland (1)
Tongue quarry, Portland (1)
Upwey (1)

WILTSHIRE

Brookwater quarry (6)
Chilmark quarry (12)
Chicksgrove quarry (12)
Semley Hill, Donhead St. Mary (6)

YORKSHIRE.

Knaresboro(12)

C: CLAYPITS, BRICKYARDS & BRICK-KILNS.

DORSET

Sutton Holms (16)

HAMPSHIRE

Nr. Kimbridge (1)
Harewood Kiln (2)
Emery Down, Lyndhurst (5)
Chilworth Common (9)
Bransgore (10)
Outwick (16)
N. of Stoke (2)
Frenche's Kiln, Andover (6)
Chadwell (9)
Crow Hill (10)
Royden (11)
Ridge's brickyard, W. of Hurstbourne priors (2)
Crowd Hill, Bishopstoke (5)
Nr. Nichol's Farm (9)
Sandleheath (14)
Freefolk (Portal's) brickyard (2)
Swanwick Brickyards (2)
Allan Green, Lyndhurst (5)
Michelmersh (9)
Shirley (11)
Berrydown brickpit (2)
West Park, nr. Sandleheath (3)
Red Hill, Bassett (8,11)
Bishop's Waltham (9)
Herne (10)
W. of Slade Bottom Farm (2)
Colden Common (4,6)
Young's pit, Colden Common (4)
Nr. Sharpe's Farm (9)
Opp. Nichol's Farm (9)

WILTSHIRE

Redlynch (1,9,10,14)
Tinneys Firs, Redlynch (4,14)
Whiteparish (10)
Waddon (14)
Farrant's brickyard, Bemerton (2,15,16)
Hamptworth (10)
Alderbury (11,15)
Cowsfield (15)

D: GRAVEL & SAND PITS.

HAMPSHIRE

N. of Hurstbourne Tarrant (1)
Bourne Common (7)
W. side of Kings Barrow Hill (8)
Bower Hill (9,10)
Dutwick (9,10,14,16)
N. of Mottisfont (9)
Belbins Farm pit (9)
Frogham Hill (10)
Coot's pit Gunville (10)
New Town pit, S. of Gorley (10)
Breamore (10)
Mt. Pleasant, nr. Lockerley (16)
S.E. of Godshill Enclosure (10)
Sherfield Farm pit, near Sherfield English (16)
Gorley (4)
Castle Hill (8)
Cemetery, Southampton Common (8)
Nr. Round Hill Farm (9)
Woodgreen pits (9,14)
Casbrook Common (9)
Abbotts Well (10)
Sandy Balls (10)
Hungerford Common, nr. Gorley (10)
Little Dikden Bottom pit (10)
Yarnfield pits, Breamore (15)
Nr. Fryern Court (16)
Nr. Whiteshape Bridge (11)
Damerham Hill (16)

ISLE OF WIGHT

Atherfield claypit (12)

MIDDLESEX

Finchley (8)

WILTSHIRE

Foxe's pit, Southampton Hill (1)
W. of New Court Farm, Downton (14)
Winterslow (16)
Britford (15)
Grateley (16)
Betwwen East and West Dean (15)
Knighton Farm pit, Durrington (15)
S. of Redlynch (9,10)
Farley (16)
Lion's Lodge (Opper), Lower pit South Charford (14)
Alderbury (15)
Bulford (15)

E: WELLS.

DORSET

Alderholt (12,14)
Ashes Grove (14)
Daggons Hide (14)
Yensome (14)
Bull Hill Fm, Alderholt (14)

HAMPSHIRE

Woodgreen Collins Ho. (14)
Woodgreen - unlocalized (14,15)
Brick Kiln Farm (2)
Lunways Inn (2)
Sandle Farm (10)
Outwick (10)
Sandleheath (14)
Sloden (10)
Popham (4)
Nr. Winchester gaol (4)
Clock House (5)
Sandy's Well, Hungerford (10)
Pope's Well, Hungerford (10)
Crowe Hill (16)
Daggons Hide (14)
Fordingbridge - Alexanders Cottages(16)
Fordingbridge - Highfield (16)
Fordingbridge - Thompson Factory (16)
Fordingbridge - Oaklands (7)
Blissford (10)
Woodgreen - Marks Ho. (15)
Bury Down Farm (2)
Itchen Abbas Down (2)
Hill above Kingsworthy (2)
Breamore (10,14)
Plaitford Common (10)
Newfarmhouse, Lopshill Common (14)
Nr. "Popple" pits, Rockbourne (16)
Chilcomb (4,6)
Tinkers Cross (5)
Southampton Common (8,11)
Thomas's Well, Hungerford (10)
Bickton (10)
Burleigh Way (16)
Fordingbridge - Parsonage (16)
Fordingbridge - Nyanza Terrace (16)
Fordingbridge - C. Rose's Ho. (16)
Fordingbridge - unlocalized (10,14)
Ashford, nr. Fordingbridge (10)

WILTSHIRE

Redlynch (10)
Woodfalls Farm (10)
Redlynch - Flour Mill (14)
Redlynch - Newmans Ale Ho. (14)

F: RAILWAY & ROAD CUTTINGS.

DORSET

Ashes Farm, Cranborne (2)
Nr. Bailey Gate (5)
Corfe (15)
E. of Ashley Bottom Farm (5)
Between Corfe and Swanage (15)
Verwood Sta. (16)

HAMPSHIRE

S. of Overton Sta. (2)
Wherwell goodsyard cutting (2)
Netley (2)
Nr. Hunt's Farm, Timsbury (9)
East Dean cutting (9,16)
Between Winchester & Basingstoke (14)
Litchfield (2)
Titchfield Road cutting. (2)
S.W. of Hurstbourne Sta. (2)
Chapmansford (5,6)
Ringwood Sta. (10)
West End, Southampton (16)
Woodham Farm cutting (2)
Nr. Whitchurch (2,16)
Micheldever Tunnel (6)
Hockley Hole, nr. Burghclere (6)
Damerham Hill cutting (16)
N. of Shawford (2)
Farnham (2)
Yew Hill cutting (5)
Buriton Tunnel (6)
Between Winchester & Bishopstoke (14)
Between Winchester & Alton (15)
Nr. Litchfield Sta. (6)
New Barn cutting (2,5)
Devil's Dyke cutting (5,6)
Larkwhistle Farm cutting (15)
Between Andover junction & Kimbridge (16)
Waller's Ash cutting (2)
Micheldever Sta. (5,6)
Market-Lavington (6)
Nr. Burghclere Sta. (6)
Hitchen Sta. (7)

OXFORDSHIRE

Nr. Wantage (6)

WILTSHIRE

Downton Sta. (1,14)
cutting N. of Downton (9)
N. of Downton Tunnel (2,14)
W. of Downton Sta. (14)
Kite Hill, nr. Standlynch (16)
S. of Alderbury junction (9,14)
Burcombe (9)
By blacksmith's, Redlynch (14)
E. of Porton Sta. (5)
Between Warminster and Wishford (15)
Between Porton and Broken Cross (16)
cuttings at West Grimstead (14)
E. of Downton (9)
Downton Tunnel (9,10)
S. of Downton Tunnel (14)
Between Downton Tunnel & Waddon (16)
Clarendon cutting (4)
W. of Barford St. Martin Sta. (9)
Milford Str., Salisbury (16)
cuttings at East Grimstead (14,16)
E. of Dinton Sta. (9)
Nr. Westbury (15)
Upper Bullington bridge (16)

G: COASTAL EXPOSURES & CLIFFS.

DEVON

Watcombe Bay (2)
Ilfracombe (13)
Nr. Seaton (13)
The "Landslip," Axminster (8)
Beer Head (2,8,13)
Coast between Exe estuary and Abbotsbury (8)
Between Seaton and Whitecliff (13)

DORSET

Jordanhill (Furzy Cliff) (1)
Osmington Mills (1)
Man-of-War Bay (1,6,8,9)
W. of Durdle Door (8)
Stair Hole (8)
Worbarrow Bay (13)
Redcliff Point (1)
Ringstead (1)
E. of Durdle Door (8)
Lulworth Cove (6,9)
W. end of Worbarrow Bay (8)
Broad Bench (8)

DORSET (cont.)

