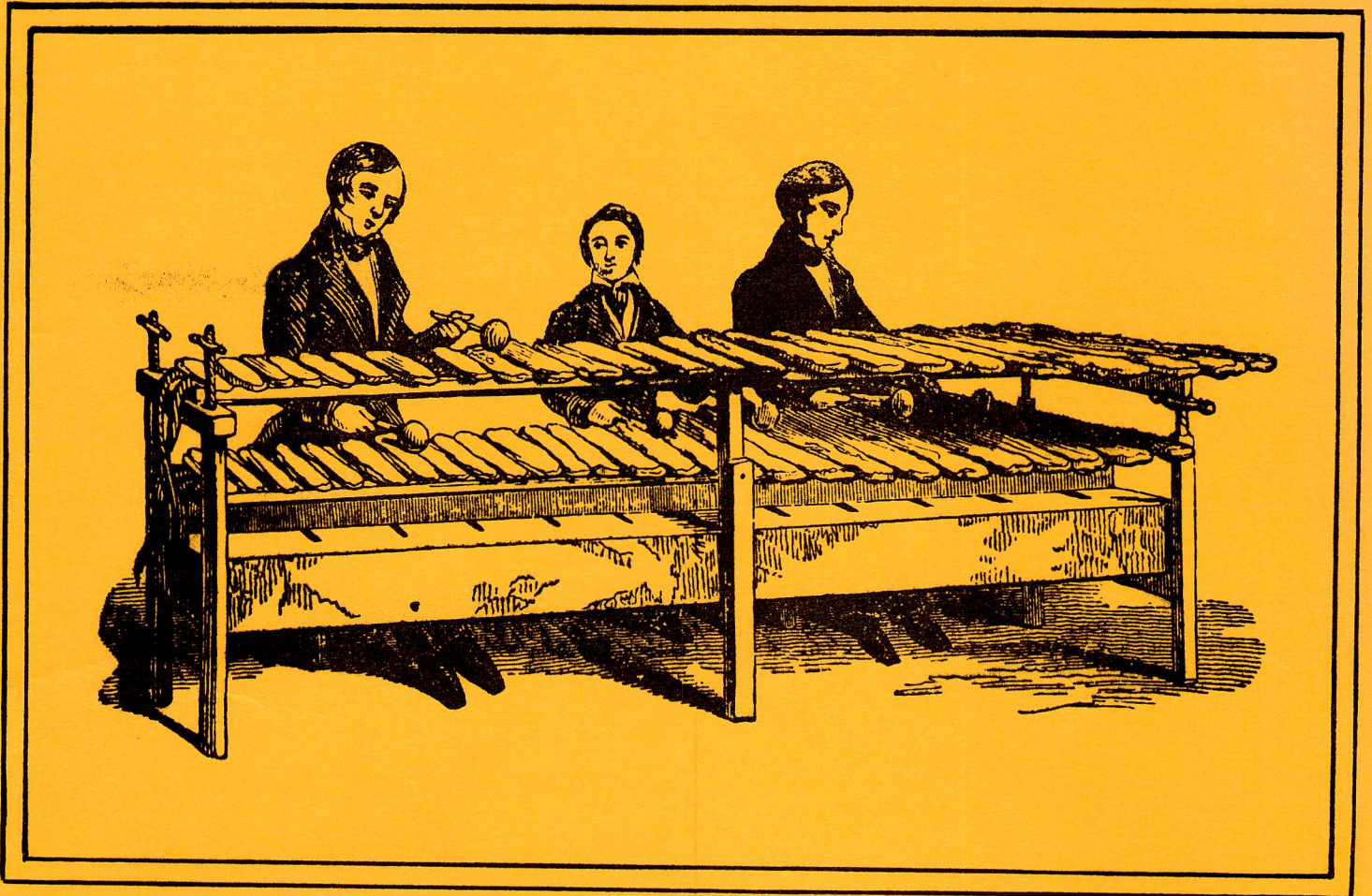


GCCG

NEWSLETTER
OF THE
GEOLOGICAL
CURATORS
GROUP

VOLUME 2 No.4

JANUARY 1979



The First Rock Group?

FRONT COVER

Illustration from "Illustrated London News", 28 May 1842. Between 1841 and 1845 first at Stanleys Rooms, Old Bond Street, London and then at the Egyptian Hall British music moved momentarily back into the Stone Age with the Rock Harmonicon, a xylophonelike contrivance composed of two banks of selected rocks, one row containing the diatonic scale and the other, sharps and flats. Played with mallets whose striking ends were the size and shape of cricket balls, the instrument, as perfected, had a range of five and a half octaves, from the alleged warble of a lark to the "deep bass of a funeral bell," and a repertory that included the overtures to Rossini's *Il Tancredi* and *L'Italiana in Algeri*, selections from *Norma*, and special arrangements of waltzes and galops, quadrilles by Jullien, and various polkas. There were also unspecified selections by Handel, Beethoven, Haydn, Weber, and Donizetti. The Rock Harmonicon, "the resource of a shipwrecked Mozart", was the product of thirteen years' labor by a Cumberland mason, Joseph Richardson, who had quarried its components out of the rock of "mighty Skiddaw" and then hammered and chiseled them to achieve the various tones. It was played by Richardson's three sons, who therefore advertised themselves as "Messrs. Richardson and Sons Original Rock Band." There seems to have been little critical reaction to this novelty, apart from a remark in the *Athenaeum*, a paper which often sought to soften discords, that in the open air "the effect of this primitive dulcimer must be more than commonly picturesque and engaging."

The Shows of London,
Richard D. Altick,
The Belknap Press of Harvard
University Press,
1978. pp. 361-2.

The fate of this eminently geological material is not known but the musical stones of Cumberland were evidently of some repute. The 1924 Official Handbook to the Kendal Museum 1967 notes their "set of Musical Stones gathered on Scort Scar by the late William Smallwood." Any recent information on this subject would be of interest.

Backnumbers of Newsletters are still available at £1.00 each (including postage). Remuneration must accompany all orders, which should be sent to John Martin, Leicestershire Museums, 96 New Walk, Leicester, LE1 6TD.

Submission of MSS

Three Newsletters are published annually. The last dates for submission of MSS for publication are:

November 1st for January issue

March 1st for April issue

August 1st for September issue

MSS should be sent to the editor types and double-spaced, please.

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Further details from the Editor.

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GEOLOGICAL CURATORS GROUP

(AFFILIATED TO THE GEOLOGICAL SOCIETY OF LONDON)

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COLLECTIONS INFORMATION TO - Dr. Hugh S. Torrens. (Chairman)

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Actual Date of Publication : February 5th 1979.

5TH ANNUAL GENERAL MEETING 1978

Held at 14.00 on Friday, 8th December at Hull University and attended by 23 members of the Group.

1. Apologies had been received from M. Eagar, I. King and M. Taylor.
2. Minutes. The minutes of the 1977 A.G.M. had appeared in Newsletter 2.2. These were approved and signed.
3. Chairman's Report. The Recorder's report on geological collections and the Proceedings of the Cardiff Colloquium were both on the point of publication. The long-awaited Drew Report was also due for publication early in the New Year; comment from those who had read it prior to publication suggested that little notice had been taken of the points raised by the various specialist groups.
4. Secretary's Report. Details of the year's activities had been included in the Committee Notes published in the Newsletter.

a) Meetings Programme. Three meetings, including the A.G.M. had been held during the year, two of which had been arranged jointly with other national bodies. The Colloquium on Palaeobiological Curating held at Cardiff in the Spring was organised in conjunction with the Pal. Ass., and the meeting in Edinburgh on July 8th was an integral part of the Mus. Ass. Conference. If this policy was pursued in future years, the A.G.M. could be used as an opportunity to visit smaller museums less able to cope with larger gatherings.

In discussion it was suggested that field trips to classic localities might be combined with Group visits to small museums such as Ludlow or Whitby. J. Mennear pointed out that longer meetings were a deterrent to members who had to pay their own expenses; where joint meetings were arranged, museum policy might prevent more than one member of staff attending.

It was also suggested that meetings should be publicised in the G.A. circulars and the committee were asked to consider this possibility.

b) Publications. The Newsletter continued to be mainstay of the Group's publishing activities. The manuscript of the Recorder's report comprised 180 foolscap pages and funds for publishing this were being sought as a matter of urgency. The Proceedings of the Colloquium on Palaeobiological Curating would be published as a Pal. Ass. special paper.

Andrew Mathieson had been the G.C.G.-nominated guest editor for a special issue of the A.T.G. journal Geology which was devoted largely to museums. It included a directory of museum education services in geology which A. Mathieson hoped to update from time to time as a reference source for teachers.

c) Geological Society. M. Jones and R. Clements had represented the Group at meetings of Geol. Soc. committees in May.

d) Museums Association. M. Stanley had represented the Group at meetings of the Professional Groups Committee in March and September. An attempt to restrict the membership of this committee to representatives of the various curatorial groups had been unsuccessful.

Patrick Boylan had replaced P. Doughty as the Association representative on the G.C.G. Committee.

e) Collections Advice. The Group's advice and help by or through the group had been provided for collections at Bath, Croydon, Dudley, Hull, Penrith, Rawtenstall, Richmond and Shugborough.

Bath had just appointed a museum curator who was a social historian but who appeared to appreciate the importance of the geological collections. The Chairman had written to him to stress the Group's interest and concern and the President of Geol. Soc. could be asked to send a letter of support if the Group so wished.

A critical report on the Dudley collections had been prepared but it was agreed that publication of such reports should only be undertaken as a last resort when all other methods had failed. It was felt that the recent appointment of a geological curator at Hull might have been influenced by the G.C.G. report on the collections even though this had never been published.

The disastrous transfer of the Rawtenstall collection to Blackburn had been written up in Newsletter 2.3. The President of Geol. Soc. had agreed to sign a suitable letter of concern which the Chairman would draft.

The Secretary concluded his report by formally giving notice of his resignation. The Chairman paid tribute to M. Jones for the key role he had played both in the setting up of the Group and in acting as Secretary in its first formative years. He hoped the Group would have his continued support in future.

5. Treasurer's Report. A statement of accounts up to the end of October had been circulated prior to the A.G.M. and a supplementary statement was distributed at the meeting.

a) Finances. Balance in hand was £257.27, with an additional £158.43 in the deposit account. The Editor's constant and successful efforts to find new advertisers for the Newsletter were largely responsible for the healthy financial position.

The audit of the accounts had been held up by the late arrival of one foreign cheque but would be carried out before the end of the year.

b) Membership. The paid-up membership for 1978 totalled 236:

| | | |
|-----------------------------|-------|-------------|
| Personal members, U.K. | : 161 | Overseas: 9 |
| Institutional members, U.K. | : 58 | Overseas: 8 |

27 new members had joined during the year, while 18 of the previous year's members had not renewed their subscription.

6. Editor's Report. The next issue of the Newsletter would be published in January with major articles on Galway museum and the Charlesworth catalogues at York,

£90 had been received in advertising revenue for Newsletter 2.3 but both advertisers and articles were desperately needed for future issues.

7. Recorder's Report. The Collections Report was now complete and extracts had been submitted to the Publications Committee of the Royal Society in support of an application for a grant to cover the cost of publication. Should this application fail, the Committee had drawn up a list of bodies who might then be approached for financial support, and the Pal. Ass. had already indicated that they might be prepared to help.

The application to the Royal Society was for a grant of £2,500 which would cover the cost of printing at least 1,000 copies. If the full grant was

forthcoming, these could be distributed free of charge.

The Chairman thanked the Recorder, on the Group's behalf, for successfully completing the report despite his considerable personal problems over the past year.

8. Committee for Geological Site Documentation. To date, 33 institutions had been designated as Record Centres and 4 as Recording Units. Many had used Government training programmes to employ temporary staff to document local sites.

Ken Sedman (Cleveland) had been nominated as the fourth member of the Executive. The full C.G.S.D. committee had met twice during the year and the Executive many times.

The Record Centre Handbook and Recorders Handbook were now near completion although both had presented unexpected problems. An information bulletin had been inaugurated and questionnaires prepared for circulation to recording centres as a basis for the annual report to N.C.C.

Early returns from Record Centres suggested that the N.C.C. grant was a drop in the ocean compared with the total amount of money spent on the scheme. Nonetheless the N.C.C. had expressed their concern at the lack of returns from the record centres to date. It was understood that the N.C.C. grant for the second year of the scheme would not include the £200 currently allocated towards the travelling expenses of executive and committee. If this proved to be the case, the G.C.G. committee would need to discuss the implications of the cut.

No appeal had yet been made to the National Research Council for funds to finance the long-term running of the scheme.

The C.G.S.D. was becoming increasingly involved in problems of geological conservation in addition to those of site documentation. In 1979 they would be joint sponsors of a conference on 'The Future Development of Geological Conservation in the British Isles' to be held at Burlington House.

9. Election of Officers & Committee. In the absence of any alternative nominations, the following were declared elected:

| | |
|--------------------|--|
| Chairman: | Hugh Torrens (Keele University) |
| Secretary: | Phil Doughty (Ulster Museum) |
| Treasurer: | John Cooper (Leicestershire Museum) |
| Editor: | Brian Page (Keele University) |
| Recorder: | Ron Cleevely (B.M. (Nat. Hist.)) |
| Minutes Secretary: | Geoff Tresise (Merseyside Museum) |
| Committee: | Frank Howie (B.M. (Nat. Hist.)) - new member |
| | Alan Howell (Bolton Museum) - continuing member |
| | Andy Mathieson (Bristol Museum) - new member |
| | Ian Rolfe (Hunterian Museum) - continuing member |

Alan Howell had agreed to act as Rescues Co-ordinator in place of M. Bassett.

In the absence of any further business, the meeting closed at 15.08.

Geoffrey Tresise
20 December 1978.

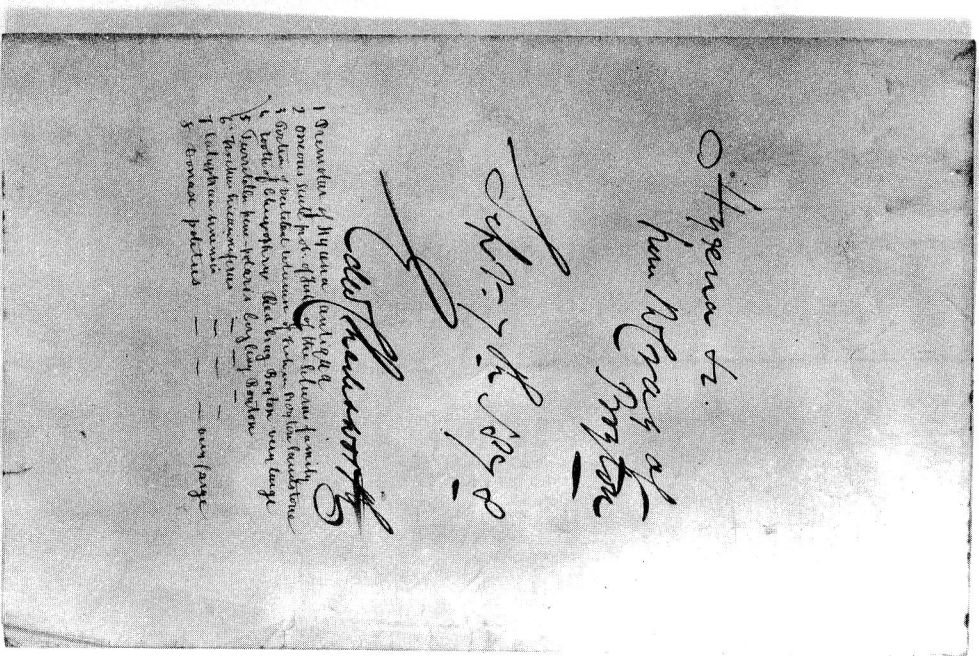


Fig. 1 The title page from one of Charlesworth's catalogues. William Reed has listed, in his small distinctive handwriting, the specimens catalogued. Original 8 in x 12½ in.

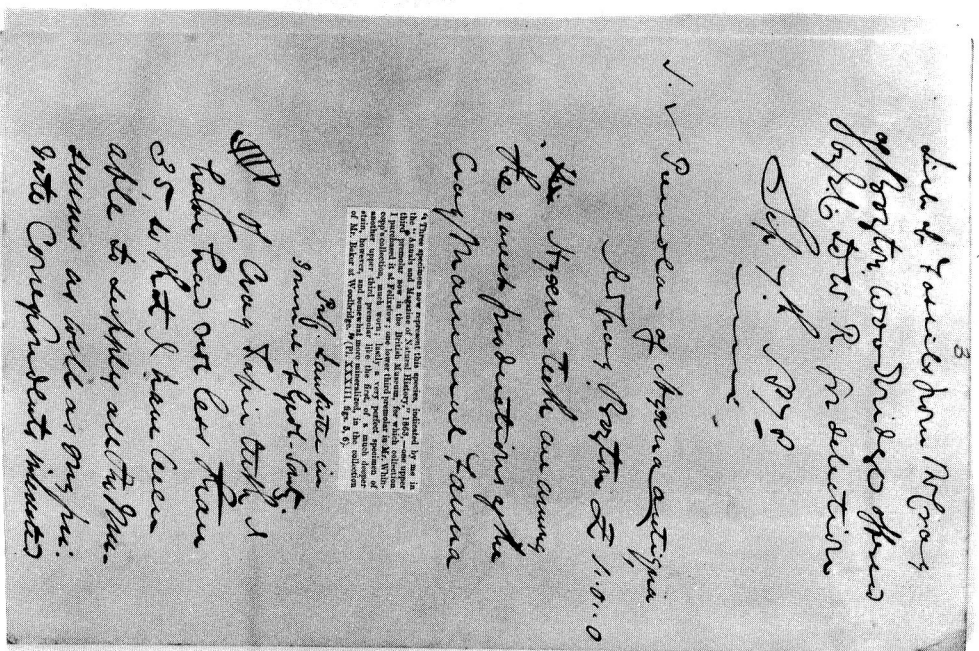


Fig. 2 A typical page from the catalogues. Page 3 from the catalogue shown in Fig. 1. (Page 1 is the title page, alternate pages are left blank for notes, so page 3 begins the catalogue proper).

