

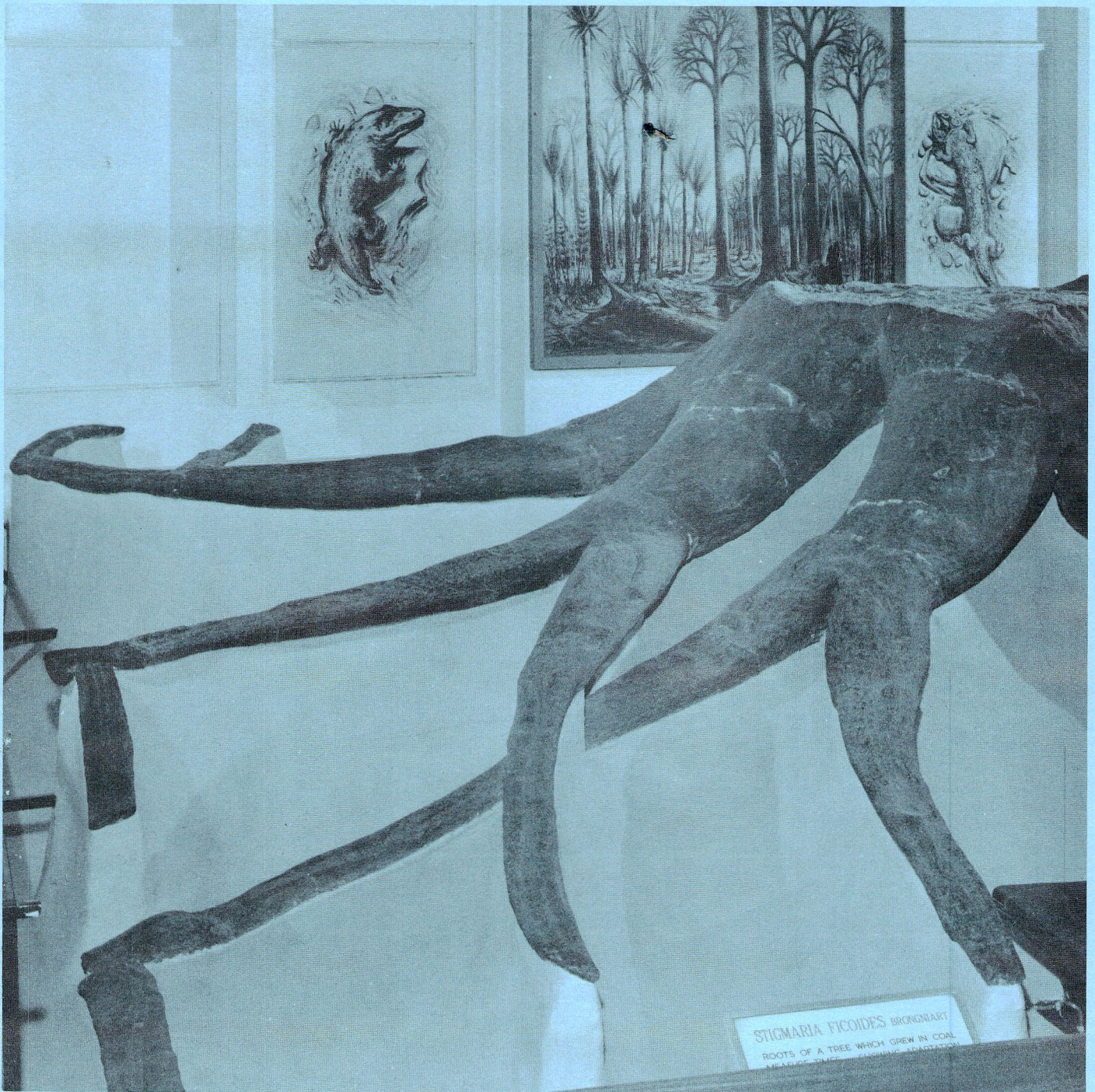
GCCG

NEWSLETTER
OF THE
GEOLOGICAL
CURATORS
GROUP

NUMBER 1

VOLUME 2

DECEMBER 1977



STIGMARIA: MANCHESTER MUSEUM

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 (0533 539111).

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GEOLOGICAL CURATORS GROUP

(AFFILIATED TO THE GEOLOGICAL SOCIETY OF LONDON)

CHAIRMAN: Dr. Hugh S. Torrens, Geology Dept., University of Keele, Keele, Staffs., ST5 5BG. Tel: Newcastle 621111, Ext. 93.

GENERAL SECRETARY: Mike D. Jones, Leicestershire Museums, Art Galleries and Record Service, New Walk, Leicester LE1 6TD.
Tel: 539111, Ext. 263.

TREASURER & MEMBERSHIP SECRETARY: John A. Cooper, Leicestershire Museums, Art Galleries and Record Service, New Walk, Leicester LE1 6TD.
Tel: 539111, Ext. 263.

EDITOR: Brian W. Page, Geology Dept., University of Keele, Keele, Staffs. ST5 5BG. Tel: Newcastle 621111.

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

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Actual date of Publication - January 20th 1978

ERROR OF OMISSION

The Editor wishes to apologise for the glaring omission from the National Plan for Museums featured in our last issue (GCG 10 p. 478-481) of the Hunterian Museum.

The relevant section on p. 480 should read:-

G. Scotland Area Council

Apart from the existing designation of the Royal Scottish Museum, (Scottish Education Department) which we fully support - regarding it as the National Museum for Scotland we wish also to propose a joint Glasgow centre of excellence based on

- 13.a) Hunterian Museum*
- b) (Glasgow University)
- c) collections rated 5

and

- a) Kelvingrove Museum
- b) (City of Glasgow District Council)
- c) collections rated 5 - rich in Type material for which see E. Campbell (1976). There seems to be no permanent geological post here.

The Panel's designation of the Botanic Gardens, Edinburgh is obviously inapplicable to this category.

COMMITTEE NOTES JULY - DECEMBER 1977

Following a decision earlier in the year to direct more effort towards collection documentation and "rescue", Committee has initiated a number of developments in this direction. Area Councils have been contacted to ascertain the extent to which they are willing to participate and the degree to which they can provide financial support. Discussions have been held with the Biological Curators' Group both to co-ordinate specific activities and to identify areas for possible future co-operation. Preliminary talks have also been held with the BM(NH) regarding a possible joint project to establish a national register of geological collections. These developments are however designed only to prepare the ground, since it is apparent that a substantial amount of discussion and consultation will be necessary before suitable policies and programmes for action can be determined. The results of the survey of collections undertaken by Phil Doughty on behalf of GCG will provide information of importance here. Much of the data has already been collated and a draft report, intended for publication, is in an advanced stage of preparation.

The first meeting of the Professional Groups Committee of the Museums Association, at which Mike Stanley represented the Group, was held on 19th October at the Science Museum. It was our hope that this Committee would provide the much needed platform for voicing "curatorial interests" within the Association, to which end we have argued that representation on the Committee should be restricted to disciplinary groups. Unfortunately, the Association has decided to make representation available to a wide range of organisations and there must as a result be some doubt as to whether the ensuing Committee will serve any useful purpose. Until such time as this and other matters relating to the Committee are resolved GCG will remain uncommitted to it.

The Groups submission of written evidence to the Standing Commission was completed in July when a second memorandum (reproduced in full in Newsletter No. 10 pp. 478-481) was completed. Copies of this and the first memorandum of 26th May 1976 were sent to all those institutions referred to therein, and the profession was informed of our submissions via the Museums Bulletin. The Panel of Assessors, having completed its work, has now been disbanded.