Bencliff (1)
Chesleton Cliff (1)
Redcliff (1)
Durdle Door (9)
Dancing Ledge & Winspit (11)
St. Alban's Head (13)
Portland (1)
Whitenose Cliff (1,8,9)
St. Margaret's Bay (3)
Mewp's (Mupes) Bay (9)
Ballard Down, Swanage (8)
"Old Harry" Rocks, Studland (8)
N.W. part of Studland Bay (8)
Chesil Beach (9)
Between Lyme Regis and "Golden Cap" (8)
Weymouth Bay (1)
Black Nore (1)
Bats Corner (9)
Kimmeridge Bay (8,13)
Tilly Whim Cliffs (13)
Durlston Bay (8,13)
Portland Harbour shore (1)
Swyre Head (1)
W. of Whitenose Cliff (9)
Peveril Point (13)
Studland Bay (8)
Foreland, Swanage (8)
E. of Bridport Harbour (8)
E. of pier, Bournemouth (9)

HAMPSHIRE

Hill Head cliffs (9)

ISLE OF WIGHT

Between Bembridge Point and Foreland (7)
Between Compton Bay and Brook Point (9)
High Cliff (12)
Gore Cliff, Niton (3,16)
Alum Bay (9,11)
Blackgang Chine to Rocken End (12)
Headon Hill foreshore & cliff (8)
N. of the fort, Bembridge (11)
Culver Cliff (12)
Compton Bay (2,8,9,11)
Whale Chine (12)
Brixham Chine (12)
Whitecliff Bay to Culver (7)
Hamstead Cliff (8)
E. of Blackgang Chine (12)
Foreland Point (7)
Freshwater Down (8)
Shanklin (12)
Whitecliff Bay (12)

YORKSHIRE

Between Redcar and Saltburn (12)
Flamborough Head (12)
Whitby (12)

H: MISCELLANEOUS INLAND EXPOSURES

DEVON

Plymouth Hoe (8)

DORSET

Portland (1)
St. Mary Blandford (4)
Encombe House (13)
Verne Fort, Portland (1,9)
Between Wool and Lulworth (8)
Nr. Ashley Bottom Farm (5)
N. of the Fleet (1)
R. Stour at Wimborne (8)
Woodlands Lay Verwood (16)
Pennsylvania Castle, Portland (1)
Middle Holwell Hill (16)
Greenhill, Weymouth (1)

DORSET (cont.)

Alderholt Park (8)
Pistle Down (Hill) (9)
Nr. Bournemouth (5)
Lyme Regis (8)
Nr. Alderholt Mill (14)

ISLE OF WIGHT

Headon Hill (8)
Ventnor (12)
St. Lawrence Shute (12)

HAMPSHIRE

Brook Farm, nr. Mottisfont (2)
Clapton Wick (7)
Between East Dean & West Dean (8)
Oaklands cesspool, Fordingbridge (7)
Fordingbridge, gasworks (2)
Fordingbridge, nr. station (14)
Docks extension, Southampton (3)
N. of Crondell Common (7)
E. of Romsey (8)
Docks, Southampton (9)
N. end of Hyde Lane (10)
Woodgreen (10)
Hale Purlieu (4)
Rockbourne (8)
"Tower-of-the Winds," Chilworth (9)
Poole Hill, Ringwood (10)
Huntonbridge (11)
Court Hill, Damerham (5)
Cadbury Camp (7)
Between Woolston & Botley (8)
N. of Moor Farm (9)
Fordingbridge, workhouse (2)
Fordingbridge, - unlocalized (9)
Field near Burghclere Beacon (6)
Godshill (7)
Itchen Quay, Southampton (8)
Ibsley (10)
Hyde Common (10)
Black Bush Plain (4)
Various Avon Valley sites (7)
Rockstead Farm, Whitsbury (8)
Castle Hill (10)
Stubbington (11)
Southampton Hill (16)
Breamore (10)

NORFOLK

Aldeby (11)

OXFORDSHIRE

Wantage (11)
West Hendred (11)
Charlton Hill (11)
Childrey (11)
Westcot (11)
Lockinge Clump (11)
Betterton (11)
Ardington (11)

SURREY

DORKING (8)

WILTSHIRE

Salisbury gasworks (1)
Redlynch (9)
Milford Hill, Salisbury (16)
Top of Red Horn Hill, Salisbury (6)
Pensworth (Muckles) Farm, Redlynch (16)

YORKSHIRE.

Brimham Rocks (12)

I. MUSEUMS

Alton (15)
Oxford Univ. (6,11)
York (1,12)
Corfe Castle (5,13)
Southampton (8)
Devizes (6)
Reading (5,6)
Brighton (6)
London Univ. (7)
Winchester (10)
Eastbourne (3)
Salisbury (1,10,12)
Cheltenham College (15)
Scarborough (12)
Andover (2,5)
Peabody (U.S.A.) (5)
Audley End (15)
Jermyn Street (11,14)
Weymouth Institute (1)
Dorchester (6)
Saffron Walden (15)
Bristol (7,15)
Norwich (11)
Winchester Coll. (14)

J. PRIVATE FOSSIL COLLECTIONS

Alderman, Stephen (King's Somborne) (15)
Bartlett, John (Bradford Abbas) (15)
Beacon, Moses (Winterbourne Earls) (2)
Bennett, F.J. (Maidstone) (4)
Buckell, Dr.F. (Romsey) (14)
Capper, M. (?) (8)
Clare, Mrs. (Ringwood) (16)
Coombs, Rev. (Salisbury) (10)
Durden, Henry (Blandford) (5)
Edwards, R.R. (Salisbury) (1)
Everidge, Mr. (Totton) (5)
Gillett, Alfred (Street) (2)
Gudgeon, Mr. (Winchester) (2)
Harris, Charles W. (London SE) (14)
Hunter, Isaac (Charmouth) (3)
Jebbitt, W.J. (Breamore sta) (2)
King, J. (Norwich) (3)
Langdale, Rev. (Nr.Portsmouth) (3)
Lowe, W.B. (6)
Maggs, T.C. (Gillingham) (5)
Morrice, Miss. (Woolstone) (8)
Norris, H.J. (?) (6)
Penny, Rev. J. (Tarrant-Rushton) (5)
Phipps, Mr. (?Blandford) (5)
Reed, E.H. (York) (2)
Saunders, Mr. (Portsea) (3)
Shipp, William (Blandford/Dorchester)(5)
Smith, Mr. (Stockbridge) (2)
Sloper, Mr. (Devizes) (6)
Swayne, Rev. (Heytesbury) (6)
West, Rev. G.H. (Bournemouth) (5)
Young, Mr. (Colden Common) (4)
Austen, Rev.J.H. (Ensbury) (8)
Bayfield T.G. (Norwich) (3)
Beavis, Henry (Hurstbourne) (5)
Brook, Mr. (Savernake) (4)
Buckles, Miss. (Salisbury) (14)
Charley, Mr. (?St. Mary Bourne) (5)
Colenutt, G. (Shanklin) (3)
Drysdale, Mr. (Railway engineer for Larkwhistle Farm section) (16)
Everett, Benjamin (Devizes) (6)
Fitch, Robert (Norwich) (3)
Greenley, Rev. John (Laverstock) (14)
Harris, Charles (London, SW) (14)
Hume, Rev. (Meonstoke) (6)
Hyde (or Hythe) Mrs. (Whitchurch) (5)
Judd, John (Stockbridge) (2)
Lane, Rev. A (Devizes) (6)
Lovibond, Miss (Salisbury) (14)
Lucas, J. (Warminster) (6,15)
Marder, J.W. (Lyme Regis) (8)
Morrice, Miss. (Woolstone) (8)
Palmer, Dr. Silas (Newbury) (6)
Phillips, Mr. (St.Mary Bourne) (6)
Portal, Melville (Laverstock) (16)
Rutter, John F. (Mere) (3)
Sharpe, Mr. (Mason College) (2)
Smith, Mr. (Reading) (6)
Stebbing, J.R. (?) (8)
Stevens, J. (Reading) (6)
Thomas, J.B. (?) (8)
Williams, Mr. (Newport) (12)
Ownership unknown, but exhibited at Bitterne Road Sta., in 1877. (8)

K. NOTES ON AND/OR DRAWINGS OF FOSSILS

CORALLIAN

Sandsfoot, Dorset (1)

KIMERIDGIAN

Chapman's Pool, Dorset (13)
West Bay, Dorset (1)
Weymouth Bay, Dorset (1)
Smallsmouth Sands, Dorset (1)

PORTLANDIAN

Kingsbarrow Quarry, Dorset (1)
Blackmore pit, Dorset (1)

PURBECKIAN

Durlston Bay, Dorset (13)
Fossil Forest, Lulworth, Dorset (8)

WEALDEN

"Pineraft", Isle of Wight (9)

GAULT

Lulworth Cove, Dorset (1)

UPPER GREENSAND

Worbarrow Bay, Dorset (9)