COLLECTIONS AND COLLECTORS OF NOTE

3. YORKSHIRE MUSEUM; CHARLESWORTH CATALOGUES.

Edward Charlesworth (1813-1893) was Curator of the Yorkshire Museum from 1844-1858, having previously held posts at the Ipswich Museum, the British Museum and the Zoological Society of London's Museum. For biographical details see obituaries in Q. Jl. geol. Soc. Lond., 1894, 50, Proceedings, pp.47-50, and Geol. Mag. 1893, (3) 10, pp. 526-528, and articles by Pyrah and Torrens, 1974, and Markham, 1976. After leaving the Yorkshire Museum Charlesworth set up in London as a geological dealer. One of his favoured customers was William Reed, a York surgeon and a Vice-President of the Yorkshire Philosophical Society and Honorary Curator of Geology in the Yorkshire Museum from 1873 until his death in 1891. Reed donated over 50,000 fossils to the Museum, including several important collections which he bought for the Museum. For biographical details see the obituary in Geol. Mag. 1892, (3) 9, pp. 283-286.

Between 1871 and 1878 Charlesworth corresponded with Reed frequently, and a number of these letters and associated manuscript catalogues have been preserved in the Museum. Although they are briefly mentioned in Melmore, 1945, it is doubtful if they have ever been studied in detail, as the lengthy nature of these critical notes, which are written in an untidy hand, makes the originals very difficult to read. However, with the help of Miss Sylvia Havron, a Job Creation clerical assistant, these papers have now been transcribed and typed out; this article is written in order to draw them to the attention of research workers, and to bring to light hitherto unpublished information, contained within the letters and catalogues, pertaining to other collections. (See Figs. 1 & 2)

The catalogues are for the Whincopp collection (1871), the second Whincopp collection (1874), the Charles Stubbs collection (1872), the Baker collection (1875) and 27 selections, each of about two dozen fossils, offered to William Reed between 1874 and 1878. Of the 41 letters, 23 are concerned with the purchase of the first Whincopp collection, and date from the 23rd October 1871 to the 26th April 1873. The rest, dated from 1873 to 1878, deal mainly with items of interest in the selections of fossils. In one of the catalogues (Nov. 16th 1872, No. 413) Charlesworth refers to previous catalogues sent to Reed; their present whereabouts is not known.

The Whincopp collections

William Whincopp (1795-1874) was a wine merchant and collector of geological and antiquarian objects from the neighbourhood of his home town of Woodbridge, Suffolk. His fame was immortalised by James Clarke in "The Suffolk Antiquary" (reproduced here from Farrer, 1935) in the following lines:-

"A Whincopp dwells in this old town,
For Roman ware of much renown,
With ancient seals, old keys, and rings,
Gold torc and many antique things."

By 1871 Whincopp was in considerable debt to his bank, Messrs. Alexander, and instituted proceedings for bankruptcy; a transcript of the proceedings is held by the Suffolk Record Office (ref. HB46:2555). One has sympathy with the officials who were trying to discuss financial matters with this elderly gentleman who was more concerned about his collection, formed over the previous 26 years.

Transcript p. 2.

"The Dep. Registrar. By looking at the pass-book can you say if it was on the 5th of April.

A. Yes, I presume so. Of course those are their figures, but I think it

necessary to explain why I have formed this collection of fossils, if you will allow me to do that. It will not take very long, because I had a great object in view in forming this collection. All these things are made public and I can show you letters from the Lord Chancellor and the Bishop of Ely and others who are interested in the subject.

Q. Pardon me, I don't know that we want to trouble you about that.

A. But still, I wanted to explain why I had formed this collection and why it was so important that it should be kept intact. You see what I mean.

Because you are to understand it embraces the very important subject of the antiquity of man, and the forming this collection (sic) is to illustrate and to explain matters which have created a great sensation of late - that is to say many have supposed that man is much older than the Mosaic account represents him to be. You see what I mean Mr. Grimsey?

Q. Yes, but-

A. But then why I am doing this is I wanted to keep these fossils intact. Messrs. Alexanders they pressed me for money and then they took the fossils and gave me £150 for them.

Mr. Jeweson. That is the matter I shall have to examine you upon.

A. But should I not tell you about the importance-

The Dep. Registrar. I think not. No doubt it is very desirable that these should be kept together but-

A. But I want to explain why I was so anxious to keep this collection together to illustrate the subject which-

Q. That can be assented to, no doubt, that it is very desirable.

A. Yes, and for a very important purpose, not for the purpose of collection but to illustrate the great changes that have taken place on the earth's surface."

Much of the 37-page transcript is taken up with attempts by the officials to ascertain whether Whincopp had sold his collection of fossils to Messrs. Alexander, or alternatively to Samuel Alexander, for £150, or whether, as Whincopp claimed, the bank had taken them as security against £150 of his debt of £400, leaving him with the chance of redeeming them at a later date. He claims optimistically that they had been valued by Mr. Etheridge for the British Museum at £600 or £700 (but see Etheridge's letter to Charlesworth below p.161). Messrs. Alexander had, for some time, been pressing him to sell his collections, and he had sent a selection, which he valued at £100, to one creditor, the London wine merchant and President of the Geological Society, Mr. Joseph Prestwich, to whom he had on previous occasions sold fossils. The British Museum had made an offer which he had refused as inadequate, and the Bank had sent a Mr. Knight, with a view to purchasing fossils for Mr. Edward Packard, the wealthy Mayor of Ipswich, who had already donated a fine collection of Crag fossils to the Ipswich Museum. However, Whincopp was obviously asking far more for his fossils than any collector was willing to pay, and finding himself unable to raise any money to pay off his debts, he passed the collection to Messrs. Alexander before going to the Bankruptcy court, thus removing it from the reach of his creditors, principally a Mr. Moor, who was suing him for money. However, his hopes of redeeming the collection from the bank were rather unrealistic, as he had been in debt to them for many years.

The story of the collection is then taken up by the letters from Edward Charlesworth to William Reed, from which it is apparent that neither Whincopp or the bank had tried very hard to sell the collection.

"113a Strand, Octor. 24 - 71.

Dear Reed,

During my late Suffolk excursion I devoted one whole morning to a careful examination of the Whincopp Collection now at the Woodbridge Bank where it is held as security for an overdrawn account.

During my occasional calls upon Mr. Whincopp between the years 1840 and 1860 I could never get him to let me see the whole collection. In fact he seemed to take a pride in tantalising his Geological Visitors by showing them the contents of a few drawers as a sample and leaving them to imagine the rest. But as the Collection is now in the Market, the present possessors naturally wish to show the whole of it, and I can assure you the going through all the drawers and boxes was no small treat. I found the stock of Duplicates greatly reduced among the fine and rare Crag shells - one *Cassidaria* only in the place of 4 or 5, but that one a magnificent specimen - one *Voluta Lamberti*, but that as fine or finer than the magnificent specimen given by Mr. Packard to the Ipswich Museum - one *Hinnites*, but that double and a superb example. Then there were half a dozen good *Chamas*.

But there was little else in the Shell way of any special value. In other departments I found the collection surpass my expectations - In Mammal Remains there are 10 or 12 Mastodon teeth including one very fine *M. Borsoni*. Of *Rhinoceros*, *Tapir*, *Sus*, *Hipparion* &c there are from 40 to 50 teeth. Then the *Ziphius rostra* and *Cetacean Vertebrae* are magnificent - far superior to anything of the kind known; and the same may be said of the *Trichechodon* tusks. Beside these, there is an immense miscellaneous Collection of *Crustacea*, *Fish*, *Palates*, *jaws*, &c, &c, including a multitude of beautiful things of the highest interest - many of them unique.

I mentioned to you several months ago that the Woodbridge Bankers were in treaty with the British Museum for the sale of this Collection, but up to this time the two parties have been unable to agree as to price. Upon my return to Town after the Suffolk Excursion, I had an interview with Mr. Waterhouse. He told me distinctly that the Museum terms had been declined by the Messrs. Alexander, and that he should make no advance upon those terms. Finding this to be so, I at once wrote to the Bank offering provisionally to take the Collection at an advance of £75 above the Brit. Museum, provided the Bank would give me three weeks or a month to provide the purchase money, the Collection remaining at the Bank in the meanwhile.

Now in the event of my offer being taken, I should be able to offer the Collection and to prepare a copious Catalogue for £250.

When I was in Suffolk two years ago, Mr. Packard told me he would willingly give £250 for the Collection and he asked me to try and negotiate its purchase.

I accordingly made enquiries and the result was as I expected - Mr. Whincopp wrote to Mr. Packard stating that his lowest price was £1000.

How Mr. Packard may feel now I don't know in reference to the matter of purchase; but on this late visit of mine to Suffolk I was surprised to find both at Woodbridge and elsewhere, everybody under the impression that the Collection had been sold months ago and that it was in London..." and on October 30th 1871 "I am greatly puzzled to comprehend why the fact of the Collection being for sale should have been kept apparently so quiet. I can't hear that Mr. Whincopp has told any of his numerous geological acquaintances; and the Messrs. Alexander appear to have told only the the British Museum people and the British Museum passed the news on to me.

Mr. Packard lives only 5 miles from Woodbridge. He and Ray Lankester are bosom friends, and as R. L. is so much interested in Crag Mammals, I feel sure that if he knew of the state of things, he would not lose an hour in negotiating the purchase of the Fossils for Mr. Packard. Mr. Packard is known to be worth £100,000 and a matter of £50 more or less to him would not be worth a thought."

Charlesworth evidently did not have the wherewithal to purchase the collection himself for subsequent resale, so had to persuade Reed to lend him the money. 30th October 1871 "... I went up this morning to the British Museum .. and I asked Mr. Waterhouse and Mr. Woodward frankly to say whether or not the British Museum authorities were disposed to make any advance on their original offer. I found Mr. Waterhouse not disposed to be communicative, but Mr. Woodward told me that the question of an advance in the British Museum offer, would depend upon the share which the Jermyn St. Museum would be willing to take ...

What may be termed the crack Collections of Crag Mammals made since the commencement of the diggings 30 years ago are seven in number as follows.

1. Mr. Baker-Woodbridge
2. Mr. Canham-Woodbridge
3. Mr. Roper-Lowestoft
4. Mr. Reed-York(1)

None of the above are open to sale or likely to be so

5. Mr. Packard-Ipswich, given to the Ipswich Museum
6. Mr. Acton-Grundisburgh Suffolk, sold to Calvert who has probably sent it abroad.

The 7th is the Whincopp Collection the only one that money can secure, and the destination of which, York or London, seems now the momentous question ... Now if you see your way financially to put it in my power to offer such terms to Mr. Alexanders that they may call to mind the old proverb "a bird in the hand is worth two in the bush" and supposing no third Party steps in, I think our chance of securing the Collection would be very good.

.... Now supposing you were willing to guarantee say £200, and I could manage as I dare say I could £30 to £35, then I should be in a position to deal with Messrs. Alexander unconditionally ... At Woodbridge Mr. Searles Wood has a nephew a highly respectable Solicitor, and I could employ him to draw up a short deed assigning the Collection, Cabinets and Proceeds of Duplicates to you for the advance or the guarantee of £200 and to the Revd. D. I. Heath from whom I expect to have the loan of the £35.

Then I could pack and remove the entire Collections with Cabinets here 113a Strand, of which establishment Mr. Henson is the Tennant under the Crown ... Then I should lose no time in pricing, cataloguing and getting off to you some of the finest things, and at the same time looking out a set of the duplicates for Jermyn St ... I think there would be a great advantage in giving Davies of the B.M.(2) a sight of the things as I catalogue them ..."

This plan was duly carried out: in view of the financial difficulties which Charlesworth had had with the Yorkshire Philosophical Society some 20 years earlier it is interesting to note that on the 5th November 1871 he writes "... and if the money passes in any way thro' a York Bank, I should prefer my name not being introduced for reasons which I can explain at a future time ..."

(1) Mr. Reed is of course William Reed to whom Charlesworth is writing. Reed later purchased much of the James Baker collection and gave it to the Yorkshire Museum, to whom he gave his own collection. The collection of the Rev. Henry Canham went to the Ipswich Museum.

(2) The manuscripts show that most of the material was seen by William Davies, the vertebrate palaeontologist at the British Museum, with whom Charlesworth was evidently quite friendly. Perhaps it was Davies who told Charlesworth that the collection was up for sale.

Charlesworth catalogued and sent off the material to Reed in batches during 1872 and 1873, as his health allowed (Jan. 9th 1872. "Dear Reed, I am supplementing my favourite beverages of Tea and Coffee with an ample quantity of Port-wine and Stout, and I find I am making good progress on the road to recovery, but I am not yet strong enough to renew my visits to the British Museum, College of Surgeons &c in connection with the identification and comparison of the Whincopp fossils ..."). When Reed queried the value of the material he was receiving, Charlesworth passed on to him the following letter from the Geological Survey Palaeontologist.

"Geological Survey of England and Wales. August 3. 72.

Dear Charlesworth,

In answer to your query as to what I valued the Whincopp Collection, I beg to state that some years ago I valued (for the British Museum) the series at £400, and then believed they did wrong not to have possessed them. Since then many fine things have been added - the 400£ was my minimum valuation. I believed then and still do that it was unique.

Faithfully yours,

R. Etheridge"

Charlesworth's catalogues list some 450 specimens which came to the Yorkshire Museum, including the following specimens figured by Ray Lankester.

Castor veterior, Red Crag, Sutton. (Catalogue February 1872, No 215)

YM 513. Lankester 1864, pl. VIII, fig. 5, p. 355.

(Catalogue February 1872, No. 216)

YM 637. Lankester 1864, pl. VIII, fig. 6, p. 355.

Both were later figured by Newton, 1891, pl. V, figs. 14 and 15, p. 50.

Trichecodon huxleyi, Red Crag, Suffolk. (Catalogue February 1872, No. 242)

YM 521. Lankester 1865, pl. X, fig. 2, p. 226.

(Catalogue February 1872, No. 241)

YM 525, Lankester 1865, pl. X, fig. 3, p. 226.

Delphinus (Phocaena) uncidens. (Catalogue August 28th 1872, No. 319)

Lankester 1864, pl. VIII, fig. 13, p. 356.

and a specimen which Charlesworth suggests may be the original of Lankester's (1864) figure of Delphinus (Phocaena) orcoides, pl. VIII, figs. 14-16, p. 356 (Catalogue August 28th 1872, No. 322. These two specimens have not yet been traced in our collections.

Ursus arvernensis, Red Crag, Newbourne. (Catalogue August 28th 1872, No. 309)

YM 523. Lankester 1864, pl. VIII, figs. 1, 4, p. 358. Of this specimen Charlesworth comments "I don't feel fully satisfied that this unique and very remarkable tooth is rightly referred to the genus *Ursus* ... The surface of the enamel on this tooth is pitted and grooved in a way that I think is more like the enamel of a Marine than a Terrestrial Mammal". His doubts were later borne out by Newton, 1891, pl. VIII, fig. 16, p. 75, who identifies the tooth as from Squalodon antwerpiensis. Newton does not mention Charlesworth's manuscript comments, and this may be the evidence to which Melmore refers when he says "It seems clear from internal evidence that (the catalogues) were unknown to E. T. Newton ..." (Melmore 1945).

Canis primigenius, Red Crag, Woodbridge. (Catalogue August 28th 1872, No. 311.)

YM 512. Lankester 1864, pl. VIII, fig. 11, p. 358. Charlesworth says of this specimen "... the characters of the tooth wholly oppose its location in the Dog Family at all ... my conviction is strongly in favour of the tooth being that of a Marine rather than a Terrestrial Mammal." Newton and later workers suggest that this is a decorticated cetacean tooth, although Newton 1981 figures it as *Canis? primigenius* (pl. I, fig. 6, p. 9.)

Charlesworth enclosed a copy of Lankester's 1864 paper with the catalogue,

and cut out the illustrations from the plate and pasted them beside the entries for the figured specimens.

The following entries are quoted in full to illustrate the style of the Catalogues.

"36, 37, 38, 40, 41. Eocene. A card with various teeth from the celebrated Monkey Pit at Kyson Kingston Woodbridge. This pit is now filled up and a Plantation made over it. Consequently there is an end to discoveries at that spot. Prof. Owen's *Macacus Eocaenus* has degenerated into a *Hyracotherium*. What the teeth may be upon this card I am unable to say, but the two quadrate ones are probably *Hyracotherium* and perhaps the others also."

"50. *Hinnites Cortesii*. Double. Cor. Crag. Ramsholt. Another of the Lions of the Whincopp Cabinet. Not remarkable for size but in other respects I believe this to be the choicest specimen known. Mr. Woods specimen as figured in the Pal. Monograph looks as choice, but there is no comparison when the actual shells are placed together.