With regard to the Site Documentation Scheme, the CGSD (Committee for Geological Site Documentation) met for the first time, on July 28th at the Geological Society, when it formally assumed responsibility for the Scheme. It also met on December 7th. The Executive labouring under considerable pressure of work, has met three times. Membership of the CGSD and Executive is as follows:-

Dr. R. Clements (GCG nominee and Chairman C.G.S.D.)
 Professor D. L. Dineley (Geol. Soc. nominee)
 Dr. R. King (Min. Soc. nominee)
 Dr. J. E. Robinson (Geol. Assoc. nominee)
 Mr. D. S. Scott (Assoc. of Teachers of Geology nominee)
 Dr. P. Toghill (Pal. Assoc. nominee)
 Mr. J. A. Cooper (Executive Chairman)
 Mr. M. Stanley (Executive member)
 Mr. P. Phillips (Executive member)

To provide information both for participants in the Scheme and other interested parties the Executive will be issuing a newsletter, the first of which should be available in January. Anyone not based at a designated Centre, wishing to be placed on the mailing list should contact John A. Cooper, Earth Sciences Section, Leicestershire Museums, 96 New Walk, Leicester LE1 6TD. Institutions designated as Geological Locality Records Centres up to 29th November are listed below:-

BRADFORD METROPOLITAN DISTRICT MUSEUMS (CLIFFE CASTLE)
 BUCKINGHAMSHIRE COUNTY MUSEUM, AYLESBURY

CHESTER (GROSVENOR MUSEUM)
CLEVELAND COUNTY MUSEUMS SERVICE, MIDDLESBOROUGH
DERBY MUSEUMS AND ART GALLERY
DONCASTER MUSEUMS AND ART SERVICE
HANCOCK MUSEUM, NEWCASTLE UPON TYNE
MANCHESTER MUSEUM
MERSEYSIDE COUNTY MUSEUMS, LIVERPOOL
MUSEUM OF ISLE OF WIGHT GEOLOGY, SANDOWN
NORFOLK MUSEUMS SERVICE, NORWICH
NORTH HERTFORDSHIRE MUSEUMS, HITCHIN (LETCHWORTH)
PASSMORE EDWARDS MUSEUM
PLYMOUTH MUSEUM AND ART GALLERY
ST. ALBANS MUSEUM
SHEFFIELD CITY MUSEUMS
SHROPSHIRE COUNTY MUSEUM SERVICE, LUDLOW
TYNE AND WEAR C.C. MUSEUMS SERVICE, SUNDERLAND
ULSTER MUSEUM, BELFAST
WARWICKSHIRE MUSEUM, WARWICK
YORKSHIRE MUSEUM, YORK

THE FUNCTION OF LOCAL NATURAL NATURAL HISTORY COLLECTIONS

A conference on this theme was held at Liverpool on 22nd and 23rd September 1977, jointly organised by the Biology Curator's Group, Geological Curator's Group and Systematics Association. Abstracts of the papers presented appeared in the December Museums Journal. The following notes attempt to highlight some of the points of interest to our members.

J. Bateman started the ball rolling with a consideration of the origin of natural history collections, touching upon such issues as the psychology of collecting, developments in curatorial procedure and the social background to the rise of public museums. The importance of the professional curator in the growth of museums, and the problems arising out of past collecting policies were briefly discussed, notably the ethical and practical problems of repatriation of material. E. F. Greenwood and E. G. Hancock by giving an outline of botanical and zoological collections in N.W. England demonstrated the importance of local historical studies either through the personalities or the history of institutions. The wide interests of many early naturalists cut across modern discipline boundaries. Hancock, in particular, noted the wide disparity in present curatorial standards in museums of north-west England. However, the area's rich endowment with collections was clearly seen.

H. S. Torrens outlined several interesting examples of historical detective work on geological collections clearly showing what could be done by careful and diligent work. He noted that Woodward's advice to collectors as far back as 1728 is still applicable. (See cover of G.C.G. Newsletter 2: Ed.). Over enthusiastic "curation" notably in connection with disposing of material is a hazard that has always affected collections.

In the discussion, the lack of bibliographical expertise among students and indeed curators with the obvious need for guides to sources of information when beginning historical research on collections, were points raised several times during the conference. Historical research on collections was suggested as a suitable subject for a higher degree, but difficulties had apparently been experienced at the B.M. (N.H.) in finding suitable candidates.

P.J. Whitehead continued the historical theme and demonstrated how widely dispersed collections may become. Sadly there had often been a significant loss of information at each transfer of material. In the discussion it was pointed out that much of his work on old fish collections was applicable to researches in other fields owing to the multi-disciplinary cover of many early collections. Improved communications were important to avoid duplication of effort. The specialised archival needs of the natural history curator were recognised and a future meeting on the general use of archives was suggested.

The previous speakers mentioned were principally concerned with historical studies. The conference moved to more current issues with a discussion for and against retention of type specimens by provincial museums. Many participants perhaps hoped for fireworks but the session proved somewhat of an anti-climax with both speakers adopting a realistic middle-of-the-road attitude, resulting in an unexpected degree of unanimity.

P.J. Morgan called for an intensive effort to research collections and their documentation before removing known type specimens, and the need to be able to research the types in the context of the whole collection. Historical research done by provincial museum curators was very valuable, complimentary to the taxonomical work undertaken by institutions such as the B.M. (N.H.). He stressed the institutional responsibilities under the International Code for Zoological Nomenclature and clearly appreciated that many small museums were incapable of fulfilling them.

E.F. Owen noted the danger of non-recognition of type specimens and their significance by small museums, principally due to unqualified staff. He clearly recognised the undesirability and impracticability of wholesale removal of type specimens or entire collections to the B.M. (N.H.). He urged the formation of a national register of type specimens maintained by the B.M. (N.H.).

The concensus of both speakers and the meeting was that large provincial museums of our centres of excellence submission could be suitable depositories for type specimens. The contradictory needs of the taxonomist to have types of critical species side-by-side for comparison and the dangers of having all types under one roof were also expressed from the floor. It was pointed out that the session had covered little new ground to that discussed in previous Museums Journal articles by Singleton and Owens.

In the unfortunate absence of Dr. Hammond, a wide ranging discussion took place on the use and usefulness of provincial and also University museum collections.

Opinions were expressed on the role of provincial museums in taxonomic research, distribution studies and provision of reference series for local naturalists. Consideration was given to the type and value of taxonomic research currently undertaken by universities and polytechnics but concern was expressed over the long term security of university collections, particularly those in departmental "museums". The discarding of valuable material upon completion of research projects was seen as another problem and it was thought that larger provincial museums had a valuable role to play in acquiring this material. The value of published accounts and personal contact by the curator in promoting the use of collections was emphasised. An important point was also made that while museum collections generally contain a selection of choice specimens, the taxonomist might require a typical series. The main value of type specimens was in sorting nomenclatural problems.

I. Tittley, presented an excellent example of a good working relationship between the B.M. (N.H.) and provincial museums in distributional studies of marine algae. He recognised the contribution of published historic local guides and surveys "hidden" in the literature. The compilation of guides to the local literature would seem a worthwhile task for local curators. Support was voiced for a system of short-term grants to enable subject specialists to tour provincial museums.

F.H. Perring outlined the work of the Biological Records Centre, principally the botanical side. Although very interesting, it was not of immediate relevance to the geologist. He stressed, however, that collections which were clean and accessible with comfortable study facilities were more likely to attract visiting researchers. Among the optional extras suggested was a convenient bottle of whisky!