CHALK

E. of Man-of-War Bay, Dorset (9)
Royden, Hampshire (1)
S. of Whisbury, Hampshire (11)
Dumpton, Kent (3)
Pitton, Wiltshire (1)
Thornicombe, Dorset (5)
St. Gile's Hill, Hampshire (5,10)
Outwick, Hampshire (11)
Pyrton, Oxfordshire (6)
Woodfalls, Wiltshire (15)
Nr. Winchester Sta, Hampshire (5)
Lion's Lodge pits, Hampshire (11)
Dover, Kent (1,3)
Salisbury, Wiltshire (1)
W. of Man-of-War Bay, Dorset (9)
Greenhill, nr. Chapmansford Hampshire (6)
Upton, Oxfordshire (6)
Stratford-Sub-Castle, Wiltshire (2)
Bere Hill, Hampshire (5)
Devil's Dyke, Hampshire (6)
Compton Bay, Isle of Wight (9)
Brighton, Sussex (1)
Tarrant-Rushton, Dorset (5)
Whitchurch, Hampshire (6)
Yarnfield pit, Hampshire (11)
Hagbourne, Oxfordshire (6)
Wick Down, Wiltshire (11)

WOOLWICH BEDS

Redlynch, Wiltshire (14)
Crondell Common, Hampshire (7)

LONDON CLAY

Highgate Archway, London (14)
Alderbury, Wiltshire (9)
Clarendon, Wiltshire (6)

BROCKENHURST BEDS

Brockenhurst, Hampshire (7)

PLEISTOCENE

Fordingbridge, Hampshire (2)
Fisherton, Wiltshire (16)
Romsey, Hampshire (14)

THE NATIONAL SCHEME FOR GEOLOGICAL SITE DOCUMENTATION ANNUAL REPORT 1980

This report covers activities within the context of the National Scheme between 1st December 1979 and 31st December 1980, and summarises the present holdings of site records at Geological Locality Record Centres, inclusive therefore of previous work done.

Records

A total of 16006 site records have been reported in the holdings of the 36 Record Centres. This is an increase of 31.3% over the last corrected report, significantly lower than the increase reported between 1978 and 1979. A number of factors appear to be relevant in explanation of this drop.

1. Record production is not necessarily the most significant measure of performance of a Centre. The majority of questionnaire returns showed that the greatest proportion of time spent on locality records was devoted to the filling in of detailed information on sites already established in the filing system.

2. Only 3 Centres used the services of the Manpower Services Commission, though job creation schemes, compared to 10 in the previous year, and 11 prior to that. This clearly reflects the recession in employment generally, but the new government initiative in job creation may produce better results during 1981 and 1982.

3. Some Centres have reviewed their holdings downwards, after previous estimations have proved inaccurate.

4. Several Centres are inactive due to staff reduction or frozen posts after resignations. There is little to be done about this, other than safeguarding records already produced.

5. Work priorities at some Centres have shifted away from site recording after initially high activity.

Enquiries

Enquiries reported on the questionnaire provided to Centres show a slight increase. Centres are asked to indicate whether they receive less than 10, 10 to 20, 20 to 30 or over 30 enquiries. Answers for 1979 and 1980 are compared below.

	-10	10-20	20-30	30+	
1979	13	7	1	8	(29)
1980	10	11	3	9	(33)

Centres have complained that a definition of an enquiry is rather difficult to make and that figures supplied do not indicate the number of times site files are consulted, for example to answer internal enquiries or for the publication of site information. Bristol Museum makes considerable use of

locality information for the consumption of geology teachers through publications circulated annually, but does not classify this work as a response to enquiries, quite properly. Such difficulties of report cannot be easily overcome without needless and unproductive concern. However it is equally clear that some Centres do not make enough effort to record even external enquiries via a daybook or other medium, and should endeavour to do so, in order to get a real picture of enquiry numbers.

Use of Records

Centres are asked to note any significant enquiries and if the rise in enquiry numbers is disappointing, then there is encouragement in the number of enquiries considered remarkable by Record Centre personnel. Below are those to which attention was drawn.

Bristol	:	Schools work, teachers groups.
Derby	:	Increase in school enquiries in response to notice in Association of Teachers of Geology journal 'Geology Teaching'.
Hampshire	:	Two District Council area plans.
Leicester	:	Belvoir Coalfield Enquiry.
Letchworth	:	North Herts. District Plan, East Herts. District Plan, Stevenage District Plan and Stanstead Airport Enquiry.
Newcastle	:	Joint project with NCC re Newsham, Northumberland: rescue of fossiliferous shales.
Plymouth	:	Plymouth Structure Plan.
Sheffield	:	Sheffield Metropolitan District, Green Belt Policy document.
Stoke on Trent	:	Staffordshire Trust botanical survey; Tourist Agency enquiry re school excursions.
Sunderland	:	Durham County Council Waste Disposal Plan; Whitburn Colliery reclamation scheme (Coastal SSSI).
Ulster	:	Geological Survey.
Warwick	:	District and County Planners; NCC; IGS: Midland Road Construction Unit; Gas Board.

Committee for Geological Site Documentation

This sub-committee of the Geological Curators' Group has not met since the publication of the Geological Record Centre Handbook but continues its work within the confines of the GCG. Lack of financial support has meant reduction of initiatives and effort.

Nevertheless, 1980 saw the designation of another Record Centre, that based at the Hampshire County Museum Service where Tony Cross in the Curtis Museum, Alton is in charge.

John Cooper as Chairman of CGSD continues to be a member of the Museums Association Working Party on Environmental Record Centres which meets annually to liaise work in locality recording in all disciplines.

Roy Clements, ex-Chairman of CGSD is the GCG representative on the Geological Society's new Conservation Committee (see below) and is in close touch with the CGSD.

A summary of the financial problems encountered by the CGSD appeared in the GCG's 'The Geological Curator' Vol. 2: 9-10 October 1980. Some implicit critisism of the NCC therein has since met with some opposition and commented on in the April 1981 edition of 'The Geological Curator' Vol. 3: 1.

In response to the financial difficulties of the CGSD and GCG, I wrote to all Record Centres requesting a voluntary donation and am pleased to report almost 100% positive response. I and the GCG are deeply grateful for this support.

The year ahead may see changes within the CGSD and increased collaboration with the NCC.

The Geological Society of London: Conservation Committee

Various initiatives in recent years, not least that of the GCG and CGSD, together with the help and encouragement of both Dr. Peter Toghill of the Shropshire Trust and Dr. Chris Wilson culminated in the establishment of a new Committee of The Geological Society in April 1980. The terms of reference of this committee have been published in Earth Science Conservation No. 18 December 1980 and reprinted in 'The Geological Curator' 3: 1 April 1981. They include the following:

v) to promote the National Site Documentation Scheme (which is intended to relieve pressure on over-used sites by unearthing alternative locations).

Further details about this Committee may be gleaned from the Annual Reports of the Geological Society and from Dr. P. Toghill, the Committee secretary.

John A. Cooper, Chairman CGSD
May 1981

Record Centre	Number of records	1979	MSC Programme?	Enquiries
Aylesbury	252	252		30+
Bolton (incl. Wigan R.U.)	223	113	(Wigan)	10-20
Bristol	541	541		30+
Brockhole, L.D.N.P.	270	116		-10
Canterbury	81	73		-10
Chester	Inactive			
Derby	c.450	442		20-30
Doncaster	92	85(corrected)		
Dorchester	c.350	250		-10
Dundee	85	72		10-20
Exeter	26	26		-10
Hampshire	Designated 30.10.1980 - no progress			
Keighley	423	423		10-20
Leeds	650	650		10-20
Leicester	1160	1160(corrected)		30+
Letchworth	31	-		10-20
Liverpool (incl.Brenig & Burnley R.U.'s)	-	-		-
Ludlow (incl. Preston Montford R.U.)	953	not supplied		30+
Manchester	650	125		
Middlesbrough (incl.St. Marys College R.U.)	c.290	130		30+
Newcastle (Hancock)	403	403(corrected)		20-30
Norwich	1300	1200		30+
Passmore Edwards	151	143		-10
Peterborough	-	- (corrected)		-10
Plymouth	200	163		-10
Preston	1154	597		10-20
Queen Mary College	200	191		10-20
St. Albans	41	36		10-20
Sandown IOW	198	-		20-30
Sheffield	480	480		30+

Record Centre	Number of records	1979	MSC Programme?	Enquiries
Stoke on Trent	300	300		10-20
Sunderland	c.2000	1200		30+
Ulster	67	50		-10
Warwick	1150	1150		30+
Wilderness Centre, Forest of Dean	335	314		10-20
York	1500	1500		-10
TOTALS	16006	12185 (corrected)		

COAL BALLS FROM ROWLEY TIP

Coal-balls are one of the most important sources of fossil plant remains to be found in this country, and have played an important role in the development of Carboniferous palaeobotany. Unfortunately, the number of sites from which they may be collected has steadily declined and in recent years the single main source has been Rowley Tip at Burnley, Lancashire. This too is now disappearing as the tip is being landscaped to produce a recreational area.