A double *Hinnites* is so rare that in my Ramsholt experience I was never fortunate enough to come upon one. The examples known to me (that is of the double shell) are one of the B. Mus. (Wood Cabinet) - one in the B. Mus. general coln. one in Ipswich Museum given by Mr. Colchester. Then I think there were two or three in the Acton Collection: but by no means choice

Whether these with the other Acton Fossils are still with Mr. Calvert, is a matter about which I am still in the dark."

"71, 72. Two extraordinary bones which wholly baffle the Palaeontological divining powers of Mr. Davies, Mr. Seeley and myself. The first idea which suggested itself to me, was that of a Chelonian palate. But this is negatived by the similarity of the two opposite flat surfaces. I have seen nothing of the kind in any other collection."

"158-163. Curious bodies which Mr. Whincopp regarded as fruits, and to which view of their nature all visitors to the Whincopp Collection were expected to give their assent."

"175, 176. Two very curious problematical bodies. Can they be huge pearls or the spherical lenses from Fish Eyes."

"235. One of the most remarkable and interesting bones in the Whincopp Collection. Davies spent more time over this than any other Whincopp Fossil that I have consulted him about. He considers it the occipital condyle with attached basal cranial portions of a Reptile or Bird - probably the latter."

"439. Rostrum of the Fish called *Caelorhynchus* (hollow snout) by Agassiz - an Eocene genus spoken by Agassiz as found in the Isle of Sheppy - see his Report in French and English upon the Fishes of the Isle of Sheppy. Brit. Asn. volume for 1844 York meeting. (Davies identification. Eocene derivative?)"

William Whincopp died in 1874 and a second collection of fossils was sold by auction and purchased by Charlesworth, who offered them to Reed. In his introduction to the catalogue Charlesworth mentions that the collection includes "one or two rarities which if good faith had been kept with the Woodbridge Bank ought to have been transferred to Alexander and Co. when the first collection was made to them as security for Mr. Whincopp's overdrawn account." It includes the molar tooth of *Hyaena antiqua*, Red Crag, Felixstowe, YM 640, figured by Lankester, 1864, pl. VIII, figs. 7, 8, p. 358. The catalogue is dated from Sept. 22nd 1874 to November 1874, and lists 48 specimens.

The Institute of Geological Sciences have a record of some 70 specimens from the Whincopp collection bought by the Jermyn St. Museum from Charlesworth

in March and April 1872, and several further accessions of Red Crag material purchased from Charlesworth at various times between 1871 and 1874 which I suggest are probably from the Whincopp, rather than the Baker, collection, as they pre-date the sale of the Baker collection, and also broadly duplicate the Whincopp material which Charlesworth was offering to Reed at the same dates during this period. Woodward and Sherborn, 1890, state that material was also purchased by the British Museum and the Woodwardian (now the Sedgwick) Museum. However, preliminary enquiries at these institutions have failed to find such material, and it is reasonable to assume that by the time Reed had bought the best of the collection, and the Jermyn St. Museum had purchased what it wanted of the duplicates, there would have been little left of interest to other major museums.

The Baker Collection

In October 1875 Charlesworth sent to Reed the first of the Baker catalogues prefacing it with a long printed article or advertisement in which he gives the history of the Baker and Whincopp collections.

"In 1840, the late Rev. J. S. Henslow, Professor of Botany in the University of Cambridge, while staying with his family at the pretty Suffolk watering place, Felixstow, made the discovery that certain dark-coloured stones found in the Red Crag, and then looked upon as no more value than beach shingle or common gravel stones, were largely composed of phosphate of lime, that fertilising element which plays so important a part in increasing the food-producing powers of the soil. As a consequence of this discovery, the area occupied by the geological formation to which in 1835 I gave the name "Red" Crag, and especially that part stretching between Felixstow and the town of Woodbridge, a distance of about ten miles, became the field for stone-findings of a remarkable and totally novel description ...

Ransacking the Suffolk Red Crag for its phosphate nuggets had not long been going on when it was found that the search for these so-called coprolite stones would bring to light a wholly unsuspected mine of wealth to the naturalist. The diggers and sifters came upon and sifted out with the phosphate stones beautifully mineralised molar teeth of Mastodons, Rhinoceroses, Tapirs, and various other animals, furnishing evidence of a numerous and highly diversified Terrestrial Mammal Fauna of the Crag Period.

At the time Professor Henslow made his happy phosphate discovery, two residents in Woodbridge - a Mr. Baker and a Mr. Whincopp - were forming collections of Suffolk antiquities and fossils, and when the phosphate workings were set on foot both Mr. Whincopp and Mr. Baker became regular and enthusiastic patrons of the diggers, who, as each Saturday afternoon came round, visited Woodbridge to dispose of their perquisites, the week's fossil findings. This systematic fossil buying carried on throughout a period of more than thirty years, resulted in the formation of two most valuable and extensive collections of English Crag Vertebrate Fossils ...

In 1873 Mr. Baker died and I have just bought of his executors the collection ...

Neither Mr. Whincopp nor Mr. Baker could lay claim to the possession of more than a very slight scientific knowledge of the many rare and interesting objects contained in their respective collections, but they rendered no small boon to science by bringing together materials for working out the history of the Crag, which otherwise might have been scattered far and wide ..."

A couple of pages further on in the catalogue Charlesworth writes

"Dr. Falconer ... refers to the rich collections of Crag Mammals in the possession of Mr. Fitch, Mr. Acton and Mr. Whincopp, but it is evident that the

Baker collection which in Mammal remains greatly surpassed any of the above three, was unknown to him. This is greatly to be regretted especially in reference to his elaborate history of the Crag Mastodons. It is quite possible that Dr. Falconer when in Suffolk might have heard of the Baker Collection and tried to get a sight of it, but found its possessor not particularly anxious to let it be seen. Mr. Baker was a hard-working watch-maker, and he could not afford the time to throw open the study of his rich collection to visitors. Mr. Lankester and myself obtained our knowledge of the Baker collection owing to the fact that for a series of years we were periodical visitors to Woodbridge, and in the course of time we both established friendly relations with W. Baker. But neither Mr. Lankester or myself knew one half the rarities in the Baker Collection - at least I can speak positively as it respects myself, and I am certainly justified in assuming that as Mr. Lankester in his published notices of remarkable specimens in the Baker Collections, omits any mention of the Bear, Hippopotamus, portions of Cervine jaws & c & c that he did not know of these specimens."

The catalogue, of approximately 150 specimens,⁽³⁾ is headed "The following selection ... includes all the unique or otherwise remarkable specimens in the Baker Collection belonging to the terrestrial mammal genera, Mastodon, Rhinoceros, Tapirus, Sus, Hippopotamus, Hipparion, Cervus, Felis, Ursus, Hyaena and Coryphodon." It includes the molar tooth of Mastodon angustidens, YM 519, figured by Lankester, 1870, pl. XXXIV, figs. 1, 2, p. 507, and Lankester 1899, pl. XI, figs. 1, 2, p. 289, and the molar of Hyaena antiqua, YM 639, figured by Lankester 1870, pl. XXXIII, figs. 5, 6, p. 511, and by Newton, 1891, Pl. I, fig. 10, p. 7, as Hyaena striata. It is interesting to note that for this catalogue Charlesworth had Lankester's 1870 paper reprinted, much as we would now photocopy an article out of print.

(Letter, October 15th, 1875) "Dear Reed, In preparing the catalogue of Mr. Baker's Mammals I found I had to incorporate so many quotations from Prof. Lankester's Papers that I determined to reprint the notes he gives in 1870 respecting remarkable specimens contained in the Baker and other collections. The printing these notes (sic) has delayed the catalogue but I think I shall be able to forward it by train tomorrow morning.

Along with the Catalogue I shall find you a book containing beautifully Coloured Drawings of some of the Baker Fossils now with you - by the Revd. Geo. Henslow.

Probably on Sunday you will have leisure to look over the Catalogue and Diary ..."

The Rev. Henslow's book or diary is not preserved with the catalogues - perhaps it was only a loan.

The collection includes, as well as the mammal teeth and several chelonian skulls, the head of a bird. This specimen is largely enclosed in matrix, and therefore is still undescribed - hopefully one day it will be possible to prepare it for examination.

The following entry from the catalogue gives an example of Charlesworth's attention to scientific accuracy when studying the more interesting specimens. "Baker Catalogue No. 18. ?Hippopotamus molar.

Upon a casual examination this tooth might easily be taken for a rolled fragment of an adult Mastodon molar, but an inspection of the under surface

(3) from a total of some 4,000 specimens (Markham 1976)

furnishes incontestable evidence that this fossil is the crown of a tooth that is entire with the exception of some superficial loss of substance by the bouldering operations to which it has been subjected. With the exception of one large fold the pattern of the enamel is lost. Now no Mastodon molar of so small a size could have such a fold of enamel. Excluding therefore Mastodon there are two other genera with which this tooth presents relations - namely Hippopotamus and the Marine extinct genus of the Dugong family, Halitherium.

As Hippopotamus is found associated with Mastodons in the Pliocene Formations of Italy and elsewhere, it need occasion no surprise if it were to be found with the same association in the English Crag, and with respect to the Marine genus Halitherium which Dr. Falconer speaks of as a "Hippopotamoid type" we have in the cranium made known not long since by Prof. Flower the most ample evidence that this extinct Sirenian was a member of the Mammal Fauna of the ancient Crag Sea. Now the present tooth has the general configuration of a molar of Halitherium but so much of the Pattern of the enamel that is preserved is like Hippopotamus. At the same time it should not be forgotten that the materials for comparison in respect to molars of Halitherium with the solitary exception of one undoubted Halitherium Molar in the Baker collection (is) limited to Plates, for I cannot find a single example of a Halitherium Molar either Foreign or British in any of our Public or Private Museums. At present therefore the absolute determination of this tooth must remain in suspense.

In Vol. II page 53 of the Memoirs Dr. Falconer quotes my earliest published Crag Paper 1835 as including Hippopotamus in the Mammalian Crag Fauna. But when I wrote that I had no suspicion that my "Red Crag" was of two geological ages and that all the Crag Mammalia then known to me came from Crag localities to which I should afterwards assign a more recent date than the date of the Strata to which the name Red Crag is now restricted. If therefore I had met with a Crag Hippopotamus Molar or tusk it certainly was from what is now known as Mammaliferous alias Norwich Crag. But as I was then a novice in comparative osteology, it is quite possible that I mistook for a Hippopotamus tooth the tooth of some other animal. At all events the present molar is the only one known to me which is of true Crag origin and of which there is a reasonable presumption that it may be Hippopotamus."

The Institute of Geological Sciences have a collection of Baker material purchased from Charlesworth, and a collection of Red Crag teeth from the Baker collection donated by Mrs. Elizabeth Warne in 1875.

The Stubbs Collection

In August 1872 Charlesworth offered to Reed "Hippopotamus and other Mammalian Remains found in the Thames Valley Gravels of the Henley district, forming part of a Geological Collection made by Mr. Charles Stubbs of Henley lately deceased." This consists of a collection of about 25 specimens from the Hurley Gravel Pits, near Henley. In the catalogue Charlesworth compares the specimens with those found at Brentford by Mr. Trimmer, and at Wortley, Leeds, recorded by Mr. Denny, (1853). This may be the Charles E. Stubbs who published molluscan and ornithological notes related to Henley in 1869.

Other material

The rest of the catalogues consist of 27 selections of fossils offered to Reed from March 1874 to December 1878. Each selection numbers 20-30 specimens, mostly Tertiary (Crag fossils from Boyton are well represented) but including some Jurassic and Cretaceous material. It appears that Charlesworth gave details where he knew that specimens were from a particular collection; most of the material was probably obtained directly from local dealers or quarry men. The majority of the material is invertebrate, but there is also some important

vertebrate material, and quite a few of the specimens have since been figured.

Some of the more interesting entries are given here.

"March 14 1874. No 25. Belemnites Sp. £0. 3. 6. This fine Belemnite was one of a small but select series of Fossils from the Kimgé. Clay in the collection of the late Bishop of Winchester⁽⁴⁾ ... the label is "Marcham" a place not far from Abingdon."

"April 3rd 1875. Mr. Gavey⁽⁵⁾ is a Railway Civil Engineer and when in Wiltshire many years since he found a collection of choice Wiltshire Fossils, from which he allowed me to make a small selection." "No. 4, *Ventriculites radiatus*, Flint, Wiltshire" and "No. 5, a Shark Vertebra, Up. Greensand, Warminster."

"June 1875. Nos. 6, 6a. Two fish from the Eocene Formation of Monte Bolca, labelled in the handwriting of Mr. Davies. 0. 18. 6. or separately, one of each.

Mr. Davies tells me that the supply of Fossil Fish from the famous Quarries of Monte Bolca has long since ceased and that these Eocene Fish like the Eocene Mammals of the Gypsum Quarries of Mont Mastra are now only to be had when some old Collection is sold off ... This ichthyolite is out of one of the oldest private Collections in London made by the late Mr. Gwilt Architect of Union St. Boro'. Mr. Gwilt was the possessor of a small but valuable Museum of works of art and nature. This Museum has just been dispersed, and I bought all the fossils.

No. 7. *Phacops caudatus*. Silurian Dudley. £3. 12. 0.

This most beautiful *Phacops* is from the Gwilt Museum, and it seems that it was previously in the famous Collection made by Dr. Goodhall⁽⁶⁾ Principal of Eton School ... The printed label attached to this fossil is certainly a most original production.

No. 8. *Calymene blumenbachii*. Lstn. Dudley. 0. 14. 6.

Remarkable for its size Mr. Gwilt appears to have paid a guinea for it."

"July 23rd 1874. Cast of *Astragalus* of *Hippopotamus major* found in the Pleistocene sands beneath Brick Earth at Lavenham Suffolk. 0. 3. 0.

The original of this rare bone with a most valuable series of Mammalian Remains all found together are in the possession of a young man named Turner living in London, but whose family keep an Inn at Lavenham."

"May 13th 1876. No. 11. A horizontal slice cut from a gravel flint cup-shaped *Brachiolite* found at Alton Hants. This most beautiful and extraordinary example of the *Ventriculite* family came under my notice while examining a highly interesting collection of local fossils in the Museum of the Alton Mechanics Institution. The greater part of the contents of this Museum are lent by a Medical man at Alton a Mr. Curtiss⁽⁷⁾ Who is a good Naturalist, and who has the entire control of the whole collection. I made an arrangement with Mr. Curtiss to have various interesting museum specimens of the *Ventriculite* Family, including the present *Brachiolite* ..."

"Aug. 15th 1876. No. 14. *Hamites armatus*. Lower Chalk, Hamsey, Lewes Susx.

The initials written on this Fossil in printing characters G. A. M. with

(4) Samuel Wilberforce, died 1873.

(5) ?George Edward Gavey, civil engineer, of Chipping Campden. See Gavey, 1853. See also footnote 10 on p. 170.

(6) Dr. Joseph Goodall.

(7) see Curtis, W. H., 1961.

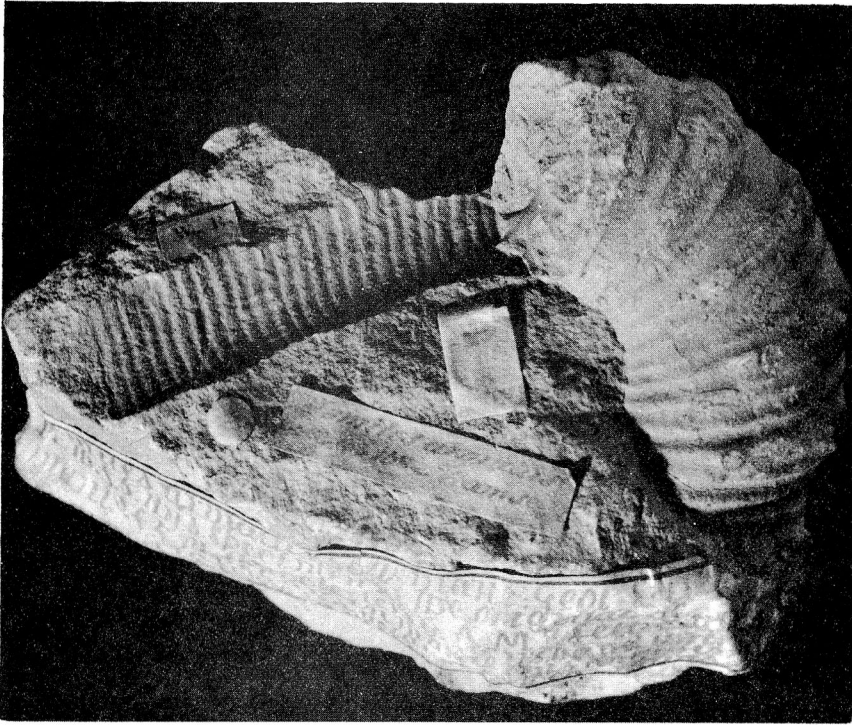


Fig. 3a YM 421 Hamites armatus J. Sowerby.