Both R.J. Cleevly and P. Doughty gave progress reports on surveys of museum collections and their documentation. Publication of Cleevly's work in full is eagerly awaited. Cleevly presented a valuable resume of previous attempts to document the location of collections culminating in his current efforts at an updated Sherborne - "Where is the collection". A brief discussion emphasised the need for a guide to the literature on collection information. The methods of historical research into collections must be outlined in every curator's training and several of the speakers agreed to collaborate in producing a literature guide for this work. Possible publication difficulties for highly specialised works such as collection catalogues was appreciated. Doughty defined

the criteria necessary for a national documentation scheme for museums and explained how this could provide a mutually beneficial channel of communication between small and large museums. He urged all geological curators to recognise the scale of effort required to document our collections, since there are approximately 75,000 specimens per qualified museum geologist waiting to be incorporated into the system. The opinion was expressed by the meeting that although we must move towards a national scheme, the urgency is such that the initiative must be taken up at a local level. Since the meeting, we note the formation under the auspices of the North-West Area Services of the North-West Collections Research Unit of biological curators which is currently undertaking this problem.

The talk of M. Walters provided a welcome change by directing the attention of the meeting from long dead specimens to the problems of living collections. It was clearly indicated that even the maintenance of living specimens in isolation was a poor substitute for the conservation of them in their natural habitat. One of the points raised in discussion was the definition of a museum. It was concluded that on present criteria, botanic gardens and micro-organism culture centres were museums but that the lack of public access to Porton Down germ warfare establishment made that institution ineligible!

I.D. Wallace,
P.W. Phillips
Merseyside County Museums

Hints for rendering the British Museum more useful.

We were admitted at one, without delay, and accompanied by a guide: we entered the first room of the suite, containing the curiosities brought from various barbarous (as we are wont to call them) regions. On these I had no wish to dwell; I had seen similar collections frequently; and after taking a hasty glance, I was passing on to the second room, but was stopped by our conductor, who told me that twenty minutes were allotted to each room, and that it was not permitted to leave the party. I was of course obedient, and occupied the remaining time in listening very particularly to the loud comments of one of the company, a plain decent-looking man, who, having picked up one of the printed pasteboards describing the cases, read it over for the edification of his wife and children. After passing through another room or two, we came into that in which the minerals are placed. Here, thought I, I shall be gratified. I had been studying mineralogy theoretically, and I longed to see a named collection of objects, that I might have some correct idea of the granite, feldspar, etc. etc. about which I had been reading. Accordingly I hastened to case No. 1, and with the aid of the names attached to a few of the specimens, I was gaining some accession of knowledge. I had not, however, looked over this case before our conductor approached me, told me that the time allowed for viewing that room was gone, and that I must accompany the groupe; which, on looking up, I perceived had already passed to the next. It was in vain to expostulate. The conductor was a very civil man, and was merely conforming to his orders. But mortified and disappointed I most certainly was; and finding it utterly impossible to reap any pleasure from such a hasty glance as was permitted us, I amused myself through the remaining rooms by keeping close to my companions, and listening to their exclamations of wonder, and unanswerable queries, to those about them. To make an end of my story, I was glad when the exhibition was over, which, though supported in part with my money, had afforded me much less information and pleasure than many a travelling museum, to which I have gained admission for a shilling. In my way home from London I took Oxford; and there the Ashmolean Museum, though not containing one-tenth part of the objects which adorn the British, afforded me infinitely greater gratification and advantage; and for this plain reason: that I was suffered to walk about the room as long as I liked; that every object had a ticket with its name affixed; and that I was permitted to direct my exclusive attention to that department which most interested me.

The above plain statement proves, I think, that three grand defects attend the present arrangements of the British Museum, which might, and certainly in a public institution, supported by the nation, ought to be remedied. 1st. The difficulty and loss of time in gaining admission. This, to those to whom time is valuable, to men of business, and to strangers passing through London, is a great evil. Except to those who reside in the immediate neighbourhood of the Museum, a whole morning must be wasted in order to spend two hours in viewing it. 2nd. The want of names, vulgar and scientific, attached to the objects. These names are, in a few instances, given, and but in a few. Could there be any thing difficult or impracticable in extending them to all. What are the scientific men connected with the Museum paid for, if they cannot ascertain the names of every thing in it, natural and artificial; and where would be the difficulty of printing their names in legible type, and affixing them to every article? 3d. The limited time for viewing the collection, and the restraint imposed upon spectators as to what they shall direct their attention to. This is the greatest evil of the whole: of what use is such an institution, if it cannot be made subservient to the studies of those who have access to it? But what advantages can the antiquarian, the mineralogist, the ornithologist, or the conchologist, derive from a twenty-minutes interrupted glance at some thousands of objects? I shall be told that persons properly introduced, may have access

to the Museum at other times. But, how many humble students of Nature are there that never can be so introduced! Is it supposed that no man studies nature or art, without having some great acquaintance to perform this service for him? Nothing could be more ridiculous or contrary to truth, than such a supposition. Besides, not even the trouble which this requires to those who have the means, should be necessary to obtain access to an institution, to which every man who pays taxes contributes. On the present establishment of the British Museum, I have no hesitation in asserting that the comparatively small, but respectable, collection of the ingenious Mr. Bullock, of Liverpool, to which every man may have free and unrestrained admission for his shilling, is infinitely more adapted to the furtherance of science, and vastly more productive of amusement and gratification.

But now to the remedy for these defects: and this is very simple, obvious, and unobjectionable. Let every decently-dressed male and female above the age of twelve, have free entrance into the Museum, at seasonable hours; and unrestrained access, for an unlimited time, to any part of the collection. Let all the objects be in glass cases, and ticketed with their names common and scientific. Let there be stationed in every room a person, whose sole business it shall be to see that nothing is improperly meddled with or taken away. It is not necessary that these inspectors should know anything about the collection. If they have eyes it will be sufficient; and ten or twelve respectable old men might be found to sit a few hours daily in the Museum, for half the sum that is now spent in the salaries of guides.

From a letter to the Editor of the Monthly Magazine, October 1st. 1810.

CAR PROVIDED

Geoff Stansfield of Leicester University kindly sent us the following notice from the Museums Association Bulletin, September 1976. It is of course much too late to apply!

The great significance of the notice is that one Area Council is now prepared to countenance the idea of a peripatetic roving curator for museums in Scotland. Such an idea could be very usefully implemented in Geology.

Council for Museums and Galleries in Scotland

Curator

Salary: AP3 (£3,786-£4,137) or 4 (£4,269-£4,707) or 5 (£4,857-£5,310) depending on qualifications and experience. NJC conditions of service.

To be available as a peripatetic curator to museums in Scotland for projects or on a regular consultancy basis. The Curator will also assist the Director in other advisory and grant-aid activities of the Council with particular involvement in promoting the educational use of museums, curatorial aspects of circulating exhibitions, and organizing a product/service data index.

A good degree, the Diploma of the Museums Association preferably but not necessarily in human history, and some years' experience are desirable. The Curator will be expected to drive a car.

Applications by letter stating age, details of qualifications and experience, and present salary, together with the names of two referees, to be sent to Martin Norgate, Director, Council for Museums and Galleries in Scotland, Tolbooth, St John Street, Stirling, by 24th September.