In June 1980, the Nature Conservancy Council and Bolton Museum organised a protect to rescue as many coal-balls as possible while the site remained accessible. Several tons of the nodules were collected, by a volunteer work-force, and the coal-balls are now stored at Bolton Museum. They will be made available for research purposes only, in order to conserve the supply.

Intending researchers should send details of the number of nodules required and an indication of their research interest to either of the addresses below.

Mr. C.J. Cleal,
Nature Conservancy Council,
Geological Conservation Review Unit,
Pearl House,
Bartholomew Street,
Newbury,
Berkshire, RG14 5LS.

Mr. A.C. Howell,
Keeper, Natural History,
Bolton Museum & Art Gallery,
Le Mans Crescent,
Bolton,
Lancashire, BL1 1SA.

NOTES AND NEWS

compiled by Tony Cross

PEOPLE!

Dr. Alan Smout

Members might like to know of the retirement of Alan Smout, Keeper of Geology at the Booth Museum in Brighton, at the end of August 1981. Alan came to the museum profession after a career in the oil industry. He played a major part in the computerisation of the collections in the care of the Brighton Museum Service.

John A. Cooper, not unknown in GCG circles! has been appointed to the post vacated by Alan and took up his duties on the 1st September. John read Geology at Leicester University and after completing the Museum Studies Course there, spent a year in Africa on a V.S.O. project. He joined the Leicesterhsire Museums Service on his return and in going to Brighton leaves the Assistant Keepership vacant.

ROCK BOTTOM - AGAIN!

The picture of the interesting trace fossil (in the last issue of the Geological Curator) thought to represent an impression of a sitting reptile may be confirmed by new examples! Amongst the discoveries of Iguanodon and Megalosaurus footprints made at Swanage, Dorset during August 1981 (which were widely reported in the National Press) are similar strange impressions. Further details and photographs are awaited from Paul Ensom of the Dorset County Museum who arranged the excavation of some ten tonnes of Purbeck Limestone bearing the imprints of this exciting discovery.

LITERARY SUPPLEMENT

Our first contribution is from Tim Riley, Keeper of Natural Sciences at Sheffield Museum. Tim writes;

Successive quotations, of whose origin I haven't the foggiest, are giving me something of a complex. It isn't that I don't read, but rather that my sort of books never seem to lapse into geological prose. Not until my latest, however, which provided this little gem to get my own back on you literary buffs.

Last day at Kerrata

June 6th 1943. My Diary: Last day: We swam at first light and wished we hadn't. It was bloody cold. Edgington was cringing in the water, his teeth chattering singing his latest hit:

It's chilly,
On yer willy,
In the water
In Kerrata.

"Rubbish" I said,
"Rubbish? If Cole Porter was writing this stuff they'd be lapping it up, its only my words against his."

Why we should go mineral rock hunting escaped me. We searched the area.

"What's a fossil?"
"The birth mark of a dead animal."
"There must be gold around here."

Soon our pockets were bulging, we would ask Budden's advice, after all he was a University man, an Officer, not only that he was also intelligent. When we arrived back he was not only a University man, an Officer and intelligent, but dead asleep with his mouth open.

"Don't wake him", I said, "he might be dreaming of promotion."

We carefully sorted the rock samples into the various categories that we knew - big and small.

It was gone 3 when Budden arose, such was his condition that his first words were, "we must be ready by Mid-day."

We showed him the samples. "They're rocks," he said. We told him we knew that, and he said so did he.

"Aren't they valuable sir?" I said.
"I don't know," he replied.

What a fine officer I thought, he could have lied and said,

"Yes, they are gold bearing of a high degree," but no! he had fought back the temptation and deprived us of a fortune! We had final swims, and then set off to Ain Abessa.

Extracted from:

Milligan, Spike 1976. Monty. His Part in my Victory.
War Biography, Vol. 3. Edited by Jack Hobbs,
Penguin Books.

Our second literary contribution is a quote from the Skin and Scuba Divers Digest.

"If not diving in a pool, try and find an area that features a bottom of sand, gravel or similar non-sedimentary composition" .

No comment!

ARTS SECTION

The sale of geological material raises all kinds of arguments especially where the scientific value of specimens is trivialised and lost. To consider such material as an art form is a new side to this problem. John Cooper saw a recent example whilst on a museum crawl with a party of visiting British Curators in Germany. The piece, pictured below, was on sale in a Cologne gallery for 15,000 D.M. (about £3,300).

Consisting predominantly of belemnites fixed to a back-board it was entitled 'Fossilien' and had been 'composed' in 1962-1964 by Herr Arman a respected member of the contemporary art world. John also found a quotation from the artist explaining his approach.

"I have a very simple theory; I have always pretended that things compose themselves. My composition consists of letting objects compose themselves."

One can only make the comment that it is possible to see a similar 'current orientated' exhibit in the Lower Jurassic Belemnite Marls of Dorset for no cost at all even though its an original scientific 'composition' untouched by human hand.

MINERAL AND FOSSIL COLLECTORS BEWARE!

Extract from the Leicester Mercury 16th May 1981

Blue John stone is not public property

PEOPLE who go prospecting for Blue John stone run the risk of prosecution, a Derby Crown Court judge warned after sentencing a Leicester man for stealing some of the stone belonging to the National Trust.

The trial proved the National Trust own the land and mineral rights to Blue John in the Winnats Pass area of Castleton, Derbyshire.

But Recorder Mr. Norman Irvine, Q.C., warned that people who take Blue John stone, whether or not there is a mineral right interest, could face prosecution under the Theft Act.

He said that people who organise rock collections should first get permission from the National Trust.

Terence Manning (37), of Gipsy Lane, Leicester, who has a shop selling semi-precious stones, and Donald Edwards (39), of Jeffery Lane, Bradwell, who has a similar business, were convicted of stealing. They had denied stealing the stones.

Trench

Each was fined £100.

Brian Scott (30), also of Gipsy Lane, Leicester, was cleared by the jury. He had also denied the offence.

Mr. John Warren, prosecuting, said the stone was taken after a trench was dug on ground over a mine site in Castleton.

Mr. Philip Raynor, for Edwards, and Miss Frances Patterson, for Manning and Scott, said that at the time — July, 1980 — the men honestly and genuinely believed they had a right to take the stone.

Mr. Raynor said Edwards knew the National Trust owned the land, but not the mineral rights of the stone.

He believed the mineral rights had been abandoned by the owners.

Mistaken

Since then, however, the three men acknowledged their belief was mistaken.

Miss Patterson said Scott had nothing to gain by the venture and had only helped carry the rock.

The Recorder said: "It is now clearly established that so far as the Winnats Pass area is concerned the National Trust not only own the land, but also the mineral rights".

Crime to collect fossils ?

— Anyone who has collected or hopes to collect fossils in the Charmouth-Lyme Regis area should sit up and take notice! It may not be widely known yet, but the West Dorset District Council is in the process of making a bye-law which gives the power to make illegal all fossil-collecting along a section of the coast at Charmouth.

This bye-law takes the form of an Order under the Coast Protection Act of 1949, an act which was passed to protect the coastline from erosion. The district council wishes to make the order because in the opinion of councillors, the activities of collectors are causing erosion. If the bye-law is passed, these councillors may be surprised to find that erosion continues unabated. Their one positive achievement would be to spoil a harmless pursuit followed by many residents and thousands of visitors to the area.

If any readers object to the proposed order, may I suggest they write immediately to the Secretary of State for the Environment, 2 Marsham Street, London SW1

giving reasons for their objections, and send a copy of that letter to the West Dorset District Council at Dorchester. Their efforts should result in a public inquiry at which the district council will need to show that collectors are indeed causing erosion. If nothing is done, they may find they have committed a crime next time they pick up a fossil on Charmouth beach!

Extract from the Western Gazette June, 1981

INFORMATION WANTED

Search for Queensland fossil vertebrates

We are trying to locate any fossil vertebrate remains from Queensland, Australia as part of research into the history of vertebrate palaeontology in Queensland. We would be most grateful if readers could let us know of any specimens in their collections, together with locality and collector/ donor details. Please send replies to:-

Sue Turner and R.A. Thulborn,
16 Clarke Street,
Bardon,
Brisbane,
Queensland 4065,
Australia.

British Tertiary Crustacea

I would like to request information from Curator's or individuals on occurrences or holdings of crustaceans from the British Tertiary to facilitate the preparation of an updated record for publication by the Tertiary Research Group as part of a project on English Tertiary Crustacea. Please send information to:

W.J. Quayle,
51 Whites Road,
Bitterne,
Southampton,
SO2 7NR.