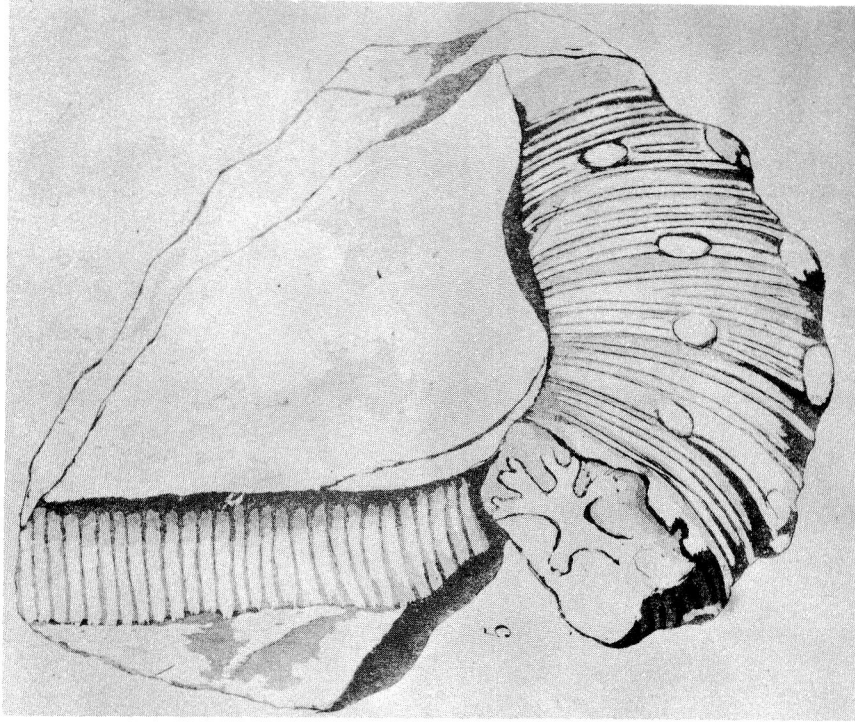


Fig. 3b Mantell's figure (Mantell 1822, pl XVI, fig. 5).

"Lewes" also the writing on the attached label are all written by Gideon Algernon Mantell the Historian of Wealden Geology and Author of the Geology of Sussex &c &c &c. For many years Mantell was a frequent correspondent of mine, and I was quite familiar with his style of labelling his own Geological specimens, as well as with his ordinary handwriting. The following is a copy of one of his many letters to me.

"19 Chester Square, London. May 31st (Year omitted, but probably 1847)
(Charlesworth's note)

My dear Sir,

Although from past experience I have no right to expect a reply till it will be too late to avail myself of it, yet I cannot refrain from troubling you with a note to mention that I am preparing a new edition of the "Medals of Creation" for the press, and that I shall be most happy, and very desirous of directing the attention of my readers to your most instructive collections of British Fossils.⁽⁸⁾ So I pray you will send me such a notice as you think will best promote your object. How I wish you would resume your Palaeontological Journal.⁽⁹⁾ Such a work is more than ever required; and if you do not soon take it up, I will start a rival publication. So take warning, and believe me, ever with great regard,

Yours, G. A. MANTELL

P.S. - I have some splendid new relics from the Wealden and from the Antipodes - such bones of Reptiles from the former!!! and of Birds from the latter!!! - worth all the gold of Australia."

Charlesworth goes on to say "On turning to Mantell's Geology of Sussex I find to my no small surprise that not only is No. 14 labelled in Mantell's handwriting, but it is the original of Mantell's fig. 5, Plate 16. (See Figs. 3a,3b)

The figure is reversed because Mantell who made the drawing for his own work did not use a mirror. The following is Mantell's description of this fossil.

Hamites armatus "Fine fragment from Hamsey. Traces of the foliaceous Septa are visible at the fractured part." page 121.

The History of my possession of this Fossil and the associated series is this. A collection of Fossils had for a year or more been on sale at Brighton in the hands of an Auctioneer and Estate agent. Not being able to effect a sale at Brighton the Agent sent the Collection to Steven's Auction Rooms, Covent Garden. I attended the sale and among the Fossils I purchased was this Hamites, and the other fossils labelled by Mantell. But I did not notice the writing on these fossils all the lots knocked down to me were bought to my rooms in the

(8) The British Natural History Society was formed in York by Charlesworth, with the backing of the Yorkshire Philosophical Society, in 1848 (see Ann. Rep. Y. P. S. for 1848, p. 8, 9, and Wrigley, 1944, p. 60-62) and specimens are still present in our collections, despite Wrigley's statement to the contrary. This society, an organisation for the collection and distribution of fossils, was later the cause of some friction between Charlesworth and the Y.P.S.

(9) Charlesworth published only three issues of a first volume of The London Geological Journal, in September 1846 and February and May 1847. This was almost a Victorian G.C.G., with brief notices on collectors and new specimens, and an article by G. A. Mantell on the prices of fossils. However Charlesworth also used it as a platform from which to attack what he saw as the more hide-bound elements of the established geological institutions, and he possessed neither the tact and diplomacy nor the financial backing to continue beyond No. 3 (in which he attacked the appointment of Buckland to the Board of Trustees of the British Museum).

Strand and there examined. I was surprised to find what I had bought because when the British Museum gave Mantell £4000 for his collection, it was supposed to include all the type specimen figures in his Geology of Sussex."

This specimen is No. YM 421 in our collection of Type and Figured material (Pyrah 1978). Charlesworth lists eight more specimens, of Turrilites and Pleurotomaria, from Mantell's collection, and further discusses the history of these specimens. He offered the fossils for sale as a group only for £2. 5. 0. Several of the catalogue entries discuss methods of preparation of the specimens, or suggest future conservation needs. The following example is from June 23rd 1877, No. 5e-k, an ichthyosaur jaw.

"These are several portions of jaw which form part of one bone - the several pieces can be readily fitted. They are lettered in alphabetical order, and each separate piece has had two tickets placed over the line of fracture and then cut thro - so that one half the ticket is on one piece and the other half the ticket on the piece broken from it.

These pieces of jaw at the lines of fracture show very interesting sections of the numerous pieces which make up the jaw on the Ichthyosauri. On account it seemed to me more interesting to have these pieces of bone as they are rather than to cement them together."

April 28th 1877 No. 1. "a collection of Crag Fossils belonging to a London M.D.... who lives at Kingsland ... As he perhaps might not care to have his name mentioned as selling fossils, I shall refer to any specimens bought of him as coming from the "Kingsland Cabinet".

On June 14th 1877 Charlesworth offered Reed specimens from the cabinet of the Hon. Robert Marsham, of near Lewes, and specimens of the crustacean Pseudoglyphaea and the starfish Tropidaster from Mr. John Gavey,⁽¹⁰⁾ the civil engineer of Chipping Campden, who cut the Mickleton tunnel in the Lower Lias of Northampton. In April 1878 he offered the tusk of a Siberian Mammoth, weight 48lb, for £26, with several letters and discussion of the provenance and history of Mammoth tusks. "The whole story of the Mammoth is from first to last a complete chapter of Romance."

The last catalogue is dated Dec. 6th 1878 and may represent the end of Charlesworth's activities as a dealer, for the obituary in Q. J1 geol. Soc. Lond. 1894 states "The last 20 years of his life were greatly clouded by long and severe illness, frequently confining him to his bed-room, and almost entirely preventing him from doing anything in the way of searching for fossils."

In the catalogues Charlesworth refers to specimens in the following collections for purposes of comparison:- Ipswich Museum, including the Packard and Colchester collections, Mr. Bedwell (the Judge of the County Court, Hull), Alton Mechanics Institute, M. Alexander of Ipswich, the late Col. Alexander, Morgan (clergyman of near Yarmouth), Mr. Fitch, Revd. W. Canham of Waldringfield, Mr. Darbishire of Manchester, the Acton collection, Steven Perry, Mr. Roper, Mr. Rose's collection in Norwich Museum, Miss Anna Gurney of Northupps Cromer, Revd. Edward Moore of Bealings near Ipswich, Mr. Perceval near Henbury, Bristol, Mr. Harford of Norwood and Capt. Barnett of Weymouth formerly of Bristol. However, most of his research on the specimens is done in the College of Surgeons, the British Museum and the Jermyn Street Museum. He submits specimens for discussion and identification to some two dozen experts, mainly Mr. Davies of the British Museum, Prof. Flower of the College of Surgeons and Mr. Newton,

(10) Forbes, 1850, refers both to George Edward Gavey (plate II) and John Gavey (plate III) the latter plate being a figure of a specimen of Tropidaster from among those donated to the Geological Survey by John Gavey.

"Prof. Huxley's assistant at Jermyn St."

The catalogues run to some 500 manuscript sheets and give a fascinating insight into Charlesworth's wide knowledge of public and private collections, and his acute powers of observation, deduction and memory; above all, despite 40 years of palaeontological study, he retained his enthusiasm for each fossil, both as a scientific specimen and as an object of natural beauty. His friendship with William Reed may perhaps be seen as a result of complementary personalities. (The quiet, retiring doctor carefully copied in small neat handwriting all the information from Charlesworth's catalogues onto labels for the specimens, which he later donated to the Yorkshire Museum, where, despite ill-health, he supervised their curation.) A complete appraisal of Charlesworth as a palaeontologist must await research in hand, but the present catalogues certainly bear out the statement in the Geological Society obituary "Not that he was a dealer in the ordinary sense of the term, for he thoroughly understood the palaeontological history of his wares, and could arrange and name a collection better perhaps than any man." "The Yorkshire Museum was fortunate to benefit considerably from Charlesworth's abilities, both directly when he was Keeper of the museum, and later through William Reed.

I should like to thank the Misses B. and R. Copinger Hill of Saxmundham for much information about William Whincopp, Mrs. P. Woodgate, of the Suffolk Record Office, Ipswich branch, for the Whincopp transcript, and Dr. M. A. Calver, Dr. R. D. Clarke, and Dr. K. J. Spencer of the Institute of Geological Sciences, Dr. H. W. Ball and Dr. C. P. Nuttall of the British Museum and Dr. C. L. Forbes of the Sedgwick Museum for information about accessions of Charlesworth material in their registers. Finally I would like to thank Dr. H. Torrens who provided additional material on several of the people mentioned in the catalogues.

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Barbara J. Pyrah,
The Yorkshire Museum,
Museum Gardens,
York.

COLLECTIONS AND COLLECTORS OF NOTE

21 **QUEEN'S COLLEGE MUSEUM, GALWAY.**Introduction

This little-known collection, which was started in 1849, and which contains a large number of type specimens of fossils as well as a great variety of other geological material, has remained relatively undisturbed for the past hundred years. During the past five years efforts have been made to recatalogue and conserve it. The following account describes the history of the museum, the material held therein and the recent work of conservation. The authors believe that some of the specimens in the museum are of sufficient interest as to be of value to researchers and they would greatly welcome enquiries from any interested parties.

History

The museum was founded by William King (1809-1886), D.Sc. when he came to Queen's College, Galway in 1849 as the first incumbent of the 'Chair of Geology and Mineralogy'. King had previously been curator at the Museum of Natural History in Newcastle upon Tyne, where he had started work on his monograph "The Permian Fossils of Great Britain" published in 1850. The specimens described by King in this work, together with further material from northeastern England, constituted the foundation of the Galway museum collection to which King added assiduously over the next thirty years. Dated entries in the catalogues show that whilst much of the collection was assembled by 1866, King continued to work on it until 1879. In 1882, the additional duties of Professor of Natural History were assigned to King and this may have contributed to the decline in health which led to his resignation in 1883. King's love for the museum was well known and is referred to in his obituary in Nature (July 1st, 1886).

King assembled the material within the museum from a variety of sources. To his personal collection were added gifts, often from other leading scientists, and other material was purchased from dealers particularly Otto Krantz. In 1883 Richard J. Anderson, M.D. was appointed to the Chair of Natural History, Geology and Mineralogy and undertook the development of the collection to form a Natural History Museum.

In 1889, he published an account of the museum which was now contained in five separate rooms: three containing zoological specimens (of which no records remain although some of the material is now in the Zoology Department, University College Galway) and two containing King's material to which he had added a small number of rock and mineral specimens. It is evident that the geological specimens were arranged with the needs of teaching in mind. One case contained "... a series of fossils arranged chronologically on boards that can easily be lifted out, examined and replaced" (Anderson 1899). Elsewhere were string and pulley representations of various crystal forms whose symmetry could be altered by the "... adjustment of weights and the movements of sliding pulleys" (Anderson op. cit.). Anderson died in 1914 and a year later the Chairs of Natural History and Geology and Mineralogy were separated in what had become in 1908, University College, Galway. Inevitably the Natural History Museum which occupied much of the present day Geology Department, was also disbanded. This was carried out by Professors Nangan (Natural History) and Cronshaw (Geology and Mineralogy). Fortunately, the vast bulk of King's collection was not moved and it remained untouched in the room it still occupies today.

James Mitchell became Professor of Geology in 1921, a post he held until his retirement in 1968. Mitchell, like his predecessors, held the Geology Museum

in high regard. He was responsible for keeping the collection intact and on display for almost 50 years, although in 1927 he signed the archaeological specimens in the museum over to the Department of Archaeology, University College, Galway. In spite of growing demand for space in University College, Galway in post-war years, Mitchell used his influence (he was College Secretary for 30 years) to ensure that the collection remained housed in the original museum, arguing that it was essential for teaching purposes. He even designed drawing boards to fit over the display cases so that students could write and study in the museum. Professor Mitchell rearranged and reclassified those parts of the rock and mineral collections used in teaching, but the palaeontological collection has remained virtually undisturbed since King's time.

The Collection

The museum collection is catalogued in two folio, thumb indexed, bound volumes entitled "Catalogue of the Fossils in the Museum of Queen's College, Galway 1849" and "Catalogue of the Minerals in the Museum of Queen's College, Galway". The bulk of the entries in both volumes were made by Professor William King in his own hand between 1849 and 1866; the dates 26 and 27/10/1866 appear after several entries in both volumes indicating perhaps a renewed period of acquisition. King's latest dated entry is in the Miscellaneous section signing 17 items into another catalogue (not preserved) on November 29th, 1879. The only subsequent entries in the Catalogue of Minerals are for nos. 1,485 - 1,502 in a different handwriting, perhaps that of Professor Anderson, and for "Flint instruments, bronze instruments given to Professor of Archaeology", signed and dated J. Mitchell 17 - 11 - 1927. Additions have been made to the fossil catalogue by one of us (M.D.F.) between 1975 and 1978.

In the following section the museum's holdings are reviewed under the categories used in the catalogues.

The Catalogue of Fossils

This is subdivided and thumb indexed into 10 sections. The total number of specimens in each section is indicated below, and the more important elements of each collection are mentioned. Besides the specimens entered in the catalogues there is a considerable amount of material present in the museum which is neither catalogued nor labelled satisfactorily; mention is also made of this where appropriate.

- A. Fossil Plants (300 entries). This collection includes a large number of Coal Measure specimens from the north of England;
- B. Fossil Corals and Foraminifera. Specimens catalogued under this heading include 125 corals, 34 stromatoporoids, 4 serpulids, 10 foraminifera, 18 sponges, 16 graptolites, 2 brachiopods, 5 bryozoa, 10 tracefossils and 1 coprolite.

Some of the more interesting specimens include 3 of Oldhamia (2 species) from Bray Head clearly labelled by King as Cambrian; after a century of disagreement this age is now known to be correct. Specimens of Pleurodictyum problematicum figured in a paper by King (1856) are also still in existence. Certain specimens in this section were donated by the 'Geological Survey of Ireland' and others by the 'Geological Survey of the United Kingdom'. Additional material which has not yet been entered in the catalogue, includes a large collection of graptolites donated by Professor David Skevington (Professor of Geology from 1969 to 1976).

- C. Fossil Echinoderms (73 entries); includes well preserved crinoids from the Wenlock Limestone, Dudley, the Silurian of Cincinnatti, the Devonian of the Eifel region, and the Namurian (E₁) of Richmond, Yorkshire; the Mesozoic echinoids are well represented.

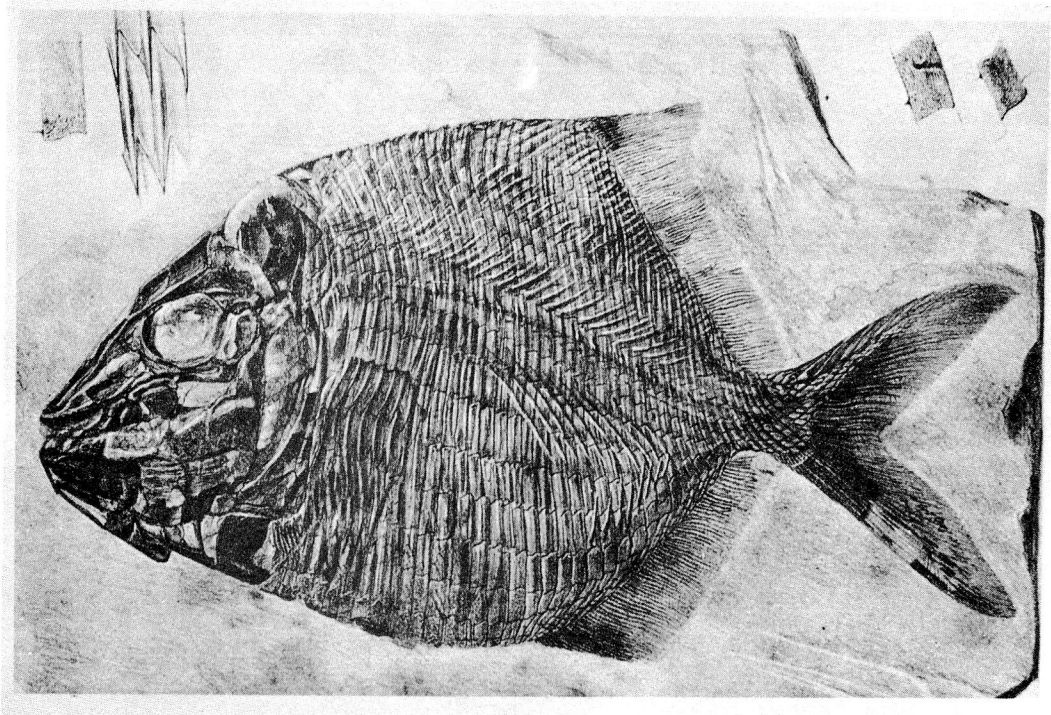


PLATE 1. Lithograph of Platysomus Striatus (Agassiz) prepared by Joseph Dinkel and featured in King's 1850 monograph. 25 cm in length.