COLLECTIONS AND COLLECTORS OF NOTE

14. THE MANCHESTER MUSEUM

The following notes provide an outline of the history of the Museum, its scope and services, and of some of its more important collections. Emphasis has been placed on the last twenty-five years, that is since Jackson (1952) compiled a list of type and figured specimens in the Department of Geology. Since this time the growth of both figured and cited specimens, especially amongst material added to the collections, has made a list considerably beyond the scope of an article for the Newsletter. All the additional figured specimens will eventually be listed in a separately published supplement to the 1952 catalogue. However it is possible to list here new type specimens (Section B, below) and some references to literature which cover both them and also a number of major additions to the collections (Section C). To the list we have added a few references to the history of the Manchester Museum geological collections and to the biographies of some of the early collectors who made large contributions to the very extensive range of geological material under our care.

A. HISTORY OF THE MUSEUM, ITS PRESENT SCOPE AND SERVICES

1. Formation of the collections: buildings

The nucleus of the collections of the Manchester Museum was acquired in 1821 when the Manchester Society for the promotion of Natural History was formed. The Society initially wished to purchase a collection of birds and insects from T. H. Robinson, and its aim was to form a collection of specimens to illustrate various branches of Natural History. The collections were at first housed in King Street and at an early stage included geological specimens, but as the total grew several moves had to be made. New premises were eventually built at the junction of Peter Street and Museum Street, where the present Y.M.C.A. building stands and the collections moved there in 1835.

The Manchester Geological Society, later to be called the Manchester Geological and Mining Society, was formed in 1838 and also built up a large and varied collection. This grew so much that it became an embarrassment to them, its maintenance and housing proving so difficult that the Society seriously considered disbanding. However, in 1850 their collections were merged with those of the Natural History Society, and from this period the geological collections remained open free to the public.

The Natural History Society did not remain free of financial problems for long. Original subscribers had died, the sole curator struggled with ever increasing collections and no money, and there was a strong feeling within the Society that the museum should be moved to a less expensive site. Eventually attempts were made to offer the museum to the Corporation, and when these failed an offer from the newly formed Owens College (later to become Manchester University) was accepted in 1867. Owens College was then at Quay Street, but in 1873 the collections were moved to new buildings off Oxford Road, where they were housed on the top floor of the present Main Building.

The first block of the present Manchester Museum fronting Oxford Road was opened in 1888 and the geology collections housed on the ground floor. These two galleries, together forming the Stratigraphical Hall, still retain to-day a number of the original cases. Further extensions were made in 1912 and 1927, providing both more display and storage space.

In 1975 the Museum was once more extended, into the building formerly occupied by the University Metallurgy Department, allowing new storage to be provided for part of the geology collections and new offices. A large part of the collections, however, is still stored in cupboards under the display cases in the galleries.

2. Finance and responsibilities

The geological collections of the Manchester Museum, along with those of all its other departments, belong to the University. However in 1895 the City of Manchester made the first of a continuing series of annual grants to the University for the Museum to serve also the public. The dual purpose of the collections is best seen in the wide range of level at which we try to pitch new geological exhibits, and in the extensive use made of them by children through the Museum's Education Department (see Section 5 below). The latter continues with the support of the City and, since 1972, of Cheshire Education Committee, whereas since 1973 the Greater Manchester Council have taken over the City's responsibilities for the collections. Moreover the Department of Geology has contributed its share to the travelling exhibitions and small exhibits which the Museum prepares for circulation both within the G.M.C. Area and also in the northwest generally.

3. Staff

One of the first decisions made by the Natural History Society in its new premises was to appoint a paid curator, who would work under the close supervision of four honorary curators. W. C. Williamson, of Scarborough, was appointed at the age of 19 on a salary of £110 a year and designated "Chief Curator, General Manager and Superintendent of the Society's Museum". Williamson (1816-1895) (Ref. 30)[†], whose father was Curator of Scarborough Museum for twenty seven years, had met both William Smith and Roderick Murchison while still a child. His autobiography (Williamson 1896) gives an amusing insight into his life, which encompassed not only his three-year curatorship at Manchester, but an apprenticeship to a doctor, medical practice and a Professorship of Zoology, Botany and Geology at Manchester.

When Williamson left in 1838, Captain Thomas Brown (Ref. 6) (1785-1862) of Edinburgh took his place, eight other candidates being rejected because of "the parties appearing to be wholly unacquainted with Natural History." Brown appears to have worked exceptionally hard on behalf of the Museum, especially in its later years when there was little money and no extra staff, and his death in 1862 may well have influenced the Natural History Society in its move to relinquish its collections.

Among the most well known of the Museum staff was William Boyd Dawkins (Ref. 10) (1837-1929) appointed Curator in 1868. He continued to be in charge of the collections even after his appointment as Professor of Geology in 1874 and, like Williamson, added to the collections over a considerable period. His work on the Pleistocene is perhaps best known, although his notebooks and diaries, held at the Museum, show he had catholic tastes and was involved in much work which remained unpublished.

Herbert Bolton (Ref. 4) (1863-1936) took charge of the geological collections when W. B. Dawkins' university responsibilities became too great for him to continue. A Lancashire man by birth, Bolton eventually took charge of Bristol Museum. Part of his Coal Measures collection is now held at Bacup Natural History Society Museum.

In recent years the Museum Department of Geology has received some voluntary help, but under close supervision. However it appears that in the Nineteenth Century and in the earliest Twentieth specimens were used extensively for University teaching without direct supervision by Museum staff. Since the middle 1930s the University Department of Geology began to form its own stored collections, much of these from the work of research students. These collections have continued to grow up to the present time and are now under the care of Dr. R.W.D.Elwell, who is also Librarian of the University Department of Geology.

[†] References of this sort refer to numbered items in Part C.section iii, pp.39-40.

We gratefully acknowledge his assistance on several enquiries we have received and need only stress that the Museum, on the one hand, and the University Department of Geology on the other, have been acquiring, since about 1930, collections which are in general mutually complementary (but see p. 22 of this MS) furthermore that after this time, and often as early as 1925, all maps produced by members of the University as well as nearly all their collected material was and still is stored in the University Department of Geology.

Staff responsible for the geological collections within the Museum were:-

Natural History Society Museum

1821 - 1835	Thomas Hewitt
1835 - 1838	W. C. Williamson
1838 - 1862	Capt. Thomas Brown
1862 - 1868	Thomas Alcock

Transfer to Owen's College

Assistant Keepers (Curators) of Geology

1868 - 1889	W. B. Dawkins
1889 - 1898	H. Bolton
1898 - 1900	C. B. Crampton
1900 - 1901	E. L. Gill
1901 - 1907	W. J. Hall
1907 - 1945	J. W. Jackson
1945 -	R. M. C. Eagar (title changed to Keeper of Geology in 1957)

The post of Assistant Keeper was initiated in 1965 and carries also responsibility for the mineralogical and petrological collections. Assistant Keepers comprise

1965 - 1968	Barbara J. Pyrah
1968 - 1974	D. R. A. Rushton
1974 -	Rosemary Preece

4. Collections

Early collections, pre-1867: From the Minutes of the Natural History Society it is obvious that their collections were most extensive when the transfer to Owens College took place. However it seems that many of the specimens were stored in cramped conditions, some to be retrieved from cellars in the old building, and a great deal of early documentation has been lost. Major items donated in the period before the move are listed, but only those marked with an asterisk can be positively identified now.