Specimens from the Beagle voyages 1831-36

David Stanbury writes:
I was Historical Adviser to the television series "The Voyage of Charles Darwin" and I am currently writing a book about the work of the "Beagle" and although I can track down the specimens and collections which were brought back by Darwin, I know that both the captain, Robert Fitzroy, and the acting surgeon, Benjamin Bynoe, made official collections of plants, birds and possibly even minerals for the official naval collections at the Haslar Hospital. I am trying to locate any specimens or documentation connected with this collection part of which was given to the British Museum (Natural History). Any help that readers could give me would be greatly appreciated.

David Stanbury,
16 Ian Court,
2 Dacres Road,
London SE 23.

HAVE YOU GOT THIS FISH ?

In 1828 the Literary and Antiquarian Society of Perth recorded the donation of "a petrified fish found in Clashbennie quarry the head

and tail had been broken off but the body very entire and shows at some parts the scales and at others flakes and bones very distinctly." What appears to be this specimen was cited and illustrated by the Rev. Dr. Fleming "On the occurrences of the Scales of Vertebrated Animals in the Old Red Sandstone of Fifeshire" (Edinburgh Journal of Natural and Geographical Science Vol. 3 1831)

A mark against the register entry would seem to indicate that the specimen passed to the Perthshire Natural History Museum and was present in the collections c.1900. However, it can not now be traced and as this museum carried out a policy of exchanging material with other institutions, it may have found a home elsewhere. The specimen was described by Fleming as "about seven inches long, two inches deep and from seven to eight-tenths in thickness".

Would anyone with any information on the whereabouts of this historically important specimen please contact Michael Taylor, Perth Museum & Art Gallery, George Street, Perth, Scotland.

ROCK AND MINERAL COLLECTION FOR SALE.

Richard Lucas writes:-

I have collections of mineral and rock specimens collected over a period of twenty years which I now wish to sell.

The mineral collection consists of 250 specimens (approx 200 different mineral species) up to a size of 2" x 3". 60 larger mineral specimens (about 4" x 4") 120 minerals from Cornwall.

The rock collection consists of 150 large specimens (all different). Sedimentary, igneous and metamorphic rocks are represented and some illustrate various structures and other features. If anyone is interested in viewing the collection with a view to purchasing could they contact.

Richard Lucas,
8 Mere Drive,
'Didsbury',
Manchester 20.
Tel No: 061-434-2842.

All contributions to Notes and News should be sent to:

Tony Cross,
Curtis Museum,
High Street,
Alton,
Hants GU34 1BA.

PUBLICATIONS

Book review by Dr. D.J. Siveter.

A CATALOGUE OF THE LOWER PALAEOZOIC FOSSILS IN THE COLLECTION OF MAJOR-GENERAL J.E. PORTLOCK, RE, LLD, FRS, FGS, ETC.

by S P Tunnicliff, Palaeontology Department,
Institute Geological Sciences, London.

Published by the Ulster Museum, Belfast, 1980.
112 pp, two maps, one table, one figure.

Price: £5.00 (softback) plus 25p. p&p.

Major-General J E Portlock (1794 - 1864) was responsible between 1832 and 1843 for the running of the Geological Survey of Ireland, at the end of which period he produced his massive Report on the Geology of Londonderry and parts of Tyrone and Fermanagh. This well-known geological tome (i - xxxi, 784 pp, 38 pls) slightly post-dated a much smaller contribution by Portlock (in Larcom 1837) on Irish Geology and has remained for nearly 150 years an essential reference on Irish rocks and fossils. In the classic 1843 work dozens of species were described, figured and in many cases erected. This text is therefore of lasting importance and relevance to palaeontologists, especially to British Lower Palaeozoic specialists in their revisions of Ordovician and Silurian taxa, which comprise the majority of forms Portlock discussed. To this end the purpose of Steve Tunnicliff's catalogue "is to enable such workers to trace with ease Portlock's Lower Palaeozoic type and figured material" from his 1837 and 1843 works, which specimens were scattered to a variety of British repositories throughout the nineteenth and early twentieth centuries. This time-consuming, unglamorous, yet extremely valuable task has been accomplished with almost unqualified success. Out of over 770 Lower Palaeozoic fossils assignable to the Portlock Collection, including almost 300 fossils illustrated in 1843, only about 20 remain unrecognised.

The contents of the catalogue are divided into nine parts. An introduction sketches the development of Portlock's publications and understanding of Irish Lower Palaeozoic strata and fauna. Only a line or two is given outlining his career and, while this is not a biography, a paragraph or so on Portlock's background before 1832 would have been appreciated. The dispersion of Portlock's Collection from Dublin after 1843 is traced in the second section; a useful third section ties-in, as far as possible, the stratigraphy and localities of Portlock to those of later authors (such as Baily 1878, 1882; Fearnsides, Elles and Smith 1907), in particular to the recently published stratigraphic framework and maps of Mitchell (1977, Palaeontographical Soc. Monogr), and a fourth explains the system of catalogue entries. The next two sections list museum and specimen numbers against plate and figures from both 1837 and 1843 texts; these sections can be cross-referenced with the seventh part which represents the heart of the catalogue - an inventory in numerical order of Portlock specimens from the Institute of Geological Sciences (London), Trinity College (Dublin) and the Ulster Museum (Belfast), together with bibliographic, nomenclatorial, type status, stratigraphic, location and any other sundry information on each fossil. References are comprehensive and apparently error free apart from one entry already noted in a list of eight items of addenda and corrigenda

to the catalogue as a whole. The final section, a genus-species and species-genus index related to museum specimen numbers, allows quick access to the catalogue from a taxonomic standpoint.

The text is nicely produced and the print easy on the eye, with a pleasing cover illustrating a slab of Cryptolithus latus Portlock and one specimen of Hibbertia flanaganni (Portlock), (though a re-orientation of the latter so that it is not facing sideways would be better!) In absolute terms the price is inexpensive, but for such a fairly slim volume without plates it is on the high side, the relatively high cost presumably reflecting the somewhat limited readership the catalogue will have. I doubt if it will have wide appeal, though in terms of information content it represents excellent value to all Lower Palaeozoic palaeontologists who have had cause to dip into Portlock, and at the very least should now be a companion volume to be placed alongside the 1843 report on library shelves. This catalogue has admirably resurrected the majority of the Portlock Collection, it would be a pity if the non-Lower Palaeozoic material could now not be treated similarly.

D. J. Siveter,
Department of Geology,
University of Hull,
Coltingham Road,
Hull.

"Register of Natural Science Collections in north west England"
Editors: E.G. Hancock and C.W. Pettitt. 1981, 188pp.
Price £6.00, including postage.
A review by Howard Brunton.

This is the first published register of collections and collectors to come from the recently established Federation of Natural Sciences Collections Research (FENSCOR), a grouping of the regional Collections Research Units.

Stimulated by the Liverpool conference (1977) on 'The Function of local Natural History Collections', the Biological and Geological Curators Groups initiated the first collections Research Unit in north west England to cover Cheshire, Cumbria, Greater Manchester, Lancashire, the Isle of Man and Merseyside; the work being carried out at Manchester using their powerful computing unit.

Between 1977 and 1979 fifty eight of the seventy institutions listed were visited, the rest supplying information on their own collections, and a first edition of the register was available in April 1979, produced from the computer's line printer.

This 1981 register is a great improvement on the 1979 version, it is a spirally bound book of page size 300mm x 210mm. An introduction of nine sides is followed by the sixty eight pages of the main collection/collector register. The remaining pages are for an Associated Collectors Index, a Subject Index and a Geographical Index.

The Register lists alphabetically, in bold type face, collectors, collections and institutions, each followed by brief notes on the material, including its condition, bibliographical references and where housed. As the first readily available version of this register it is commendably complete, but it will be easy for people to ask why such and such a collection is not included and, when this happens, the information should be sent to the editors for inclusion in the next edition. The Introduction suggests that collections made in the area, but now housed elsewhere, are to be included, yet the important Carboniferous fossil collections of William Gilbertson of Preston, used by Phillips for his 'Geology of Yorkshire' (1836) are not included, perhaps because it now resides in the BM(NH), London. Similarly John Phillips' own material, used in the same publication, is mostly housed in the Oxford University Museum (see Edmonds, 1977, J. Soc. Bibl. nat. Hist., 8 (2)). One aspect of the Register I find a little annoying is not knowing the precision of the identification of the material included. For instance is 'Mollusca' always used in the modern sense or may it include, in older collections, other invertebrates such as brachiopods?