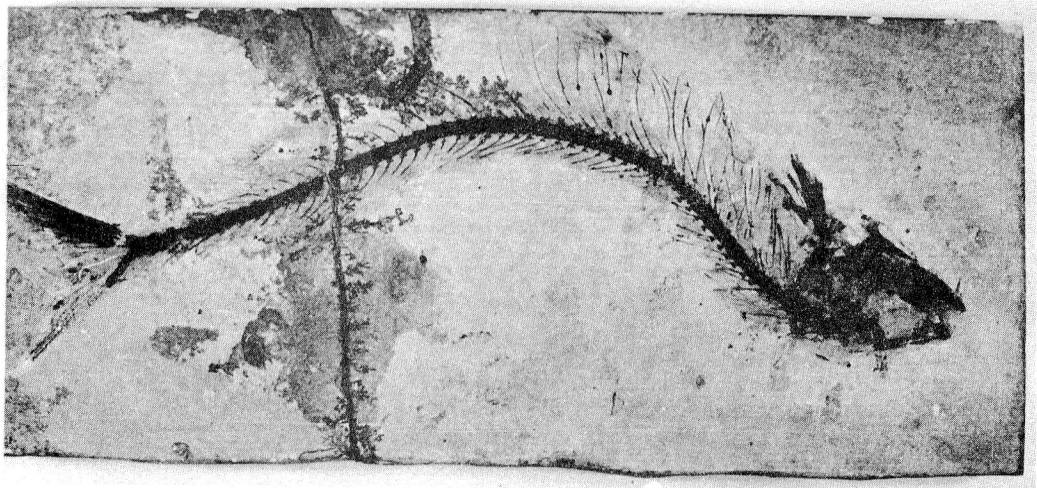


PLATE 2. A well preserved skeleton of Leptolepis knorri Blainville from the Jurassic of Solenhofen. 23 cm in length.

- D. Mollusca ('Fossil Shells') (806 entries). Most of the specimens in this section form part of King's collection of Permian fossils described in his 1850 monograph, and mentioned below. The remainder of the material includes 99 brachiopods, 145 cephalopods, 172 bivalves and 61 gastropods and a specimen of Calceola. These come from as far afield as Gotland and Bavaria (Silurian), Eifel and New York (Devonian). Additional material was added to this section at a later date and catalogued in a distinctive hand (? Anderson); this includes 92 specimens from the Middle Eocene of Barton, Hants., and 143 specimens from the Eocene and Oligocene of the Paris Basin and the Miocene of Touraine. These particular specimens were supplied by Gregory Bottley and Co. probably around the turn of the century.
- E. Fossil Crustaceans (95 specimens). Trilobites are the dominant element of this category, but a few eurypterids, ostracods and crabs are also present.
- F. Fossil Insects (no entries). Only one specimen is present in the collection, a dragonfly, for which there are no recorded details.
- G. Fossil Fishes (100 specimens). Much of the material is very well preserved; it ranges in age from Devonian to Pleistocene. (See Plate 2)
- H. Reptilian remains (35 specimens). (See Plates 3 & 4)
- I. Remains of Birds (2 specimens).
- J. Mammalian remains (109 specimens). 62 of the catalogued specimens came from the Sivalik Hills (India) and include Elephas, Mastodon, Enhydriodon and Ursus among others. An interesting entry in the collection (which included "the remains of man and his activities") is for 3 flint instruments presented by Sir Charles Lyell.

The Catalogue of Minerals

1. Minerals (1502 specimens)

Number, name and region or country of origin are usually recorded for each specimen, occasionally details of purchase are also noted. Minerals from the Galway area are well represented although specimens came from all over the world, many probably bought from dealers, particularly Kraantz of Berlin. A few specimens were presented, however, for example specimens 1,078 - 1,110 came from the Royal Galway Institution, the forerunner of the present day Galway Chamber of Commerce. Three meteorite specimens may be of interest: No. 117 'meteoric stone ... seen to fall at Linn County, Iowa, U.S.A., Feb. 25th 1847'; No. 122 'Meteoritic Iron ... found in Seel 'a' sgen, Brandenburg in 1847' (both of these were presented by Professor Shepard who also supplied the details); No. 1472 'Meteorite fell with a shower of meteorites at Puttusk, Poland 10th Jan. 1868'. Much of the mineral collection is on display in the museum; it seems that, unlike the fossil and rock collections, little of it has been dispersed into the teaching collections.

2. Rock Specimens (532 in all)

Much of the collection is of material from Germany and was purchased from Otto Krantz. It is now largely dispersed and used for teaching. The classification of the specimens in the catalogue is somewhat quaint; for instance, Section G 'Local Aqueous Rocks' (1 - 132) included metamorphosed sediments as well as local sedimentary rocks. Section G (1 - 204) was of igneous and metamorphic rocks and included a specimen of granite from Rockall presented in 1862 by Captain Haskyn Hill of the 'Porcupine'. Section I was of local igneous and metamorphic rocks including some presented by G. H. Kinahan (1829-1908) of

the Geological Survey of Ireland and Section K included local minerals which were also from Kinahan.

3. Physical and Mechanical Apparatus

4. Objects of Art and Antiquity

These latter two sections merge in the catalogue; they amount to some 40 entries, only a few specimens of which remain, including a serpentine obelisk and a terracotta vase. A copy of a drawing by Anderson illustrating his apparatus for determining mineral symmetry has, however, recently come to light.

5. Miscellaneous (17 specimens)

These specimens were signed by William King on November 17th 1879 into another catalogue; they included mostly bric-a-brac collected from India. Item no. 5 - 14, a large North American Indian birch bark canoe presented by Edmund Lombard Hunt of Headford Castle, is kept in the stair well of the Geology Department. Two whale jaw bones from a specimen over 70 feet in length and large iron anchor attributed to a wreck from the Spanish Armada (not catalogued) are on display in the foyer.

In addition to the above material, a collection of 11 lithographs was discovered in 1976; they can be attributed to Joseph Dinkel, who worked for Louis Agassiz the celebrated early nineteenth century palaeontologist. These are of Permian fish and are remarkable for their fine workmanship (Plate 1). They were prepared before 1850 as they all appear in King's monograph. Another recent discovery made in 1974 was of some unique, early manuscript geological maps that are at present being described in detail by Dr. J. B. Archer and Professor G. Davies.

Conservation

In 1975, the Department of Geology was able to obtain a small amount of money to be used for the conservation of this collection, and a curator was appointed whose main task was to identify the entries in the catalogue with the specimens in the collection. This was not an easy task as many of the specimens had become detached from the tablets on which their details had been written. However, by using, such clues as the location of the detached specimens, matching glue marks, and reidentification of the specimens it has proved possible to locate 60% of the material in the Fossil Catalogue, and nearly 100% of that in the Mineral and Rock Catalogue.

At the same time the King Collection was sent to the Institute of Geological Sciences in Leeds where Mr. Jack Pattison undertook its conservation and prepared a new catalogue of type, figured and cited specimens (Pattison 1977). This collection is now housed in a separate cabinet in the Museum in University College, Galway. The Dinkel lithographs were restored by Mairead McParland of the National Gallery of Ireland, and are now on display with the King Collection. The four manuscript map sheets were sent to the Map Room of the British Library where they were restored and remounted. These maps are now placed in the care of the Library, U.C.G., although they are displayed from time to time, and may be examined on request.

The original cabinets in the museum were treated for woodworm and the entire room was repainted. At this time the large amount of material originally housed in these cabinets was relabelled, where necessary, and stored, although a certain amount has been left on display in the museum. All the material held in the collection is available for reference and interested parties should contact the authors. On October 12th 1977 the President of the College reopened the museum which was named in memory of the late Professor James Mitchell in

recognition of his services to the college. We are indebted to Professor C. H. Holland and Dr. G. Sevastopulo who have been kind enough to re-examine the Nautiloids and the Crinoids respectively. Dr. D. Siveter is currently examining the trilobite material. The assistance of specialists in other groups would be appreciated.

Finances being what they are it is likely to be some time before we could even consider getting a curator; however, if experts are willing to give their time (and perhaps a lecture or two!) we should be able to provide travelling expenses.

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Mavis Fewtrell & Paul Ryan,
Department of Geology,
University College Galway,
Galway,
Ireland.

22 JOHN THOMAS WATTISON.

JOHN THOMAS WATTISON, who was born 23rd June 1884 and died in his 90th year on 10th January 1974, was one of the last great amateur collectors in the geological world. He was a native of the Potteries, lived for 26 years in Portugal and, when he returned to England in 1936, spent the next 27 years at Shrewsbury before coming back, on retirement, to his native town. By profession he was involved in the pottery industry, first serving an apprenticeship as an engraver. In Portugal he was manager of a pottery in Oporto, and later, in Shrewsbury, he was in business as a pottery factor besides keeping a china and antique shop.

All this gives little idea of the man. He was a great lover of nature, with an immense store of accurate knowledge, more especially in the fields of entomology and palaeontology, that he built up over the years by his own patient efforts. In Portugal, whenever he had the time, he carried out arduous journeys into the hill country of the Oporto hinterland, where he steadily amassed a valuable collection of Ordovician trilobites, the greater part of which is now in the Natural History section of the British Museum. Butterflies also claimed a good deal of his boundless energy, and his book on Portuguese butterflies is still a standard work. While in Shrewsbury he organised a geological collection in the County Museum, and he made innumerable excursions into the south Shropshire countryside - on a bicycle until increasing age had its effect - searching out every fossiliferous locality and again accumulating a wonderful collection, the emphasis still on Ordovician trilobites though many other forms, mostly lower Palaeozoic, were also in evidence. In North Staffordshire and Derbyshire it was from the Carboniferous Limestone that he mainly collected, more especially the very fossiliferous reef limestones. But the value of his specimens owed much to his great skill in developing them, using delicate instruments, to display their finest details. The bulk of his fossil collection of many thousands of specimens he left to the geology department of Birmingham University.

Besides Fellowship of the Geological, Palaeontological and Entomological Societies he became a member of various bodies - e.g. the Geologists' Association (both the Midland and North Staffordshire groups), the Caradoc and Severn Valley Field Club and the North Staffordshire Field Club - for all of whom he conducted most rewarding field meetings. In the field he gave freely of his knowledge and was untiring in helping with the identification of fossils. At home he kept open house to all geologists, but he had an especial regard for young students, to whom a room crammed with books and with cabinets full of his prized specimens gave unflinching delight.

His wife, née Alice Mary Bennett, whom he married in 1911, aided him in all his activities. Unfortunately she lost her sight while they were living in Shrewsbury, and she predeceased him by a number of years. They are survived by their only son, Dr. A. Wattison, of Anstruther, Fife.

(written by E. A. WATKIN)

Mr. E. A. Watkin, executor to Mr. J. T. Wattison, recently presented to the Natural History section of the City of Stoke-on-Trent Museum an internal mould of the fossil nautiloid Lophoceras pentagonum (J. Sowerby). This specimen was collected by J.T.W. in 1907 from the Carboniferous Limestone in lier at Astbury, Cheshire. This unusual fossil was regarded as of local importance and was thus not included in the Wattison collection that was presented to Birmingham University. The specimen will probably be displayed at Stoke when the new museum opens in late 1979.

Don STEWARD
Assistant Keeper of Natural History,
City Museum,
Broad Street, HANLEY,
Stoke-on-Trent, ST1 4HS

LINGULA PARALLELA PHILLIPS

TYPE MATERIAL IN THE YORKSHIRE MUSEUM : A REPLY

"If you are troubled with pride of accuracy and would have it taken completely out of you, print a catalogue". - Elliot Cowes.

In a recent article Mancenido and Damborenea, 1978, refer to the entry for Lingula parallela Phillips in Pyrah 1976, and to the work done by Graham, 1970, on this species. Dr. Graham sent me a copy of his paper when it was published and the information was entered onto the master cards of the catalogue. Unfortunately due to an oversight on my part it did not find its way into the typescript of the printed catalogue. There are four specimens: the corrected entry in the catalogue should read as follows.

Lingula parallela Phillips

Syntype: YM 833. Carboniferous, Carboniferous Limestone; 'Harelaw' (Harlow Hill?)
Phillips 1836, p. 221, pl. XI, ?fig. 19 (but see also YM 83)
Davidson 1861, 1863, p. 207, pl. XLVIII, fig. 35, as L. mytilloides
Graham 1970, p. 146, pl. XIV, fig. 10, as L. mytilloides

Syntype: YM 627. Carboniferous, Carboniferous Limestone; 'Harelaw' (Harlow Hill?)
Phillips 1836, p. 221, pl. XI, ?fig. 17
Davidson 1861, 1863, p. 207, pl. XLVIII, fig. 35, as L. mytilloides
Graham 1970, p. 146, pl. XIV, fig. 11, as L. mytilloides

Syntype: YM 83. Carboniferous, Carboniferous Limestone; 'Harelaw' (Harlow Hill?)
Phillips 1836, p. 221, pl. XI, ?fig. 19 (but see also YM 833)
Davidson 1861, 1863, p. 207, pl. XLVIII, fig. 35, as L. mytilloides
Graham 1970, p. 146, pl. XIV, fig. 12, as L. mytilloides

Syntype: YM 628. Carboniferous, Carboniferous Limestone; 'Harelaw' (Harlow Hill?)
Phillips 1836, p. 221, pl. XI, ?fig. 18
Davidson 1861, 1863, p. 207, pl. XLVIII, fig. 35, as L. mytilloides
Graham 1970, p. 147, pl. XV, fig. 2, as L. straeleni

I would also like to thank Mancenido and Damborenea for drawing to my attention the omissions in the catalogue relating to Waldheimia resupinata Sowerby, the genus Ampliata, and Navicula (Eonavicula) quadrisulcata (Sowerby) [GCC 2:3 pp. 122-3]. I would also like to thank Dr. Ian Rolfe for sending me the Elliot Cowes quotation, which has given me considerable moral support during the ten years that the catalogue has been in preparation.

Part 4 of the catalogue, containing the vertebrate and plant sections, is with the publisher, and should be in print next summer. Reprints of the first three parts continue to be available from the Yorkshire Museum. I would welcome notice of any errors or omissions in the catalogue, and would be grateful if research workers could write to me directly with any such information, rather than relying on the possibility of my seeing a published article. I will be pleased to supply up to date information to anyone who wishes to publish a correction to the catalogue.

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B. J. Pyrah,
Yorkshire Museum,
Museum Gardens, York.

COLLECTIONS AND INFORMATION LOST AND FOUND

COLLECTIONS AND INFORMATION SOUGHT

58. ANGELIN Nils Peter (1805-1876) and Silurian material from Gotland, Sweden.

In 1878 N.P. Angelin's monumental work on Silurian Crinoidea from Gotland, the Iconographia Crinoideorum in stratis Sueciae siluricis fossilium, was published. It contains 173 species referred by Angelin to 42 genera.

Unfortunately Angelin did not live to publish his own monograph, which may explain some of the short-comings of the Iconographia. The Latin diagnoses are extremely brief, there are no descriptions; the illustrations are often misleading, specimens having been either heavily restored (not always correctly), generalized or composed of several individuals, in some cases clearly belonging to different genera.

What makes problems even worse is that hardly any of Angelin's type material remains in the National Museum of Natural History in Stockholm. It is known that Angelin sold fossil material (even types) in order to complete the collections of the Museum.

I would be extremely grateful for any information on the whereabouts of Angelin crinoids, the location of collections of Silurian crinoids from Gotland, Sweden, and the location of Gotland specimens not now in museum collections.

Christina Franzen,
Department of Palaeobiology,
University of Uppsala,
Box 564,
S-751 22 Uppsala,
Sweden.

59. MOGG William (1796-1875)

David Stanbury of 16 Ian Court, 2 Dacres Road, London SE23 is doing some research into the life of Robert FitzRoy (1805-1865) who was captain of the "Beagle" and later on founded the Meteorological Office and in following up clues on the period of the "Beagle", he has been interested in articles written about William Mogg who was Purser with FitzRoy on the first voyage of the "Beagle".

William Mogg (1796-1875)'s private journal was presented to the Library of the University of Southampton. (Information derived from paper "Genus" 1956 by L. E. Taverner, "New Light on the Adventure and Beagle Expedition 1826-36").