1822 JOSEPH STRUTT (1765-1844) (Ref. 23)	A collection of minerals purchased from Joseph Strutt of Derby by the Natural History Society. This collection was inspected by Dr. Henry, a Society member, in 1822 and then comprised about 2,000 minerals at a price of 100 guineas. Joseph Strutt was the third son of Jedediah Strutt, inventor of the ribbed stocking! Joseph built up a large art collection, certain items from it now being held at Derby City Museum and Art Gallery.
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*1825 JESSE WATTS-RUSSELL (of Ilam Hall, Staffs.) (1786-1875) (Ref. 28)	A basalt column collected by Sir Humphrey Davy.
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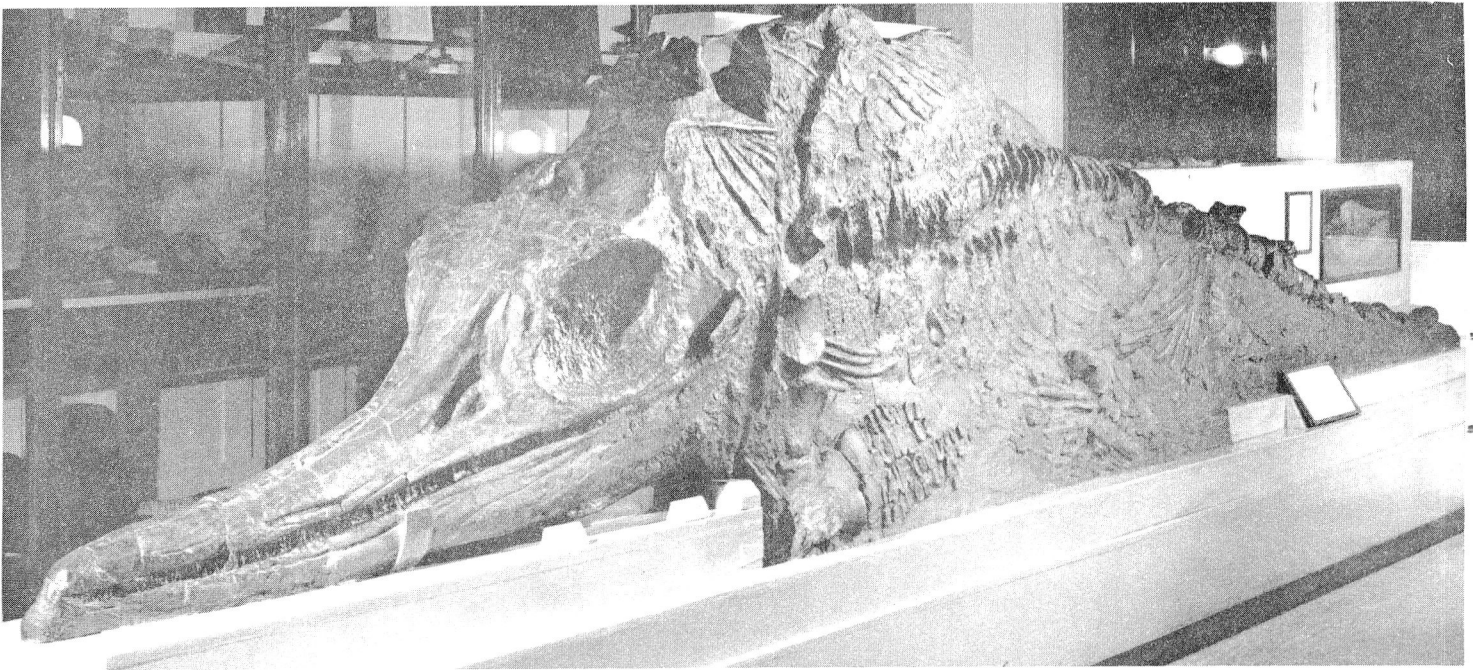


Fig. 1 *ICHTHYOSAURUS CRASSIMANUS* Owen Upper Lias, Whitby , Yorkshire

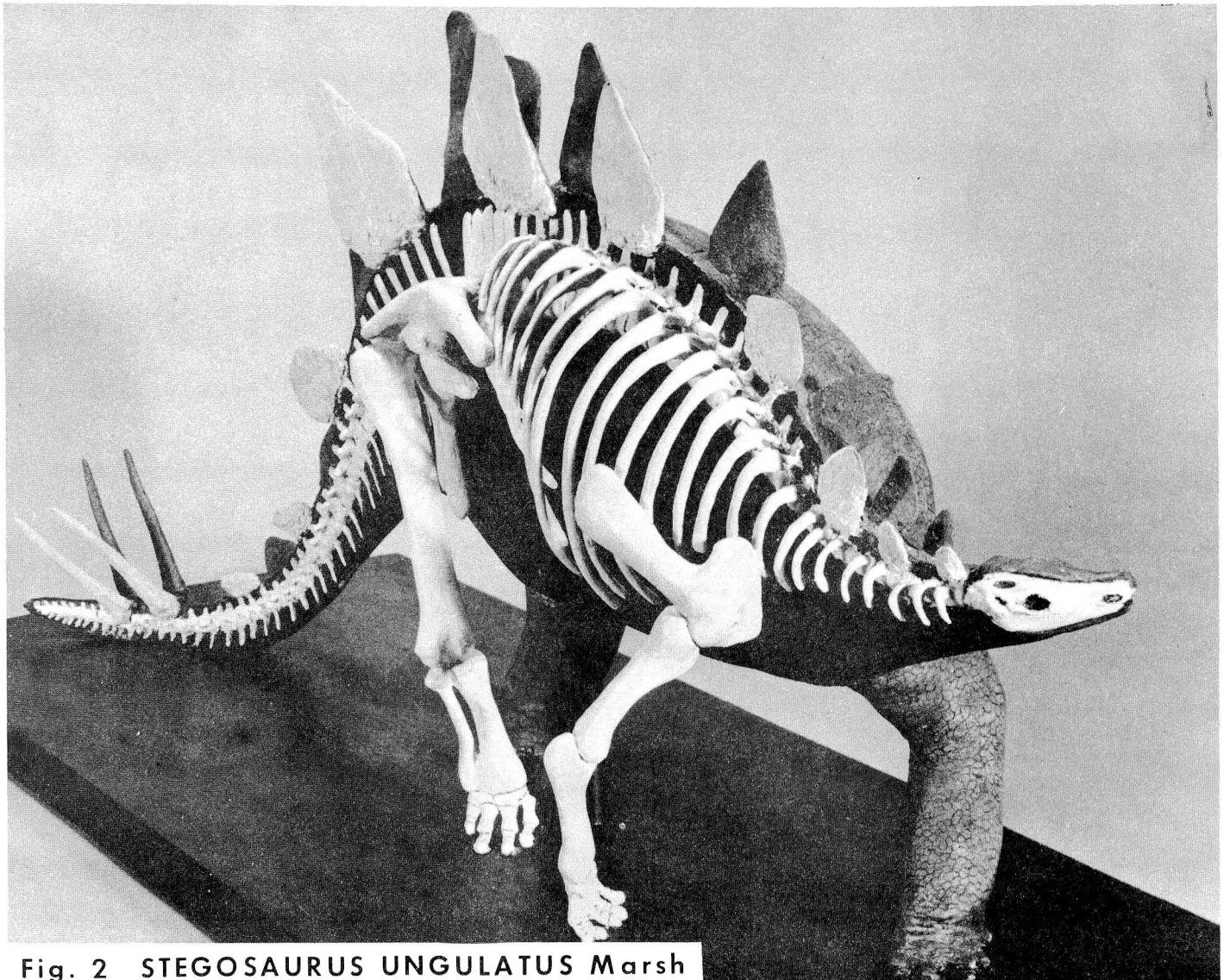


Fig. 2 *STEGOSAURUS UNGULATUS* Marsh
part flesh, part skeletal restoration at one tenth natural size