The Associated Collectors Index lists all those collectors, usually having relatively small collections, not appearing in the main Register, but may also augment the main Register. The Subject and Geographical Indexes list under these headings at the smallest practical level. However, they do not pick up, for example, particular fossil groups from within the body of Register information. Thus brachiopods have only one listing in the Subject Index although on reading the main Register they are mentioned at least six times.

These minor irritations may be unimportant if, as is hoped, the Manchester data can be searched in response to specific research enquiries. More importantly, what we now have available for the first time is a Register from which we can get a great deal of information about geological and biological collections in the north west of England. The editors, and their research colleagues, are to be congratulated in producing this Register, and it is up to the users to bring additional and amended information to them for inclusion in their data base. A good standard to follow has been set for the other regions, working on similar registers.

Howard Brunton.
Department of Palaeontology,
British Museum (Natural History),
Cromwell Road,
London SW7 5BD.

BOYD, M.J.F. and TURNER , S. 1980
Catalogue of the Carboniferous Amphibians in the Hancock Museum, Newcastle upon Tyne. Nat. Hist. Trans. Northumb., 46, 24pp. A5 format.

As stated in the introduction this is the first complete catalogue of the Carboniferous (West phalian) amphibian specimens held in the Hancock Museum. Amphibia of Westphalian age are rare and this collection is probably the most important one in Britain. It dates primarily from the period 1860 to 1880 and most of the specimens came from localities in the north of England and Scotland. There are five holotypes, two lectotypes in addition to syntypes and numerous figured specimens.

Copies price £1.10 (postage extra) can be obtained from:-
The Natural History Society of Northumbria,
The Hancock Museum,
Newcastle upon Tyne.
NE2 4PT.

THE BLACK COUNTRY GEOLOGIST

The Black Country Geological Society have just produced the first issue of their journal bearing the above title. It has an A4 format and the Society must be congratulated for an attractively presented and printed product. The first issue has 52 pages devoted to four contributions. The first, 'A short history of the Dudley & Midland Geological Societies' by Alan Cutler, is of particular interest as it outlines the history of the associated geological collections. The article is illustrated with reproductions of woodcuts and other archival material relating to the societies.

Two other contributions 'the Petrography of the Igneous Rocks from Park Hill' by R.A. Ixer, and lithological Groups within the Wenlock Limestone (Silurian) at Wren's Nest, Dudley by P.G. Oliver, reflect the excellent work that the Society is undertaking in the fields of geological site recording and conservation in the West Midlands. The fourth contribution by Sheila Pitts is a brief account of the geology of the Faroe Islands based on a visit by the author in 1972.

Copies of the Black Country Geologist are available at a cost of £1.50 (postage 40p extra) either from:

Alan Cutler,
21 Primrose Hill,
Wordsley,
Stourbridge,
West Midlands, DY8 5AG.

or

P.D. Shilston,
16 St. Nicholas Gardens,
Kings Norton,
Birmingham
B38 8TW.

ICHTHYOSAURS: A HISTORY OF FOSSIL 'SEA DRAGONS' by S.R. Howe, T. Sharpe and H.S. Torrens, 32pp., 33 monochrome illustrations. ISBNO 7200 0232.
Published by the National Museum of Wales.
Price 90p. (postage 25p.)

This well illustrated booklet is designed to expand the theme of an exhibit in the Department of Geology at the National Museum of Wales. It begins by explaining what Ich thyosaurs are and their stratigraphical distribution. Emphasis is placed on British Jurassic occurrences. The bulk of the booklet is devoted to the history of collectors and collections in Britain together with an account of the development of ideas on what Ichthyosaurs looked like, how they lived and what they ate. The illustrations are excellent and include a range of reconstructions published during the 18th and 19th centuries

Copies can be obtained from:
H.G. Rees,
Publications and Information Officer,
National Museum of Wales,
Cathays Park,
Cardiff,
CF1 3NP.

NEW BRITISH STANDARD CLASSIFICATION FOR PALAEONTOLOGY

The British Standards Institution has just published a systematic schedule with alphabetical index for classifying information about general and systematic palaeontology, extinct species and fossils, as a revision of the Universal Decimal Classification (UDC) edition of 1943, which has been obsolete for many years.

This is primarily intended for use in libraries which catalogue on the UDC classification, but the classification and structure could be adapted for use in a Dewey classification library, or indeed, for the classification of palaeontological specimens or non-book information.

Copies of the new British Standard: BS 1000 56 : 1981 - UDC 56 Palaeontology

20 pages, can be obtained from BSI Sales Department, Newton House, 101 Pentonville Road, London, N1 9ND. The price, including postage and packing, is £6.00 in the case of purchases by organisations which are subscribers to the BSI (these include most major local authorities), or £12.00 in the case of non-members.

Patrick Boylan.

THE BSHS NEWSLETTER

Not a new publication but certainly of interest to GCG members.

The BSHS Newsletter is published in January, May and September by the British Society for the History of Science, each issue comprising 24 pages. It regularly carries a long list of forthcoming meetings (the last issue detailed 34 meetings of 17 organisations and reports on recent meetings. Other features include accounts of history of science faculties at individual universities and the activities of other societies and of museums. There is extensive coverage of attempts to improve the teaching of the history of science in schools and Further Education. The 'requests for information' column is widely used. There are many other items of interest to both 'professional' and 'amateur' historians of science, such as a list of anniversaries, media news, Open University programmes and notice of new Journals in the field. The Newsletter interprets 'history of science' to include technology and medicine and covers all periods of interest to its readers.

The Newsletter is distributed free to all 600 individual members of the Society and is bought by many institutions. It is available at £3 p.a. (£1 per issue) to non-members. Sample copies are available. Subscription queries should be addressed to The Administrator, BSHS, Halfpenny Furze, Mill Lane, Chalfont St. Giles, Bucks HP8 4NR.

COSMOS ANTIQUARIAN BOOKS
have published their catalogue (NO. 20) Listing 836 publications relating to palaeontology. For copies of the free catalogue write to:
Cosmos Antiquarian Books,
P.O. Box 30,
7240AA Lochem,
The Netherlands.

A SIMPLE METHOD OF PREPARING BOREHOLE CORES FOR RESEARCH & DISPLAY

by T. H. Pettigrew

Several years ago a quantity of large 13cm. - 19cm. diameter cores were presented to Sunderland Museum. They were the remnants of a collection consisting of Permian limestones and evaporites obtained during exploration off the coast of Co. Durham by the National Coal Board. Some of them were weathered, bruised and very grimy so that it was hardly possible to distinguish the rocks represented. After initial cleaning, several were selected for experimental preparation to enable identification and study of their lithology, texture and sedimentary structures. As there were no facilities for slabbing and machine grinding, the preparation techniques involved grinding and polishing the core surfaces by hand. This proved to be extremely effective and other cores have since been similarly prepared with equally satisfactory results.

The techniques are simple and cheap. The scientific value of the material is enhanced and in many cases, the prepared cores make extremely attractive exhibits. The method and materials are described below.

Suitable Cores.

The method is suitable for large cores consisting of fairly hard tenacious rock such as limestone, sandstone, granite etc. It is not suitable for unconsolidated or weakly consolidated, fissile or fragile rocks such as clay, soft shale, marl, schist etc.

Materials

4 wooden blocks.
Abrasive powders (e.g. Carborundium*) Grades 80, 180, F400, F600 and F800.
Polishing powder e.g. aluminium oxide (Aloxite F1200)*
5 glass grinding plates each measuring 12"x 12"x ¼" thick.
(one plate is used for each grade of abrasive powder)
Felt cloth (for polishing)
Heavy duty gloves (for handling the glass plates)
Wax Crayon (e.g. Royal Sovereign Chinagraph)
Sponge
Work bench
Large sink or trough preferably with running water available.

Method

STEP 1 Rough grinding.
To remove weathered, bruised or grimy surface rock and irregularities such as grooves left by the drilling bit.
The core is chocked up on four wooden blocks (Fig. 1) either fastened to the bench or to a piece of plywood. The chocks keep the core steady during the subsequent grinding processes. The upper surface of the core is moistened, using a wet sponge, and a small quantity of coarse abrasive (grade 80) sprinkled on. Using heavy duty gloves one of the glass plates is dipped in water and pressed down on top of the core. The plate is then moved with a circular motion up and down the length of the core. More water and abrasive

* obtainable from the Carborundum Co. Ltd. Trafford Park, Manchester 17.

are added as required. This has the effect of grinding away the surface of the core along a narrow strip. Periodically the glass plate is washed and spent abrasive removed from the ground surface of the core by means of a wet sponge. The surface is them inspected to see what progress has been made. Eventually all weathered material and/or irregularities will have been removed along the strip. If a single narrow strip of prepared core is all that is required proceed to STEP 2 otherwise proceed as follows. Rotate the core until unground rock adjacent to the newly ground strip is uppermost and repeat STEP 1. This will create a new strip of ground core which is an extension of the original strip. Continue grinding and rotating until either the whole core or as much as is required is rough ground. Wash or sponge the whole core thoroughly to remove all traces of abrasive. Make a final check to ensure all grooves and irregularities etc., have been removed before proceeding to STEP 2.