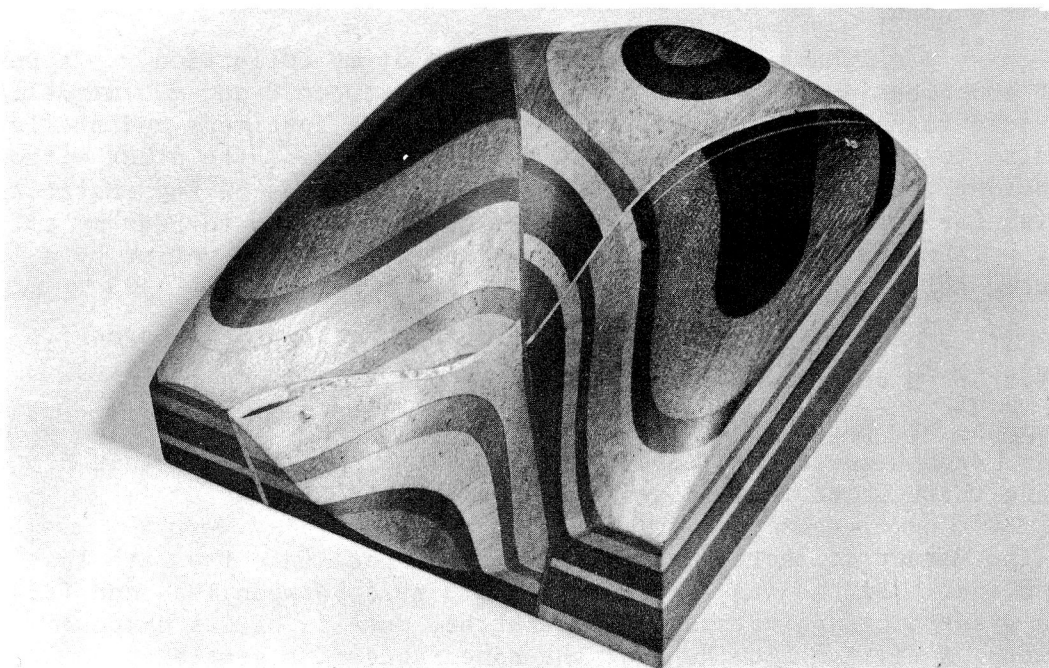
"Man" Number 65 page 59 - 'Notes on the Indians of Patagonia made by W. Mogg in 1829' by Dr. L. E. Taverner, University of Southampton also says "The private journal of William Mogg together with rock specimens and other objects of interest which he collected on his travels was presented to the Library of the University of Southampton." Information from Mr. G. Hampson, Sub-Librarian (Special Collections), of the University of Southampton says that "apart from the log books, the only relic that they now possess is William Mogg's Arctic medal and miniature. These were presented to the Hartley Institution in 1891. The Hartley Council Minutes are held by the University Secretary & Registrar and he may be able to tell you if they contain a reference to the gift. The Hartley institution was an ancestor of the University and its collections form the nucleus of the public library and the museums. Consequently any specimens of rock can have finished up either in our Department of Geology or in the City Museum."

All Mr. Stanbury's attempts to trace these collections of rocks and other natural history specimens have so far failed. It seems highly likely they went to the Department of Geology at Southampton University and any information even if only of their demise, will be welcomed.

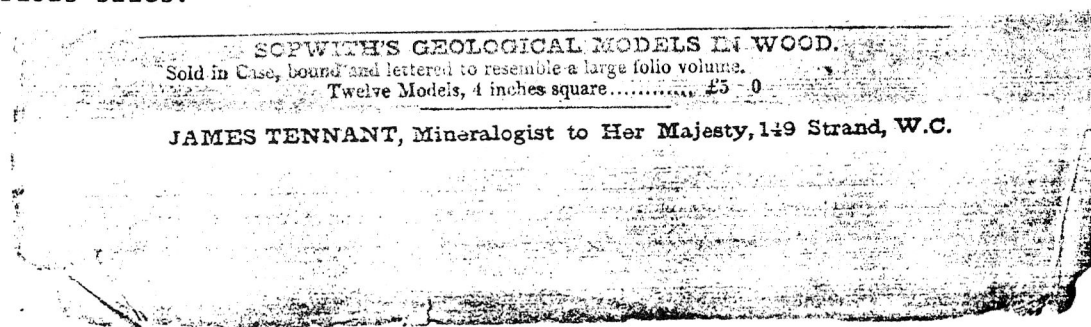
60. SOPWITH Thomas (1803-1879)

I would like to ask for information on the whereabouts of any geological models made by Thomas Sopwith (1803-1879), as listed in his book of 1841 "Description of a series of Geological Models illustrating the nature and stratification, valleys of denudation, coal seams in the Newcastle coal field, faults or dislocations of the strata, intersection of mineral veins etc,".

We have in Newcastle a large collection, and I know of others in the Geological Museum of London and at Glasgow. Some were also illustrated in Charles Lyell's books.



"Photograph of a Thomas Sopwith wooden model entitled "Surface denudation of mineral veins". The models were designed and made by Sopwith from around 1836. Buckland chose 12 and they were made into sets by John Sopwith of Newcastle and sold by him or Tennant's of London from 1841 on, in sets of various sizes.



This advertisement is from the Quarterly Journal of the Geological Society August 1869

Susan Turner,
THE HANCOCK MUSEUM,
Newcastle upon Tyne, NE2 4PT

61. WARNER, Richard (1763-1857)

In some autobiographical notes written very near the end of his life William Smith (1769-1839) recorded that the first collection of fossils which he ever arranged in stratigraphic order was that of the Rev. Richard Warner of Bath. Warner was in contact with Smith by at least 1800 (Cox, L. R. Proc. Yorks Geol. Soc. 25 31-34 1942). What happened to Warner's fossil collection has never been discovered although it is known that Warner had disposed of it before 1830. (GCG 1 no 3 p. 106 1975).

A recently discovered letter sheds some light on the collection and may help elucidate its subsequent history. It is addressed to Philip DUNCAN, Sion Hill, Bath [Philip Bury Duncan (1772-1863) see GCG 1 no 3 p. 96], and reads as follows.

"

Newton 21 Oct 1824
[Newton St. Loe near Bath]

My dear Duncan,

I have determined to dispose of my collection. It consists of about 400 Siberian specimens [minerals] and between 8 and 900 miscellaneous organised fossils, polished specimens, siliceous specimens and shells. There are also to go with the above 2 cabinets, one glazed, the other without glass, I consider the whole as worth £100. Should you know of any institution likely to wish for such a purchase I should be obliged to you to bear my collection in mind. It might be inspected, at any time, on a week's notice by a line directed for me at Miss Cole's.

Yours sincerely R. Warner".

The letter is endorsed by Duncan thus

"I suppose Mr. Warner thinks that we propose to have a collection of Minerals at our [Bath Literary and Scientific] Institution. I have told him that I believe there is no intention of the kind."

The Warner collection certainly did not pass into the Bath Institution collection. But it was equally certainly sold between 1824 and 1830. William Smith's autobiographical notes give further details of its disposal. According to Smith "A visitor from Bath of the appearance of a gentleman admired and purchased the collection and then paid for it by a cheque which I understand was dishonoured. Where it went to I never knew."

Any information about the ultimate fate of Warner's collection, the earliest to be arranged on Smith's principles will be gratefully received.

Hugh Torrens
Keele University
Staffs.

62. Turonian (Cretaceous) Ammonite Collections - esp. Mammitinae & Vascoceratidae

"I am currently attempting to revise the Lower Turonian ammonite faunas of Mexico for a Ph.D. thesis. This work involves comparison with faunas of like age from all over the world, and especially with old "type" material from Europe. In connection with this work it would be of great import to me to establish the whereabouts in British museums of certain chalk ammonites. I would, therefore be most grateful to anyone who can identify in their collections any representatives of the mammitinae and vascoceratidae. Genera generally known would be Vascoceras, Mammites and Fagesia. I am keen to see any material, no matter how fragmentary, which may bear comparison with the exceedingly poorly-known Mexican fauna."

Gordon R. C. Chancellor,
UNIVERSITY OF ABERDEEN
Department of Geology and Mineralogy
Marischal College, Aberdeen, AB9 1AS

63. UPTON, Charles (? -1927)

Dr. Martin Ware of the Department of Geology, University of Aberystwyth, seeks the micropalaeontological collections of Charles Upton and especially the ostracoda and charophyta. Previous attempts by Dr. W. A. Macfadyen in 1932-33 to find Upton's collections of foraminifera were unsuccessful.

Upton was a solicitor in Stroud before moving to Gloucester in 1914. In 1920 he was appointed curator of Gloucester Museum a post he retained until 1926 (see obit. by Roland Austin in Proc. Cots. nat. Field Club 23 pt. 3 (see below) 1930). Sherborn in Where is the - Collection p. 135 records the Upton collection was "transferred from Cheltenham Mus. to Gloucester Mus. except the Foraminifera which are lost 1932 teste H. D. Thomas". This is not entirely true as it is now known that Upton's collections of brachiopods (save some types transferred to BM(NH) in 1964), and of recent marine and freshwater shells only are at Gloucester (teste D. L. Dartnall 1971) while other material of his is in the Oxford University Museum (ammonites). The sponge spicules named Reniera oolitica sp. nov. by Richardson and Thacker in 1920 in Proc. Geol. Ass. 31 pt 4 p. 172, pl 13 and which were then in Upton's collection have also since been discovered in Cheltenham Museum. But the remainder of Upton's large collections of Jurassic microfossils remain unaccounted for. Upton made collections of these microfossils mainly for Linsdall Richardson who published Upton's determinations in a long series of papers.

Correspondence in 1932 with the Upton family showed that all Upton's collections were sold after his death. The Brachiopoda were sold to Gloucester Museum for £45. All information about any of Upton's collections and their present whereabouts would be gratefully received.

CHARLES UPTON

CHARLES UPTON, whose death occurred on 21 July 1927, had been a member of the Club since 1889, and therefore was among the few survivors of the "old days" of which he used often to speak. Before coming to Gloucester to live (1914), he was a partner in the firm of Bail, Smith, Upton, and Playne, Solicitors of Stroud, having been admitted in 1898. In 1918 he was placed on the Gloucester Museum Committee and in 1920, on the office becoming vacant, he was appointed curator of this Museum.

While his general knowledge of geology and of natural science was wide, Upton's studies were more particularly concerned with the Brachiopoda and the fresh-water mollusca, on both of which he was an acknowledged authority. He was also a good microscopist.

The first paper he contributed to the *Proceedings* was on the geology of Norway; this was read to the Club in 1897. In 1899 he read the first of three communications on the Brachiopoda of the Cotswolds, in which he recorded species hitherto not described, and added observations on known examples. His collection is now in Gloucester Museum. In 1911 he published (*Proceedings*, vol. 17) a revision of the land and fresh-water mollusca of Gloucestershire and supplemented this in later volumes. His last contribution (in 1926) was a tentative list of the diatoms found in and near Gloucester and in the Canal between Gloucester and Sharpness. Upton found a good deal of pleasure in the possession of a small motor-boat and many an afternoon was spent on the Canal searching for mollusca and diatoms.

Upton was on the Council of the Club for many years, but would not fill any more prominent position than that of Vice-President, though pressed on more than one occasion to accept office as President. Reserved in manner, he did not take part in discussions unless he had some useful information to give, but he was a real student of Nature and one who had at heart the objects for which the Club was established. His death leaves a gap in his particular field of knowledge.

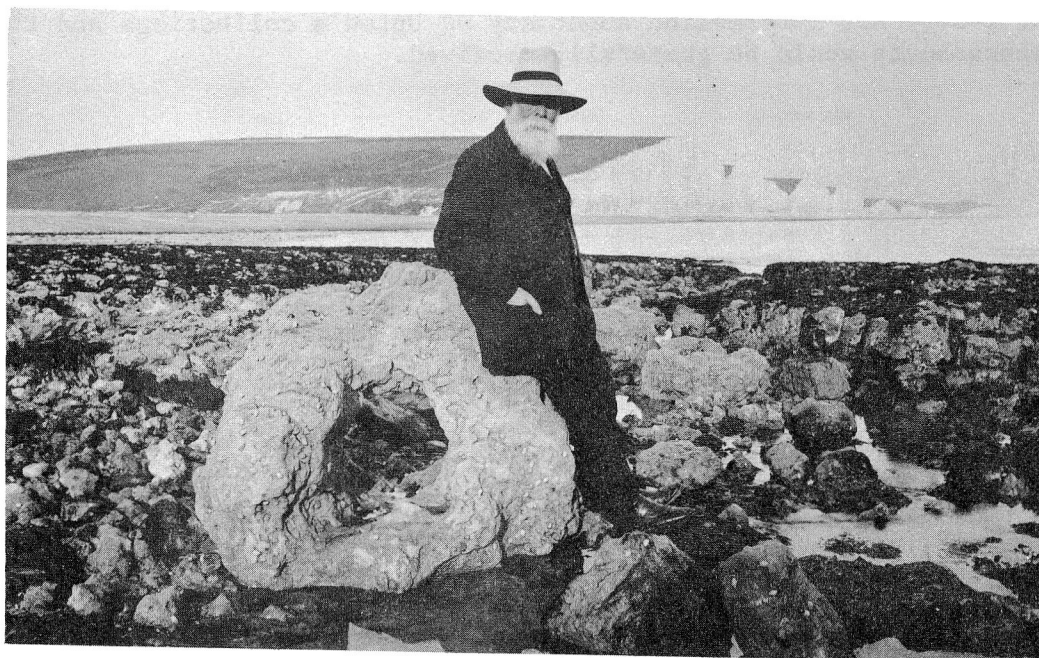
R. A.

COLLECTIONS AND INFORMATION FOUND

29. ANDREWS Rev. William Ryton: His Geological Notebooks at Devizes Museum

One of the leading Wiltshire geologists during the latter quarter of the nineteenth century was the Reverend William Ryton Andrews (?1834 - post 1911), vicar of Teffont Evias. Andrews's main interest seems to have been the geology of the Vale of Wardour, upon which he rapidly became an acknowledged authority. He collaborated with several prominent contemporaries, including Horace B. Woodward, Alfred Jukes Browne, Wilfrid H. Hudleston, and Humphrey P. Blackmore, and wrote several important papers on Vale of Wardour geology (see bibliography). In the 1890's Arthur Smith Woodward named certain fossil fishes discovered by Andrews in the Wiltshire Purbeck formation in his honour.(1).

Brief notes on Andrews's early career appeared in GCG no:10 (Sept. 1977), pp. 489-490 - where Teffont was erroneously spelt as Telfort - together with brief notes on his subsequent retirement to 25 Enys (not Eng: ibid.) Road, Eastbourne. The last years of Andrews's career are hardly documented; but as he was still resident at Teffont in 1903, when he hosted, with H. P. Blackmore, the excursion made to Salisbury by members of the Geologists' Association during the Easter of that year (2), his retirement to Eastbourne must have occurred between that date and May 1909, when a photograph was taken of him leaning against the "holed stone" on Eastbourne beach.



An MS note by Andrews in one of his notebooks is dated 1912, so he was still alive at that date. Andrews's actual date of death is as yet uncertain.

Andrews's collection of fossils and his geological notebooks went with him to Eastbourne. They were not retrieved until 1976, when, through the efforts of one of us (RSB), they were brought back to Devizes, to be lodged in the museum of the Wiltshire Archaeological and Natural History Society, a process

already briefly described (GCG, 1:10, pp. 489-490).

Six MS notebooks comprise Andrews's geological memoranda. Each bears a title, and some were clearly drafts for papers (often later modified) he subsequently published. It is interesting to note that most of the published versions of these papers omit various details and drawings (sometimes on quite an extensive scale) contained in the original drafts. The information embodied in these notebooks is therefore considerably greater than that eventually published. The titles of these notebooks are as follows:-

1. "Geological History of the Chilmark Valley".
2. "The Origin and Mode of Formation of the Vale of Wardour".
3. "Geology of the Vale of Wardour".
4. "Introductory Physical and Geological Description of the Vale of Wardour".
5. "Geological Notes".
6. "Switzerland: Notes on Physical Geology and Botany" (this is dated 1897).

Unquestionably notebook number 5 in the above list contains the greatest amount of important detail relating to exposures in the Vale of Wardour and Salisbury areas. Not only does it contain a wealth of geological observation, but much of the information recorded has never been published. This, allied to the fact that numerous sites examined by Andrews are now obscured, or are no longer accessible (being temporary exposures even while he visited them), renders these records of particular value.