- *1835 HENRY BARTON Two hundred specimens from Vesuvius.
- *1837 WILLIAM CRAWFORD WILLIAMSON (1816-1895) (Ref. 30) A large collection of fossils purchased, including ammonites figured by Thomas Brown. After leaving his employment at the Museum in 1838 Williamson returned to his medical studies, later taking up the new Chair of Natural History at Owens College.
- *1838 JOHN EDDOWES BOWMAN (1785-1841) (Ref. 5) Four large tree stumps from the Coal Measures of Dixon Fold, Bolton (Bowman 1841)
- A banker by profession, Bowman worked in Welshpool until his retirement to Manchester in 1837. A wellknown naturalist and botanist, he was one of the founder members of Manchester Geological Society. He wrote papers on the origin of coal and the Silurian of Llangollen in Trans. Manchr. geol. Soc. 1 (1841).
- 1840 JAMES HEYWOOD (1810-1897) (Ref. 15) Presented one hundred specimens of minerals and other geological material from Elba.
- *1842 ----- Purchased a collection of crinoids from the Carboniferous Limestone of the Bristol area, and also Apiocrinus from the Bradford Clay. The collection includes some originals of figures in George Cumberland's 'Reliquiae Conservatae' of 1826.

It is noted in Stirrup's address on the history of the Manchester Geological Society that Heywood donated "an important series of about 4,500 specimens of fossils and minerals, collected by Mr. George Cumberland, of Bristol, a well known geologist of the day" to the Geological Society museum in 1838. It seems, therefore, that he purchased the whole of the collection as advertised (see overleaf).

- *1847 JAMES HEYWOOD & GEORGE HADFIELD Presented a fine Ichthyosaurus over 19 feet (1787-1879) long from Whitby (Fig. 1). (Ref. 15) (Ref. 14)

George Hadfield was an attorney in Manchester for forty years, and represented his home town, Sheffield, as an M.P. from 1852 to 1874.

- *1847 SAMUEL GIBSON (of Hebden Bridge) (1790?-1849) (Ref. 13) A collection of over 230 fossils from the Namurian of Hebden Bridge district and 345 fossils from the Carboniferous Limestone of the Craven district, purchased by Manchester Geological Society. These collections include specimens described by Captain Thomas Brown (1841). Gibson is perhaps better known as a botanist, and some of his herbarium is still held at Buile Hill Mining Museum, Salford.

1867-1890: Several important collections were acquired in the take-over by Owens College. The major mineral catalogue for the Museum dates back to this period (1877), when all mineral specimens were numbered and a record of their identification, form and locality was made. 1128 minerals were listed in the catalogue, few of which can now be traced with certainty. Some major items include:-

- 1875 DAVID HOMFRAY (1822-1893) (Ref. 16) Cambrian fossils, including some types described by Salter and Hicks.
- 1875 and onwards ROBERT DUKINFIELD DARBISHIRE (fl.1865-1889) (Ref. 9) Made a series of presentations of fossils from almost all Systems.



MR. CUMBERLAND'S

SELECTED CABINET OF

BRITISH ORGANIC REMAINS,



Catalogued and Arranged in the order of their Stratification.

THE Worcester Natural History Society having announced by advertisement, in Berrow's Worcester Journal of Thursday, November 10th, 1836, that their council had appointed a committee to devise the means of making the purchase of the above Cabinet; and that committee having reported "that they were satisfied with the excellence of the Collection, and that the sum required for it is far below its real value," a subscription was commenced, and the names of the subscribers at the first meeting printed; the amount of which was considerable: but, owing to unforeseen circumstances, a sufficient sum not having been raised, the purchase has been declined; and this Collection is still on sale by Private Contract, which consists of the most interesting Animal and Vegetable Remains of Great Britain; nearly all the known *Belemnites* and *Orthoceratites*, as well as a very complete series of *Encrinital* Remains, several of which are unique, contained in ten separate drawers, including nearly all that are now known, and embracing a selection of about 224 heads, with the entire series of beautiful Specimens of the Bradford *Encrinites*; to which are added, a very few foreign ones from Germany. The number of Specimens, including the *Encrinital* Remains, are 4,728, as per catalogue; but in this number are not included many minute Shells and interesting varieties deposited in trays, and not catalogued.

The price of the Collection, Cabinets included, is £400.

Applications may be made, post paid, to

MISS CUMBERLAND, CULVER STREET, BRISTOL,
by any individual, or society, wishing to become the purchaser.

1877 DAVID FORBES (1828-1876)
(Ref. 12)

A large collection of minerals, rocks and fossils was purchased shortly after Forbes' death. The mineral collection is a particularly good one and forms the bulk of the present systematic collection. Forbes, brother of the more celebrated Edward, was educated at Edinburgh University, but spent most of his working life abroad, superintending mining work. First in Norway and later in South America (primarily in Chile, Peru and Bolivia), he amassed an excellent collection. His notes, held at the Museum, show that he exchanged material with several major workers of that time. All his specimens are well documented, usually with precise localities.

1883 'Mr BIRD'
(Ref. 2)

A general collection of minerals and fossils, purchased.

This is very probably CHARLES BIRD (1843-1910) who was Second Master at Bradford Grammar School when he published work on the Red Beds at the base of the Carboniferous Limestone in N. W. England. In 1881 he published a short sketch of The Geology of Yorkshire (London, Simpkin, Marshall & Co., Bradford; Thomas Brear), becoming Headmaster of Sir. J. Williamson's Mathematical School, Rochester, Kent the same year. The purchase of a general collection of minerals and fossils from him, recorded in 1883, may well indicate the disposal of his material collected in Lancashire and Yorkshire, following his move southward.

1886 W. C. WILLIAMSON
(Ref. 30)

Our magnificent STIGMARIA from Clayton, near Bradford (cover of this issue). For an account of its discovery see Williamson 1896., p. 186.

1889 and onwards WILLIAM BOYD
DAWKINS (1837-1929)
(Ref. 10)

Began to present fossils and rock specimens of all ages, but with later strong emphasis on Pleistocene mammals. His collections, separately registered, include the major part of the vertebrate and other fossils collected by him from caves and river gravels. Our collections from Dove Holes, Creswell Crags (earlier work) and Windy Knoll, Derbyshire are particularly important. Dawkins was born in Welshpool and educated at Oxford. He worked first for the Geological Survey before moving to Manchester and to Owens College in 1870. At first Curator of the Museum, he later became Professor of Geology, although still serving the Museum in an honorary capacity. He was knighted in 1919.

1890 CHARLES ROEDER (1848-1911)
(Ref. 20)

Born in Germany, later moved to Manchester and was interested in a variety of natural history subjects, but primarily in prehistoric archaeology.

Of his numerous papers his work on Alderley Edge (Roeder 1902) is of particular importance to the museum, although not in itself a work of great scholarship. In his lifetime his collections were a feature of the 'Old Manchester and Salford Exhibition' at Queens Park, Manchester. He presented a very extensive series from the Permian marls of the Manchester district and from the Zechstein of Gera, Thuringen (see Geinitz 1893). A large amount of well documented local Drift material was also included. The Museum keeps the original photographs and section of the exposure of the Upper Coal Measures of Slade Lane, Burnage described by Roeder (1892).

1891-1945: Accession registers for the geology collections were started in 1891. Although there was a large influx of material into the Museum, both during this time and earlier, relatively little was entered into the registers, exceptions being material from the Boyd Dawkins collections and, later, from those of George Wild (see below).