STEP 2

This consists of repeating STEP 1 but using 180 grade abrasive with a new glass plate. There should be no difficulty in distinguishing between those parts of the core prepared using 80 grade abrasive and those parts prepared using 180 grade. Continue until as much of the core as required has been ground. Wash thoroughly before proceeding to STEP 3.

STEP 3

Same procedure as before but using F400 grade abrasive with a new glass plate. The Core should now begin to show fine details of texture and sedimentary structures. Proceed until all the scratches and pits left by the coarse abrasives have been totally removed. Wash the core thoroughly and check carefully for any residual blemishes before proceeding to STEP 4.

STEP 4

Using a wax crayon, roughly shade the whole of the prepared surface of the core before grinding with F600 abrasive using the fourth of the glass plates. Use the same procedure as in STEPS 1-3. Wash the Core at regular intervals and inspect the newly ground areas. Any unground parts will still bear the marks of the crayon. Continue grinding until all traces of the crayon have been removed. Wash thoroughly and check for any residual blemishes. If the core is to be polished proceed to STEP 6.

STEP 5

If the rocks of the core are unsuitable for polishing allow to dry completely before coating with clear varnish. A core treated in this way is shown in Fig. 6.

STEP 6

Proceed as for STEP 4 but using F800 powder with the last of the glass plates. Afterwards wash the core thoroughly and check for blemishes. Allow to dry. Proceed to STEP 7.

STEP 7

The core is mounted on chocks as in steps 1 - 4. A small quantity of polishing powder is sprinkled onto the upper surface of the core. Moisten a piece of felt and place over the polishing powder on the core. Rub the felt vigorously along the length of the core. Add more powder and water as required. Within a few minutes (depending on the hardness of the rocks) the surface of the core will begin to take a polish. After polishing along the uppermost part of the core it can be rotated and the polished area extended. Eventually the whole of the fine ground surface of the core can be polished in this way.

Examples of polished cores prepared using these techniques are shown in Figs 2 - 5.

T. H. Pettigrew,
Sunderland Museum,
Borough Road,
Sunderland.
SR1 1PP.

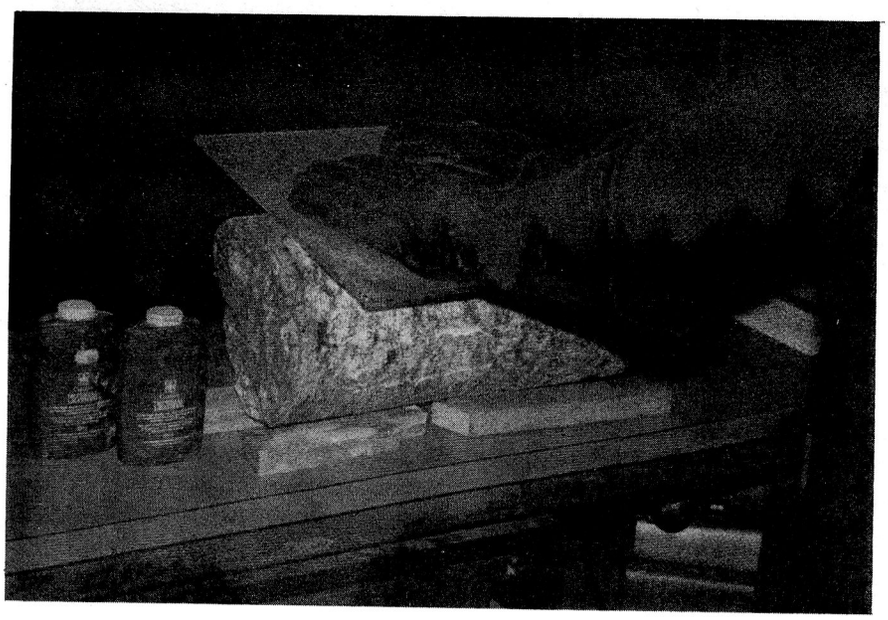


Fig. 1. Grinding a large borehole core. The core is mounted on four wooden blocks and the operator is using a glass plate to grind the upper surface with abrasive powder and water. Gloves are worn to protect the operators hands when handling the glass plate. The talcum powder containers make useful dispensers for abrasive and polishing powders.

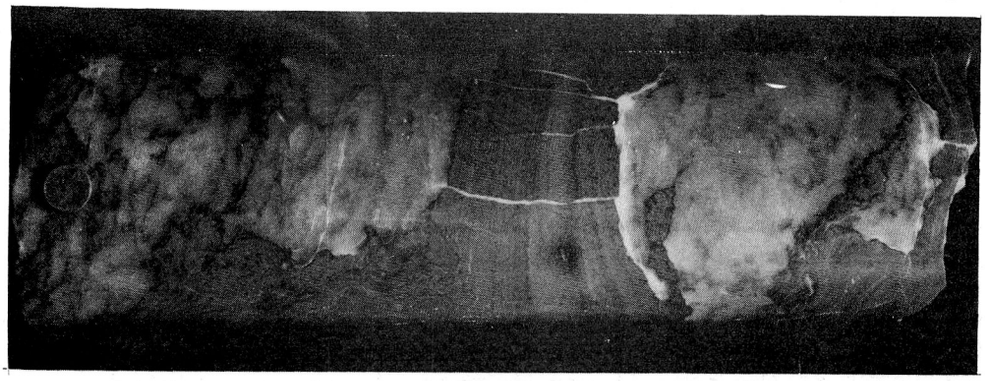


Fig. 2a. Polished Core (68cm. x 19cm. diameter) showing laminated dolomite partially replaced and displaced by flow-structured anhydrite. A dolomite bed near the middle of the core exhibits graded bedding. Permian Concretionary Limestone Formation from an N.C.B. offshore borehole, north-east coast.

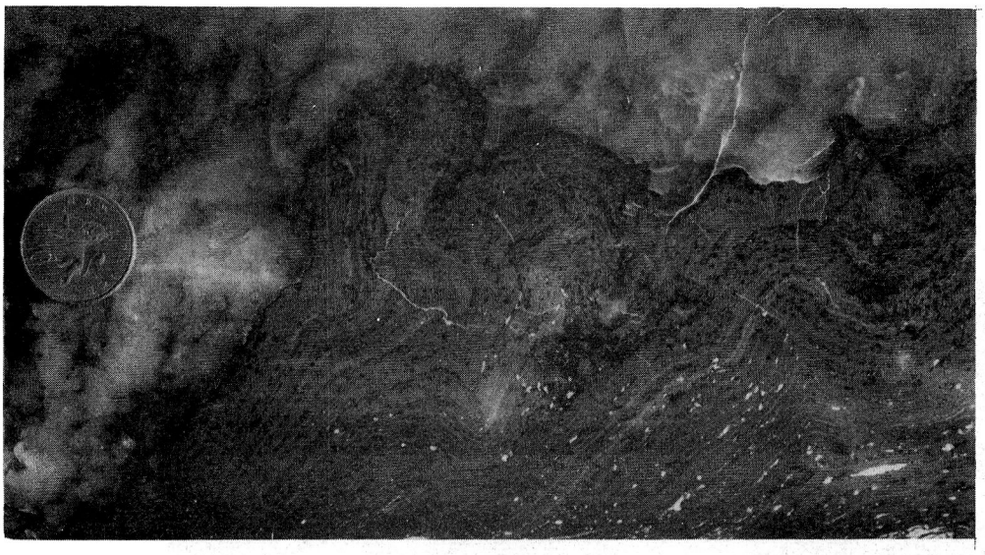


Fig. 2b. A detail of the core shown in Fig. 2a. showing contorted dolomite laminae with displacive anhydrite.