Andrews always dated his observations, often made drawings (with measurements) of what he saw, and noted the fossils occurring at each site. As the greater part of the contents of notebook no:5 have never been published, it seems appropriate to here record the salient points of this information for the benefit of future workers in Wiltshire geology and palaeontology. This paper, therefore, chronologically lists the sites visited by Andrews, and notes the fossils he recorded at the various exposures. The identities of many of the fossils have, of course, subsequently been revised. The earliest entries date from April 1889 and, with the exception of a solitary entry for June 1894, continue to September 1890.

| <u>Locality</u> | <u>Fossils</u> |
|--|--|
| 1. Well sunk at Dinton (May 1889). | Fossils mentioned but not named. |
| 2. Sandpit on road by Manor Farm, Dinton (28.4.1889). | None mentioned. |
| 3. Road-cutting (E.branch) above Dinton (28.4.1890). | None mentioned. |
| 4. Road-cutting, Teffont Magna (30.4.1890). | None mentioned. |
| 5. Marshwood House (3.5.1890). | None mentioned. |
| 6. Sandpit S. of school at Fovant (6.5.1890). | None mentioned. |
| 7. Cutting and quarry $\frac{1}{4}$ mile W. of Dinton railway station (7.5.1890) | <u>Cyclas</u> , <u>Cyprides</u> , <u>Archaeoniscus</u> . |
| 8. Chalk-pit on road to Dinton Beeche (12.5.1890). | <u>Inoceramus</u> (only). |
| 9. Section in cutting W. of Dinton Station (13.5.1890). | <u>Cyrena</u> , crushed shell fragments. |
| 10. Lane-cutting SE of Church at Compton (15.5.1890). | None mentioned. |
| 11. Old stone quarry, Fovant (21.5.1890). | <u>Pecten orbicularis</u> , <u>Exogyra vesiculosa</u> . |
| 12. Limekiln SE of Fovant (22.5.1890). | <u>Cardita</u> , <u>Turrilites</u> , <u>Lima</u> , <u>Pecten</u> , <u>Avicula</u> , <u>Cerithium</u> , <u>Ostrea</u> , <u>Scaphites aequalis</u> , <u>Pleuromeria</u> , <u>Rhynchonella gratiana</u> , <u>Ammonites sussexensis</u> , <u>Am. varians</u> , <u>Am.sp.</u> |
| 13. Section immediately W of Teffont rectory (24.5.1890). | None mentioned. |
| 14. Chalk-pit on road by barn, NE of Dinton (26.5.1890). | <u>Inoceramus</u> , <u>Rhynchonella cuvieri</u> . |

15. Near "Black Horse" inn, Teffont (27.5.1890). None mentioned.
16. Dinton woods (27.5.1890). None mentioned.
17. Claypit in SE corner of Dinton Park (27.5.1890). None mentioned.
18. Well by cottages N of Dinton Station (29.5.1890). Unio, Paludina carina.
19. N of "Mooray", Chilmark Lane (31.5.1890). Micraster.
20. Limekiln quarry, Teffont (2.6.1890). Cyclas, Cyprides, Cyclas, Pleurophilus, crushed shells, fishes, as well as sun-cracks and ripple marks.
21. Near the church, Sutton Mandeville (5.6.1890). None mentioned.
22. Gault-pit, at Ridge (6.6.1890). Ammonites interruptus, Am. splendens.
23. Knap Farm, near Ridge (6.6.1890). Vermicularia concava, large oysters and shell fragments.
24. Furbeck quarry, at Ridge (6.6.1890). Cyclas, Perna, Corbula alata, Leda, Cardium, cyprids, and crushed shell fragments.
25. Railway cutting, Dinton (9.6.1890). None mentioned.
26. Pond diggings by Keeper's Lodge, Dinton Park (9.6.1890). None mentioned.
27. S of brickyard at Ridge (9.6.1890). None mentioned.
28. Sandpit at Hurdcott Farm (12.6.1890). Pecten asper.
29. Old quarry SE of Chilmark (14.6.1890). Cyrena, Ostrea, crushed shells.
30. Lower Chicks Grove Quarry, S of railway (16.6.1890). Ostrea, Trigonia.
31. Lane above the quarry at Chicks Grove (16.6.1890). None mentioned.
32. E face of quarry in Dinton cutting (18.6.1890). Cyprids.
33. Old quarry at S corner of Judas Wood, Lower Chicks Grove (19.6.1890). crushed shell fragments.
34. Railway cutting SE of Baverstock (21.6.1890). Pecten costatus, P. orbicularis, P. asper, Am. gryphoides.
35. Chalk-pit near top of down, S of Fovant (23.6.1890). Terebratula cornea, T. gracilis, Inoceramus, Rhynchonella reidensis, Micraster and Foraminifera.
36. Chalk-pit NE of Baverstock cutting (25.6.1890). Inoceramus mytiloides, Rhynchonella cuvieri.
37. Greensand-pit, just inside wood near N end of Baverstock village (25.6.1890). None mentioned.
38. Upper quarry, Chilmark (26.6.1890). Crushed shell fragments.
39. Old quarry, W of road N of Tisbury (1.7.1890). None mentioned.
40. Chalk-quarry by road at East Knoyle (2.7.1890). Micraster cortestudinarium.
41. Sandpit by road opposite Jerrard's Farm, Fonthill Gifford (4.7.1890). Vermiculites concava, Exogyra columba.
42. Old Portland quarry near Cool's Farm, Ruddlemoor (5.7.1890). None mentioned.
43. Field-well, S of gault sandpit, East Knoyle (10.7.1890). Ammonites splendens.
44. Sandpit, East Knoyle (10.7.1890). Exogyra conica, Pecten equicostatus, P. interstriatus, P. sp.
45. Bull pits, by road, Upton (12.7.1890). Pecten asper.
46. Chalk-pit by road at Chapel Farm, Upton, and an old quarry S of the above (15.7.1890). None mentioned.
47. Sandpit W of Upton (16.7.1890). Exogyra conica, Spondylus striata, Pecten costata, P. interstriatus, P. orbicularis, P. asper.
48. Chalk-Rock pit by road near the tunnel SE of Hindons (18.7.1890). None mentioned.
49. Fonthill Abbey (18.7.1890). None mentioned.

50. Fonthill Park (20.7.1890). None mentioned.
51. Pits SE of church at West Knoyle (22.7.1890). None mentioned.
52. Railway cutting NE of Dashlet Farm (26.7.1890). Trigona gibbosa, T. densinoda, Ostrea, bivalves (gen.uncertain). crushed shell fragments.
53. Quarry by railway-line W of Dinton (4.8.1890). None mentioned.
54. Limekiln quarry, Teffont (30.7.1890). Cyrena sp., crushed shell fragments.
55. Overgrown quarry in wood near "Twelve Hatches" (7.8.1890). Inoceramus brongniarti, In.sp., Terebratulina semiglobosus, T. carnea, Spondylus, Micraster cortestudinarium.
56. Cutting at Barford (12.8.1890). Cyclas, Cyrena, Modiola, Ostrea, Estheriae, Trigonia, cyprids. Paludinae.
57. Quarry at Lower Chicks Grove (13.8.1890). None mentioned.
58. Cutting at Chicks Grove Farm (13.8.1890). Cardium, cyprids.
59. Boring in old brickyard at Dinton (15.8.1890). Inoceramus sp., Lima globosa, Terebratulina semiglobosa, Ostrea, Pecten orbicularis, Pecten sp., Ammonites lewesiensis, Rhynchonella grasiana, R.martini.
60. Wockley quarry (18.8.1890). Oysters (gen. uncertain), crushed shell fragments.
61. Limekiln quarry at Buxbury Hill (20.8.1890). None mentioned.
62. Pit on Lady Down (21.8.1890). Cyrena.
63. Top of the Punch Bowl Valley, Burcombe (23.8.1890). Inoceramus.
64. Overgrown pit by Chicks Grove Farm (25.8.1890). None mentioned.
65. Chalk-pit by main road, Camp Hill, Salisbury (1.9.1890). Marsupites sp., belemnites.
66. Waterworks, Fisherton (1.9.1890). Fossils noted but not named (said to be very scarce).
67. Chalk-pit at "Whitings" works, Salisbury (1.9.1890). None mentioned.
68. East pit, Harnham (3.9.1890). Rhynchonella limbata?, Belemnites quadrata, Ostrea vesicularis.
69. Quarry at West Harnham (3.9.1890). Inoceramus sp. (large forms).
70. Chalk-pit at Britford (3.9.1890). Rhynchonella cuvieri, Inoceramus mytiloides, Camarospongia, Micraster coranguinum.
71. Chalk-pit S of Odstock (4.9.1890). None mentioned.
72. Chalk-pit S of Humington village (4.9.1890). Micraster sp., starfish ossicles, sponges.
73. Stratford, near Salisbury (6.9.1890). None mentioned.
74. Pit on N side of Old Sarum (6.9.1890). None mentioned.
75. Railway cutting beyond St. Thomas's Bridge, N of Salisbury (9.9.1890). Ananchytes sp., Terebratulina cornea, Belemnite, Rhynchonella limbata, starfish ossicles.
76. Pit on old Roman Road, opposite the Malt House (9.9.1890). Ananchytes sp.
77. Old gravel-pits at Thorny Backs (9.9.1890). None mentioned.
78. Old pit near Keeper's House, Clarendon Woods (9.9.1890). None mentioned.
79. Chalk-pit near the brickyard, Clarendon (9.9.1890). None mentioned.
80. Gravel-pit on hill above the Avon turn (exact site not indicated but presumably NW of Alderbury (12.9.1890)). None mentioned.
81. Pits at Shute End, Alderbury (12.9.1890). crushed shell fragments, Belemnites mucronata, Kingera.
82. Chalk-pit where roads fork to Southampton and Downton (i.e. near Newton(?) on the A.36) (12.9.1890). None mentioned.
83. Extensions to railway sidings, near Downton Station (June 1894). None mentioned.

The Andrews collection of fossils as it survives today, while containing specimens of many of the aforementioned genera from several of the localities listed in his notes, is certainly far from complete if examples of all the listed forms were collected in the field. It is, however, more than probable that Andrews considered many specimens too fragmentary or common to collect, so it should not be assumed that he actually possessed specimens of every form he named. Also noteworthy is the fact that his collection contains specimens of fossils from some of the above mentioned sites not listed in his notes.

Andrews registered comparatively few comments on the implications of his observations, but when he did include such comments they were interesting. For example, after inspecting site 73 (Stratford, near Salisbury) he remarked that Barrois's earlier description of the geology of that area was poor and quite inaccurate. Elsewhere, he adds that, at certain sites, he had pits or trenches sunk specially for him by local workmen in order that he could determine the local geology more carefully. Few if any of these diggings will now be traceable.

Although Clement Reid (3) and various other Geological Survey writers incorporated some of Andrews's field observations into the sheet memoirs they produced, it is a fact that the greater part of Andrews's field work has never been published. It is doubtful if much of the unincorporated parts of his material has reached any type of geological archive, hence the scientific and historical importance of his records. It is to be hoped that the present summary serves as (a) a general synopsis of the extent of Andrews's Wiltshire investigations, and (b) affords a proper indication of the material now available for study or comparison by modern students of Wiltshire geology.

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49. MISS MARY HANNAH FFARINGTON (1815-1888) GCG 2, 2, p 82
 2, 3, pp 127-128

In our earlier notices of this collection we recorded the existence of a privately printed pamphlet written by Miss Ffarington herself and issued in 1879 - 9 years before her death. This described the rocks and fossils she had collected over 1823-1879 from the glacial gravels of Worden in Lancashire. In view of the recent re-discovery of at least part of this collection (GCG 2, 3 p. 94) we here reproduce all of this pamphlet to show what documentation exists for this collection in print, and in hope that it may allow perhaps a small part of the material to be recovered.

LIST OF
 ROCKS AND FOSSILS

COLLECTED FROM THE

MIDDLE GLACIAL GRAVELS

WORDEN, LANCASHIRE

1823 TO 1879

LONDON
 TRÜBNER & CO., LUDGATE HILL
 1879

WORDEN ROCKS AND FOSSILS.

Anamesite
 Dolerite
 .. amygdaloidal
 .. porphyritic
 Basalt, close-grained
 .. with conchoidal fracture
 .. decomposing
 Olivine, massive
 Pectolite
 A decomposed igneous rock, with ferruginous clayey conglomerate

Felspathic ash
 Volcanic ash, with Felspar and Epidote
 .. Chloritic, with Felspar and Epidote
 .. Epidotic, with Chlorite
 Felstone, probably from a felsitic Volcanic Ash
 Lava, much altered
 Altered Volcanic Ash
 " "

Felsitic breccia
 " " (Gabbro)
 Augitic Trap, amygdaloidal

4

- Vesicular Trap (black)
 Concretionary balls exfoliating (wasting away of Trap rocks)
 Compact Serpentine
 " in Felspar
 Diorite
 " close grained
 " the Felspar in pale pink Crystals, the Hornblende a dark green
 Greenstones, several Varieties
 Porphyry, Felspathic, with Serpentine, the Oligoclase in twin crystals
 " black matrix
 " matrix dark grey
 " Oligoclase, purple matrix
 " Greenstone (Helvellyn)
 " " many varieties
 " " with garnets
 " Basaltic
-
- Syenite, light red, Shap
 " dark red
 " " very close grained
 " dark green
 " lighter varieties
 " porphyritic (red)
 " " variety (red)
 " " green
 " gneissic (striped)
 " typical species

Granite, porphyritic, with Hornblende

5

- Granite, porphyritic, decomposing
 " dark green (Hornblende)
 " with red Felspar
 " " " and much Quartz, Scotch
 " red Felspar
 " dark red Felspar, and much Quartz
 " the Felspar light flesh red
 " light pink, Quartziferous, with much mica
 " pink, with fine crystals of Felspar
 " grey
 " coarse greyish purple, probably Ravensglass
 " white, Ravensglass ?
 " " (Criffel)
 " " (Dalbeattie)
 " gneissic, foliated
 " with green Hornstone
 " decomposing and disintegrating
- Granitic Trap
-
- Claystone porphyry
 " with Tremolite
 " with Hornblende in crystals
 " in various forms
- Quartz porphyry
 " " (Elvanite)
 " conglomerates
-
- Felstone, columnar, probably from the Lake country
 Felsitic porphyry, black
 " " varieties
 " " light coloured, Cumberland
 " " varieties
 " " probably decomposing (nearly white)

6

- Felsites, coarse and fine grained black
 " coarse grained, light coloured
 " dark, with conchoidal irregular fracture
 " quartziferous, with Hornblende
 " with Chlorite and veins of quartz
 " " " Epidote
 " with harder dark-coloured veins, weathering to Kaolin
 " smoothed and polished boulders
 " compact red
 " very dense red, with veins of Quartz or Calcite
 " with Serpentine
-
- Gneiss, with much Hornblende
 " very Quartzose and Micaceous
 " fine grained, probably Cumberland
 " " Cambrian ?
 " more schistose in structure
 " passing into Granulite ?
- Mica Schist
 Tungstate of iron in matrix
-
- Altered quartz, containing specks of Pyrites
 " Slate, Skildaw
 " Carboniferous Limestone
 " " (altered in part)
 Probably a burnt Carboniferous Limestone, a cherty variety, and ferruginous
 Chert, Carboniferous
 " " remains of Vegetable Stems
 Altered Sandstones

7

- Quartz, rolled pebbles
 " probably from Silurian slates
 " with Chlorite
 " decomposing
 " ferruginous and brecciated
 " Cellular
 " with Felsite
 " Columnar (pseudomorphic ?)
 " in minute crystals
- Rock crystal (small pebbles)
 Quartzite
 " (chert)
 Hornstone
 Chalcedonic Quartz (pebbles)
 Pebble (the blue, probably Chalcedony)
-
- Clay Slates
 Siliceous Slate, coloured by Silicate of Iron
 Chlorite schist
 Clay Shale, containing Grey Copper and Green Carbonate of Copper
 Haematite
 Yellow Ochre
-
- Cambrian grit
-
- Silurian grits
 Caradoc Sandstone, with ?
 " containing *Orthis flabellum*. *Sov.*
 " " *O. testudinaria*. *Dalm.*
 " " bivalve, sp.
 Scratched Pebbles, Ludlow rocks

8

Silurian grits, decomposing, containing—
 „ Vermiform tube ?
 „ Pebbles with artificial boring.
 „ Asaphus sp.
 „ Anodontopsis sp.
 „ Orthonotus sp.
 „ Murchisonia sp.
 „ Chonetes lata
 „ Rhynchonella nucula
 „ remains of shells of Brachiopoda from
 decomposed organic matter
 „ Bellerophon sp.
 „ Univalve, small sp.
 „ Holopella obsoleta. *M. Coy*
 „ Phragmoceras sp.
 „ Lituites articulatus. *Sow.*
 „ Orthoceras approximatum. *Sow.*
 „ „ bisiphonatum. *Sow.*

Carboniferous Limestones containing many Fossils

White, weathered and decomposed

Light Stone

„ mottled darker. *Kendal*
 „ with ferruginous patches

Black

„ perforated by Saxicava
 „ very argillaceous, with Iron (Siderite)

Dark, traversed by quartz veins

„ coarse, ferruginous
 „ with red patches
 „ Encrinital

Red, Encrinital

Grey with Galena

9

Bituminous, with Spirifera sp.

CORALS.

Michelinia favosa. *Goldfuss*
 „ tenuisepta. *Phillips*
 „ megastoma. *Phillips*
 Alveolites septosus. *Fleming*
 Syringopora ramulosa. *Goldfuss*
 „ ?
 „ verticillata. *Goldfuss*
 „ reticulata. *Goldfuss*
 „ geniculata, large and small varieties
 „ „ moulds of
 „ catenata. *Martin*
 „ laxa. *Phillips*
 „ bifurcata. *Lons. ?*
 „ sp. not made out
 Rhabdopora megastoma. *M. Coy*
 Cyathoxouia cornu. *Michelin*
 „ ?
 Zaphrentis cornucopie. *Michelin*
 „ subicina. *M. Coy*
 „ patula. ? *Michelin*
 „ cylindrica. *Sculer*
 „ sp. embedded in matrix
 Amplexus Henslowi. *Edwards & Haime*
 „ coralloides. *Sow.*
 „ spinosus. ? *Koninck.*
 Cyathophyllum Murchisoni. *Edwards & Haime*
 „ archiacis. *Edwards & Haime*
 „ Stutchburyi. *Edwards & Haime*
 „ regium. *Phillips*

10

Cyathophyllum regium, variety crenulare. *Phillips*
 Rolled pebble containing a large cyathophylloid coral
 Clisiophyllum turbinatum. *M. Coy*
 „ coniseptum. *Keyserling*
 „ bipartitum. *M. Coy*
 „ Keyserlingi. *M. Coy*
 Anulophyllum fungites. *Fleming*
 „ „ (the small variety referred to by
Prof. M. Coy)
 „ Bowerbankii. *Edwards & Haime*
 Pyrgia labechei. *Edwards & Haime*
 Lithostrotion Portlocki. *Brown*
 „ junceum. *Fleming*
 „ Martini. *Edwards & Haime*
 „ irregulare. *Phillips*
 „ affine. *Fleming*
 „ moulds of, the corallites having perished
 Lonsdaleia floriformis. *Fleming*
 Sp. not determined
 Autopora serpens. *Goldfuss*, with crinoid stems, &c.
 Molecular masses, probably containing Foraminifera
 Fenestella plebeia, with impressions of polyzoa, &c.
 Polyzoa, with crinoid stems, joints, ossicles, &c.
 Polyzoan, allied to the Fenestella
 Conglomerate of broken shells, erinoids, polyzoa, &c.,
 Fenestella two sp.