- 1891 SYDNEY SAVORY BUCKMAN (1860-1929) (Ref. 7) Purchase of 110 ammonites, including type and figured specimens.
- 1893 Sir UGHTRED JAMES KAY-SHUTTLEWORTH (1844-1939) (Ref. 17) Presented fossils from the Burnley coalfield, mainly plants.

He was landowner of Gawthorpe Hall, Burnley, and coalowner. Member of a coal-owning family whose name was familiar on coal trucks to anyone who travelled on the railways before nationalisation in 1947. Chairman of the Royal Commission on 'Canals and Waterways 1906-11.' Created First Baron Shuttleworth in 1902.

- 1893 ROBERT CAIRNS (1854-1911) (Ref. 8) Presented a series of Tertiary fossils from the Isle of Wight.
- 1896 GEORGE WILD (1827-1903) (Ref. 29) Collections of Upper Carboniferous plants and animals, all meticulously labelled, were purchased from George Wild. The collections include much material from the important Diamond Pit sinking at Bardsley, Ashton-under-Lyne (Wild 1886; Tonks et al. 1931, p. 35). Wild was a mines inspector who published several other papers in the Society's Transactions. His knowledge of Coal Measure palaeontology and regional stratigraphy was greatly respected by its members who made him an Honorary Member (Trans. Manchr. geol. Soc. 25, pp. 321, 359).

A description of Wild's early life, written by himself in 1897, is held at the museum. This shows that Wild's father had an even better collection than Wild himself, which he was so proud of that he would allow no one else to touch it. It seems possible that this earlier collection was incorporated in Wild's own on the death of his father. His manuscript throws an interesting light on Victorian collecting methods. His schoolmaster (Mr. Whitehead) would offer "halfpennies to the scholars to procure him shells from the shales of the surrounding pit-heaps."

- 1896 JONATHAN BARNES & WILLIAM FIRTH HOLROYD (1855-1928) (Ref. 1) Jointly presenting a number of papers to Manchester Geological and Mining Society, together and separately these workers donated numerous fossils of Lower Carboniferous and Namurian age at this time and later (see below), including the original material of Barnes & Holroyd (1898).
- 1901 PERCY MANNING Presented Jurassic fossils, mainly reptilian bones, from the Oxford district, and some Pleistocene Mammalia.
- 1901 The Rev. ARTHUR DIXON (1862- ??) (Ref. 11) A large collection of minerals, rocks and fossils of all ages, presented.
- 1901 WILLIAM HENRY SUTCLIFFE (1855-1913) (Ref. 24) Presented a fine specimen of Mirocleidus homospondylus (Owen) and Sthenarosaurus dawkinsi Watson, genoholotype, both from Whitby, with other Mesozoic reptilian bones.

1907 CAROLINE BIRLEY (1851-1907)
(Ref. 3) A bequest from Miss Caroline Birley of minerals, rocks and fossils of all ages proved particularly rich in zeolites from the Faroes and in Tertiary Mollusca. She spent a large part of her life collecting geological material, all of which she labelled with the utmost care, storing it in an iron 'museum' building in her garden in Manchester and later transferring it to premises in London.

She was a subscriber to the Geological Magazine from the age of thirteen, and her extensive collections reflected this early interest. On her death her collections were first offered to the British Museum, for them to take their choice, and the remainder came to Manchester. Our correspondence at this time notes the gift of 64 Iceland zeolites, 116 Faeroe zeolites, 69 zeolites from various localities and 20 boxes of minerals and fossils. Duplicate material was offered to Bury, Radcliffe, Rochdale, Salford, Bolton and Warrington Museums, and Manchester Grammar School.

She was the author of several books, mostly light romantic fiction and stories for children. Who but a geologist would dare to include in an otherwise banal romance a hero working on a monograph of recent and fossil foraminifera?

1907 MARK STIRRUP (1831-1907)
(Ref. 22) A bequest mainly of European rocks, minor minerals and fossils including Permian non-marine bivalves from Russia and nine important insects from the Coal Measures of Commeny, France. Some of his original field note books, photographs and maps are also held. Mark Stirrup was a well known figure in Manchester, and especially in Manchester Geological and Mining Society, where his death was the cause of much distress. He was a close friend of William Boyd Dawkins.

He lived in France for several years, and appears to have been equally fluent in both French and English. Some of his field notebooks held at the museum are written in French, with references to continental museum displays of the 1890s.

1908 JOHN WARD (1837-1906)
(Ref. 26) A collection of Lower Carboniferous and Coal Measures fishes was purchased from J. Ward,

a Midland palaeontologist, who worked specifically on the North Staffordshire coalfield, particularly applying himself to correlating the most important coal seams. He published extensively, although in business all his life, but the majority of his collection was studied and described by others. A large proportion of his fossil fish collection was purchased by the British Museum in 1894, leaving him free to devote most of his time to mollusca and plants. Our main collection of his was purchased after his death, and consists mainly of Lower Carboniferous and Coal Measures fish.

1908 WILLIAM ALBERT PARKER
(1855-1918)
(Ref. 19) Collector of the fauna including unique arthropods exposed in Westphalian A measures at Sparth Bottoms, Rochdale, but now no longer accessible. The Museum possesses the bulk of the Parker collection, but some important types went to the British Museum.

1918 S. S. BUCKMAN
(Ref. 7) A further 325 ammonites were purchased, adding to the collection of 1891. There is a separate Buckman catalogue.

- 1925-6 JOHN WALTON (1895-1971)
(Ref. 25) Later Professor of Botany at Glasgow University, presented a fine series of Lower Carboniferous plants including type and figured specimens (Walton 1931).
- 1927-8 JONATHAN BARNES
(Ref. 1) Donated minerals and fossils, mostly from the Viséan of Derbyshire and including many corals.
- 1930 W. F. HOLROYD Lower and 'middle' (mostly Namurian) Carboniferous fossils from various localities.
- 1932 DAVID MEREDITH SEARES WATSON
(1886-1973)
(Ref. 27) Donated a number of well preserved Triassic fishes from New South Wales, collected by the Rev. R. T. Wade (see Hutchinson 1973, 1975).
- 1936 EDWARD W. J. MOORE (1887-1970)
(Ref. 18) Presented a series of Lower Carboniferous and Namurian goniatites donated by the collector and including a number of type and figured specimens. Moore was a schoolmaster living in Haslingden for most of his life. He did pioneer work on the goniatite succession in the area of Pendle and Dinckley, Lancashire (Moore 1936), presenting also much material to the Institute of Geological Sciences, then the Geological Survey.
- 1944 F. A. HOLMES Presented a window made from 180 pieces of Blue John and fluorspar from Ashover. Other Derbyshire lapidary work from Holmes includes three inlaid black marble obelisks, the work of Woodruff of Buxton.

In this period research students at Manchester University began to add to the Museum's collections. Of these the most important contributors were Marie Stopes (coal ball material) and D. M. S. Watson (Ref. 27) (various fossils, including coal ball material with Marie Stopes, and later fish, with emphasis on specimens from the Old Red Sandstone).

Dr. J. W. Jackson, in charge of the Geology Department for a large part of this period, contributed his own collected material to nearly all the major groups of fossils unique to the Museum. He has made a detailed study of the early history of the Museum and a large part of our knowledge of the sources of our collections stems from him. Many of the items mentioned in the first three periods of the Museum were chosen by him as being of particular interest.