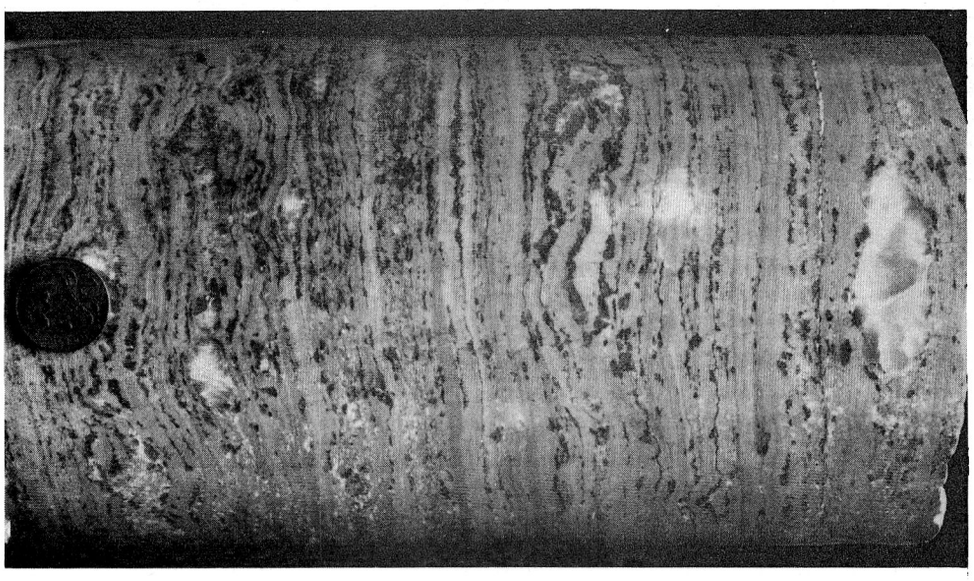


Fig. 3. Part of a polished core (35cm. x 16.8cm diameter) showing algal-laminated (stromatolitic) dolomite with displacive nodules of anhydrite and gypsum. Permian Hartlepool Anhydrite Formation from an N.C.B. offshore borehole, north-east coast.

Fig. 4. Polished Core (20cm. x 15.5cm. diameter) showing patches of dolomite and numerous large porphyroblasts of selenite set in a matrix of anhydrite. Permian Hartlepool Anhydrite Formation from an N.C.B. offshore borehole, north-east coast.

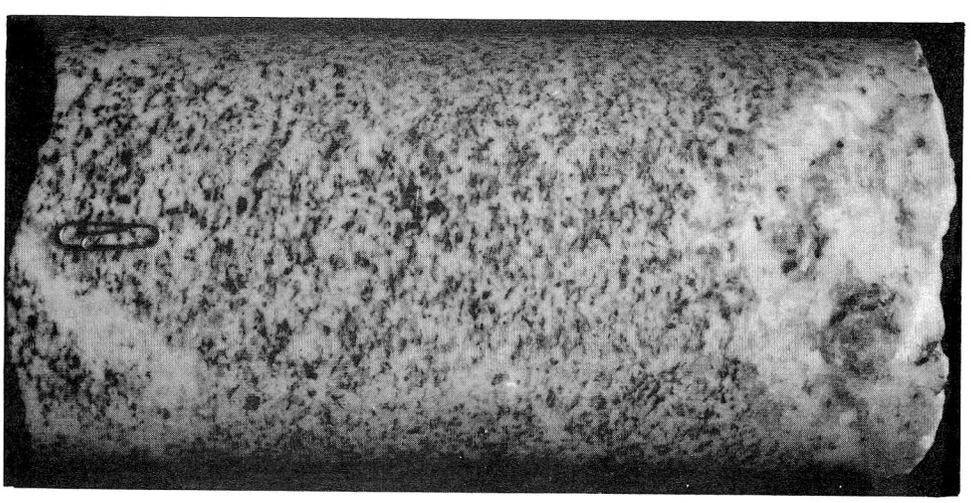


Fig. 5. Polished core (22.5cm. x 11.8cm. diameter) of Weardale Granite from the Rookhope Borehole, Co. Durham. Veins of granite pegmatite occur at the top and bottom of the core. (Specimen on long loan to Sunderland Museum from the Department of Geological Sciences, Durham University).

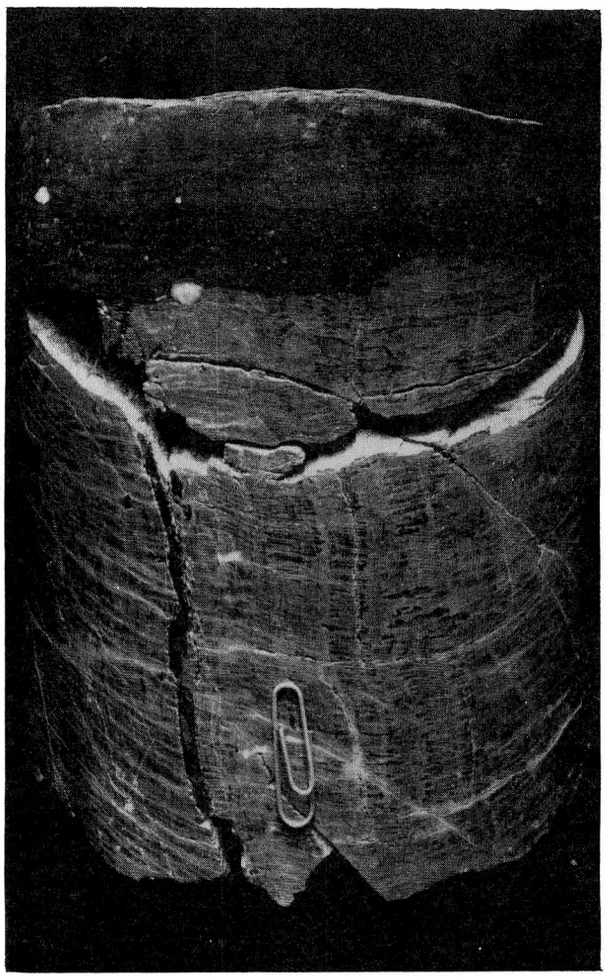


Fig. 6. Core (34cm. x 11.3cm. diameter) from the Roddymoor Colliery Borehole, Crook, Co. Durham. This shows the unconformity between Lower Carboniferous (Dinantian) quartzitic shale and Lower Ordovician Skiddaw Slate. The Skiddaw Slate shows spotting as it came from within the metamorphic aureole of the Weardale Granite. Note the near vertical neptunian dyke of quartzitic shale extending down into the slate from the unconformity. Few of these features were visible before preparation. At some time in the past the core had been broken. Before it could be prepared the pieces had to be consolidated (with PVA emulsion) and glued together (with Durofix) before grinding using the method described here. Neither the slate or the shale would take a polish and so, after grinding the surface of the core with F600 abrasive it was coated with clear varnish. (Specimen on long loan to Sunderland Museum from the Hancock Museum, Newcastle-upon-Tyne.)

Note. All the cores figured here are to be featured in a new local geology gallery in Sunderland Museum.

POETS CORNER

We are grateful to Mr. E.J. Priestley, Curator of Shrewsbury Museum, for the following poem which was published in the Shrewsbury Chronicle on 11th December, 1935.

The Fossil Elephant
by
Mary Howitt

The earth is old! six thousand years
Have gone since I had birth;
In the forest of the olden time
And the solitudes of earth

We were a race of mighty things;
The world was all our own.
I dwelt with Mammoth large and strong
And the giant Mastadon.

No Ship went over the waters then,
No ship with car or sail;
But the wastes of the sea were habited
By the Dragon and the Whale.

And the Hydra down in the ocean caves
Abode, a creature grim;
And the scaled Serpents huge and strong
Coiled up in the waters dim.

The wastes of the world were all our own;
A proud imperial lot;
Man had not then dominion given,
Or else we knew it not.

There was no city on the plain;
No fortress on the hill:
No mighty men of strength, who came
With armies up, to kill.

There was no iron then - no brass -
No silver and no gold;
The wealth of the world was in its woods,
And its granite mountains old.

And we were the kings of all the world,
We knew its breadth and length;
We dwelt in the glory of solitude,
And the majesty of strength.

But suddenly there came an awful change!
Wherefore, ask not of me;
That it was my desolate being shows; -
Let that suffice for thee.

The Mammoth huge and the Mastadon
Were buried beneath the earth;
And the Hydra and the Serpent strong
In the caves where they had birth!

There is now no place of silence deep,
Whether on land or sea;
And the Dragon he's in the mountain rock,
As if for eternity!

And far in the realms of thawless ice
Beyond each island shore
My brethren lie in the darkness stern,
To wake to life no more!

And not till the last conflicting clash
When the world consumes in fire,
Will their frozen sepulchre be loosed,
And their dreadful doom expire.

THE GEOLOGICAL CURATORS GROUP

The purpose of the Group is to improve the status of geology in museums and similar institutions, and to improve the standard of geological curation in general, by:

- holding meetings to promote the exchange of information

- providing information and advice on all matters relating to geology in museums

- the surveillance of collections of geological specimens and information with a view to ensuring their well being

- the preparation of a code of practice for the curation and deployment of collections

- the advancement of the documentation and conservation of geological sites

- initiating and conducting surveys relating to the aims of the Group