CRINOIDS.

Cyathocrinus pinnatus. *Goldfuss*
 Poterocrinus crassus. *Mill*
 Actinocrinus triacoutadactylus. *Mill*
 Rhodocrinus sp.

11

Platycrinus levis. *Mill*
 Specimen, probably Cyathocrinus, but very uncertain,
 interesting as showing traces of an epidermis
 Several specimens not made out
 Siliceous pseudomorphs of the animal membrane of
 crinoidal column

ECHINODERMS.

Archæocedaris, plates and spines

ANNELIDA.

Serpula socialis. *Goldfuss ?*
 „ ?
 Limestone bored by Lithodomous Annelids
 „ (larger sp. ?)

CRUSTACEA.

Phillipsia seminifera. *Portlock*
 Portion of larger Trellite

MOLLESCA.

Terebratula sacculus. *Sow.*
 „ ?
 Spirifera glaber. *Sow.*
 „ glabra
 „ lineatus (atrypa). *Phillips*
 „ striata. *Sow.*
 Athyris expansa
 Orthis resquamata. *Phillips*
 „ Michelinii (Terob.). *Lev.*
 Strophorhynchus ctenistria. *King*

Productus giganteus. *Sow.*
 " *semireticulatus*
 " *striatus*. *Eischer* (*Strophalosia striata*. *Murch.*)
 " *punctatus*. *Sow.*
Chonetes Buchaniana ?
 " *papilionaceus*
Murchisonia angulata. *Phillips*
 " ?
Univalve sp. ?
Natica plicistria. *Phillips*
Loxonema sp.
Euomphalus catillus. *Sow.*
 " *Dionysii*
 " *pentangulatus*. *Sow.*
 " ?
Platyschisma helicoides. *M^c Coy*
Bellerophon apertus. *Sow.*
Orthoceras ?

Clay Ironstone, nodular
 Jaspersy Clay Iron

Yoredale grits ?

Coal measure Clays and Sandstones, rotten-stones, with
Stigmaria ficoides. *Brong.*

Spirifera bisulcata. *Sow.*
Productus giganteus. *Sow.*
 " *Scabriculus*. *Sow.*

Euomphalus Sp.
Goniatites obtusus. *Phillips*
 Millstone grit, with *Calamites* and impressions of Plants
 " " flagstones
 Conglomerates
 Micaceous Sandstone
 " very fine grained
 " " laminated
 Coal
 Cannel Coal
 Chert
 Ironstone
 Clay " oxidised

Magnesian Limestone
 Permian Sandstone, Ripple-marked
 Quartzites
 Balls of Permian Clay
 Clay, with small spherical concretions

Bunter sandstone
 " globular (from rock of more friable structure)
 Triassic sandstone, probably, red and white
 " " laminated
 Quartzite, with Felspar and Mica, ferruginous in places,
 a rock not uncommon in the Bunter
 Dark sandstone associated with the above
 Conglomerate, or breccia (coarse)
 Triassic conglomerate, a siliceous mass, coloured by
 Oxide of Iron, and traversed by Quartz Veins

Quartzites, red
 " white
 Red "Marl" (Keuper), with *Schizodus*, &c.
 Red Clays
 Clay with Gypsum
 Triassic Marl probably, showing cubical cavities from
 dissolved salt
 Sandstones, waterworn

Ammonites capricornus, Middle Lias

Flints, grey and yellow, Antrim
 " containing sp. *Eucrinite* ?
 " banded
 Hard white chalk, Antrim

Tufa, with impressions of the leaves of *Platanus uccroides*
 (Miocene ?)

Shells mined by *Cliona* (boring Sponge)
Cliona sp. in *Turritella*, &c.
 Fragment of Shell affected by sp. of parasitic sponge
 Portions of Shells still adhering together by remains of
 sponge

CIRRIPEDIA.

Balanus porcatus. *Du Costa*
 " *conceivus*. *Bronn*

CRUSTACEA.

Carcinus menas. *Leach* (portion of claw)

PLEISTOCENE MOLLUSCA.

Pholus crispata. *Linné*
 " *parva*. *Dru*
 Limestone, perforated by *Saxicava*
 " containing valves of *Saxicava rugosa*, var.
Arctica. *Linné*
Saxicava rugosa. *Lam.*
Panopea Norvegica (*Saxicava*). *Spengler*
Solen siliqua. *Linné*
Mya truncata. *Linné*
 " *arenaria*. *Linné*
Lutraria elliptica. *Lam.*
Macra glauca (*Helvacea*). *Born.*
 " *solida*. *Linné*
 " *stultorum*. *Linné*
 " *elliptica*. *Bronn*
 " *sub-truncata*. *Du Costa*
 " *truncata*. *Moul.*
Psammobea Forcensis. *Chemnitz*
Diplodonta rotundata. *Moutagu*
Tellina Balthica. *Linné*
 " *Solidula*. *Pult.* (the larger form of the Northern
 European T. Balthica)
 " *proxima*, var. *calesrea*. *Chemnitz*
 " *crassa*. *Pult.*
Syndosmya alba. *W. Wood*
Lucinopsis undata. *Penn*
Tapes pallastri. ? *W. Wood*
 " *Virginica*. *Linné*

Venus casina. Linné
 „ *gallina*, var. *striatula*. Don.
Cytherea chione. Linné (*Venus*)
Artemis exoleta. Linné
 „ *lineta*. Pult.
Lucina borealis. Linné
Astarte arctica (*borealis*). Chemnitz
 „ *sulcata*. Da Costa
 „ „ var. *elliptica*. Brown
 „ *crebricostata*. Forbes
 „ *compressa*. Montagu
 „ *undata*. ? Gould
Cyprina Islandica. Linné
Cardium edule. Linné
 „ *echinatum*. Linné
 „ *tuberculatum* (*rusticum*). Linné
 „ *aculeatum*. ? Linné
 „ *Norvegicum*. Spengler
 „ *Islandicum*. Gmelin
 „ *Grœnlandicum*. Chemnitz (*Serripes* Bk. sub-g.
Cardium)
Pectunculus glycymeris. Linné
Arca lactea. Linné
Leda pernula. Müller
Mytilus edulis. Linné
 „ *modiolus*. Linné
Pecten opercularis. Linné
 „ *pusio*. Linné
Ostræa edulis. Linné
Dentalium entalis. Linné
 „ *abyssorum*. Sars.
Littorina rudis. Maton
 „ *obtusata*. Gmelin

Littorina littorea. Linné
Turritella terebra. Linné
Natica catena. Da Costa
 „ *nitida*. Don (N. Alderi. Forbes)
Aporrhais pes-pellicani. Linné
Purpura lapillus. Linné
 „ „ var. *carinata*
 „ „ var. *imbricata*. Lamarck
Buccinum undatum (*normal form*). Linné
 „ „ var. *Labradorensis*. Reece
Nassa reticulata. Linné
 „ *nitida*. J. Freys
 „ *pygmaea*. Lamarck
 „ *incrassata*. Strömeyer
 „ „ var. *crassa*.
Murex erinaceus. Linné
Trophon truncatus. Strömeyer
 „ *clathratus*. Linné
 „ „ var. *Gunneri*. Lören
 „ *scalariforme*. Gould
 „ *ffaringtoni*. Alfred Bell
Fusus antiquus. Linné
 „ var. *contrarius*. Lamarck
 „ var. *carinatus*. Turton
 „ *gracilis*. Da Costa
 „ *propinquus*. Alder
Volutomitra Grœnlandica. Gray (Mitra. Lamarck)
Pleurotoma turricula. Montagu
 „ „ var. *pyramidalis*. Strömeyer
 „ *rufa*. Montagu
 „ *levigata*. Philippi
Bela woodiana. Leach ? (or may be *Pleurotoma nebula*.
 Montagu)

Cypræa Europæa. Montagu

Bone ?

Gravel cemented by Lime, the supposed débris of shells
of Mollusca

Tufa, enclosing vegetable stems

Fragments of Pre-historic Pottery found at a depth of
eleven feet.

(Miss) M. H. ffarrington.

LETTERS TO THE EDITOR

A CLARIFICATION

Am I allowed to correct and comment on John Cooper's Personal View of the Cardiff Colloquium? [GCG 2:3 pp. 95-97] In so far as he reports what I had to say he makes one outright error and an important misrepresentation of what I concluded.

The brachiopod project, and other Museum curation operations via computer are currently using the C.G.D.S. package. GOS does not come available to us until the spring of 1979.

My conclusions were that the preparation of formats suitable for ones material and the ordering of data for entry were long jobs, suitable perhaps only for large holdings, where adequate staff existed. My stress, however, was that such computerised systems provided the best way of capturing and recording all available data about specimens, and, especially in these days of over-collecting, it was the responsibility of all curators to keep full information with specimens. Thus my conclusion should have been that institutes having large holdings of specimens should find that systems such as that of the MDA provide the only satisfactory means of serving the interests of the science.

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

AN OPEN LETTER ON EXHIBITION IN NATURAL HISTORY MUSEUMS 9 November 1978

"Consternation" is certainly the most appropriate way to describe response to recent changes in the exhibition galleries of the Natural History Museum, London, as debated by Dr. Miles and Dr. Halstead (Nature Vol. 275, p. 682-3, 26th October 1978). But the implications of the new exhibition policy spread far more widely than among interested scientists: it will set the seal of approval on a trend which already has influenced many provincial and city museums. Its effect is to make the exhibits subservient to the story and therefore to use specimens (or substitute models or photographs) as adjuncts to a dominant theme.

Two of the clearest consequences may be mentioned. One is that the content of exhibitions no longer reflects the strengths of the collections and the development of "displays" independent of the collection resource can lead to questioning of the need to maintain the latter. This danger is more significant in provincial and local museums where the entertainment function is accorded a high priority and the collection function is less well understood by the managing committee.

The second consequence is that such highly structured exhibits can only be read in one way i.e. in the intended context, and often it can only be viewed meaningfully by following the prescribed sequence. This precludes the visitors' option to view selectively and his freedom to interpret facts for himself and to extract information in a context of his own choice.

The obsession to educate, in terms of a "message" usurps the role of a museum as a place of exploration and discovery. Dr. Miles should ponder on statistics he offers us to realise that the style of earlier exhibitions had not deterred the flow of visitors to the Natural History Museum nor will his innovations increase the enthusiasm of the "most common" age groups among the museum audience.

B. Abell Seddon,
Keeper of Natural History
Birmingham City Museums

PUBLICATIONS

Since we rarely notice mineralogical work in this newsletter it is a pleasure to notice two papers by Dr. W. Campbell Smith on the history of mineral collections.

The first was published in 1969. "A History of the First Hundred Years of the Mineral Collection in the British Museum, with particular reference to the work of Charles Konig".

Bull. Brit. Mus. (Nat. Hist.) Historical Series vol. 3, no. 8, pp. 237-259.

It gives details of the collections from the foundation of the B.M. in 1753 and of earlier collections of minerals. The major accessions of minerals in this period by the British Museum are listed in chronological order.

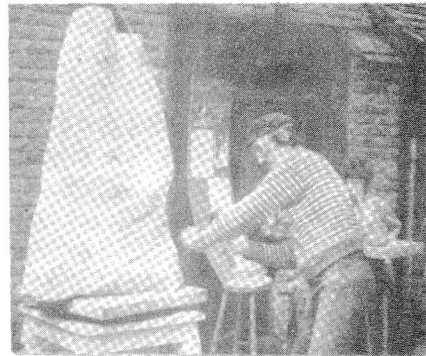
The second paper was published in 1978 "Early Mineralogy in Great Britain and Ireland".

Bull. Brit. Mus. (Nat. Hist.) Historical Series vol. 6, no. 3, pp. 49-74.

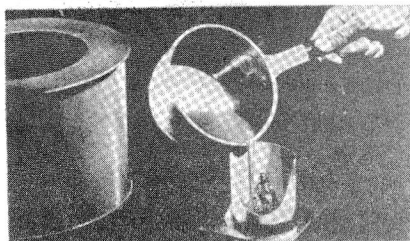
This reviews publications on and collectors of minerals from the days of the Foundation of the Royal Society - the first work discussed was published in 1661-up to the foundation of the Mineralogical Society of Great Britain and Ireland in 1876. Over these two hundred years Dr. Campbell Smith's paper reviews Early Natural Histories and catalogues, 18th and 19th century mineral collections, Early mineral analysts, the influence of Werner on the classification of minerals, Systems of mineralogy, Teaching of Mineralogy and the Development of Crystallography.

Both papers are accompanied by large and useful Bibliographies or notes. We must congratulate Dr. Campbell Smith on his continued scholarship of which we are perhaps best reminded by the fact that he has now been publishing on mineralogy for 70 years.

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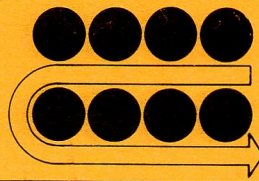
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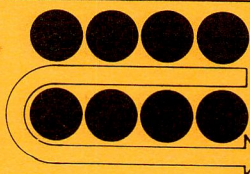
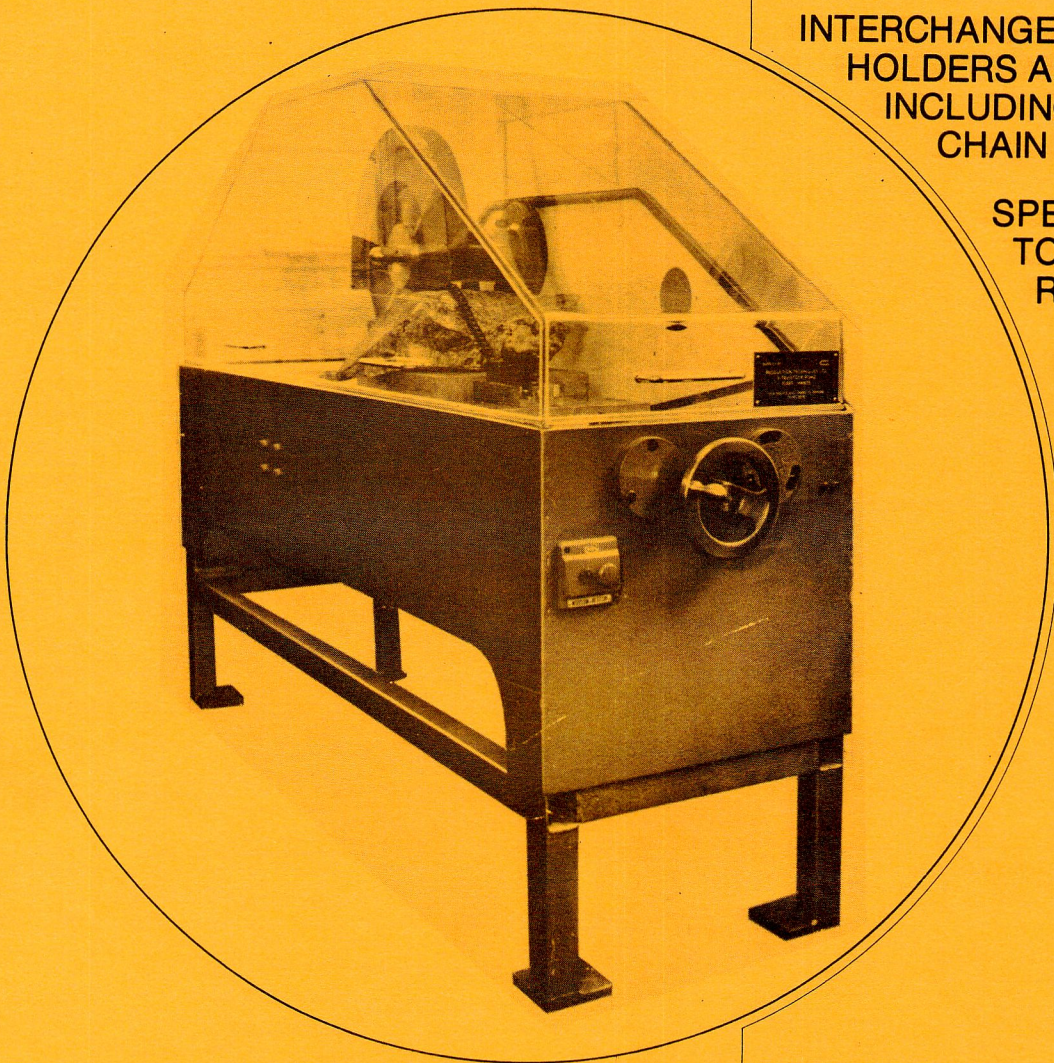
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