1945-1977: Through the interests of one of us (R.M.C.E.) accessions of Upper Carboniferous non-marine bivalves commenced in 1946 and have continued up to the present time. However the most important acquisition of the first year of this period was a collection in three cabinets from Sir Arthur Smith Woodward (Ref. 31) (1864-1944) including plants from the Lower Coal Measures around Kerridge, shells from the Drift of Macclesfield district and fulgurites figured by J. D. Sainter (1878). Shortly afterwards, beginning in 1947, newly found minerals at Alderley Edge began to flow into the Department, many of them collected by W. D. Prince of Wilmslow, but with contributions from several other collectors including, later, R. S. W. Braithwaite and for a period of just over fifteen years. In general the Department followed a policy of filling palaeontological and mineralogical gaps in the collections with emphasis on trilobites, Scottish hard rocks and minerals from European localities. We were fortunate in acquiring, by purchase, a small collection of Coal Measure plants, including some sections from the Lomax Laboratory, from Close Park Museum, Bury, on its dissolution in 1950, and the gift of the very rare mineral mottramite, from Pim Hill, Shropshire by Sir Arthur Russell.

In the early 1950s, among a wide range of acquisitions, we received over 2,000 specimens of Carbonicola from the Lower Coal Measures of Goyts Moss, near Buxton (J. C. Royle Bequest), a few type and very many figured specimens of non-marine bivalves from the Pennine coalfields (mainly from R.M.C.E.), goniatites from the Lower Carboniferous of Ireland (E. W. J. Moore) and several additions to our Pleistocene Mammalia, including some bones from Windy Knoll, Derbyshire (collection of H. H. Brindley 1897, received from the University Museum of Zoology, Cambridge). In 1955 we received an extensive series of note books, diaries and papers of W. B. Dawkins.

In the second half of the 1950s outstanding acquisitions included German and Nova Scotian non-marine bivalves of Namurian-Westphalian age, the type assemblage of Anthraconaia pulchella Broadhurst, from near Oldham, radioactive minerals from the Belgian Congo, and, in 1959, a collection of over 15,000 specimens, comprising bones, bone flakes, antlers, teeth and molluscs from Pin Hole Cave, Creswell Crags, Derbyshire. The latter were excavated by A. L. Armstrong and presented by the Caves Committee of the British Association. Much of the mammalian material, which can be interpreted in terms of tools, was described by J. W. Kitching (1963), a student of R. A. Dart of Witwatersrand University; and a collection of small rodent bones has been studied and separately catalogued by Mrs. Jennifer Hall, formerly of the University Department of Zoology. Bones of birds from Pin Hole Cave are reported by D. Bramwell to be among the most important and extensive in terms of species represented of known Pleistocene cave collections.

In 1960 and in the following sixteen years large collections of Bryozoa including many type and figured specimens, first from the Lower Palaeozoic of Wales and later from the Carboniferous of Derbyshire, Scotland and Ireland, began to accumulate in the Department as the result of work by D. E. Owen, then Director of the Museum. These include finely preserved specimens from Ireland collected by R. Tavener-Smith and 40 metatypes of described Wenlockian species given by the British Museum (Owen 1965). In other respects however acquisitions of the 1960s tended to follow the same general pattern as those of the 1950s, with R. S. W. Braithwaite contributing many British mineral species and specimens new to the collections. Figured material includes Irish Westphalian non-marine faunas (R.M.C.E.), Namurian marine bivalves from South Wales (D. G. Jones) and, in 1967, very extensive collections of marine and non-marine faunas, both including many new horizons, from the Pennsylvanian of the southern Appalachian coalfield, from Pennsylvania to Tennessee. These comprised both the collections of M. Jennifer Rogers (1957) and those of R. M. C. Eagar, the latter made through grants by the Royal Society (Eagar 1969). This material was substantially increased by further collection work in 1970 (Eagar 1973).

In 1968 the Museum received a cabinet of minerals originally given to the University Department of Chemistry in 1888 by Sir Henry Enfield Roscoe (Ref. 21) (1833-1915). Roscoe was Professor of Chemistry at Owens College during its early struggling years, retiring from teaching in 1889 after his election as M.P. for South Manchester in 1885. By the time we received the collection it had been used for a long period for teaching. Some of the finer specimens are now missing and locality information cannot be ascribed to any one specimen with any degree of certainty.

In the 1970s major additions to the collections have been unique non-marine bivalves from northwest Spain, presented by the International Sub-commission on Carboniferous Stratigraphy through Dr. R. H. Wagner (Eagar and Weir 1971) and a series of bivalve burrows of late Namurian to early Westphalian age collected by P. Holroyd, R. M. C. Eagar and others from the Pennine coalfields (1971 onward). Collections of American non-marine bivalves have been increased, notably on horizons within the Dunkard Group (of possible Permian

age) by material collected by the Geological Survey of West Virginia and by P. A. Dickson, Research Assistant to R.M.C.E. (1971-4) with support from the Natural Environment Research Council. The Ogle-Skan Bequest (1972) added mainly well preserved 'collectors' items' of Mollusca from European and American localities.

The H. J. Harwood Bequest (1975) of over 6,000 minerals including suites from British, Norwegian, Swiss and American localities, is of national importance and was divided into two approximately equal portions, the first half becoming the property of the University Department of Geology and the second being added to the Museum's collections. It should be noted, however, that under the terms of the Bequest several important items were given to R. J. King, of the Department of Geology, University of Leicester. During the last two years many mineral species new to the collections have been added, recent collecting work (by R.P.) and purchases being concentrated on mineral localities in southwest England.

The present position: In summary, the Department has now over one thousand type and figured specimens of fossils, emphasis in the last twenty-five years falling heavily on those in the latter category. The collections, taken as a whole, warrant comparison with those of a national museum, and we are particularly rich in British Silurian (Fig.3), Old Red Sandstone, Carboniferous, Jurassic and Pleistocene material. The last group includes many specimens, notably from caves, which merge with the collections of the Archaeology Department of the Museum. Our collections of British Silesian non-marine bivalves are second only to those of the Institute of Geological Sciences and include, in addition, unique faunas from the southern Appalachians of North America, from the lower Westphalian of Ireland, and from the Westphalian and Stephanian of northwest Spain.

We are much less well off in rock collections. Until about forty-five years ago rock specimens accumulated in the Department as 'incidentals' among larger collections of fossils and minerals; and even since this time major additions to rock collections have reached the University Department of Geology much more frequently than the Museum. Nevertheless we hold a comparatively wide range of rock types for a provincial museum, notably in sediments of the British stratigraphic succession. Our most notable deficiency is an absence of modern thin-slice collections, except in the case of certain Coal Measure sediments.

The mineralogical collections at present include more than a quarter of all known species. The systematic collection is particularly rich in Norwegian and South American minerals and in zeolites from the Faroes. Derbyshire and Cumbrian minerals, including large display specimens, are well represented. There is a good collection of Alderley Edge minerals.

5. Storage and display

Storage is now divided between the new Geology section, adjacent to the offices of the 1977 Extension, and the two major galleries of the Department, where drawers have been placed in cupboards beneath display cases. In the First Geology (and Mineral) Gallery stored material includes collections of rock types from different areas of the world, the Alderley Edge collection (to be moved later), the Hickling collection of world coals and a number of smaller British collections to which access is required infrequently. In the Stratigraphical Hall most of the old display cases have had storage cabinets inserted since 1946, with exhibition space correspondingly reduced. With the use of these and of earlier made storage cases consisting of wooden drawers in cupboards, it has been possible to arrange much material in stratigraphical order in conformity with the display above them, a system particularly convenient for

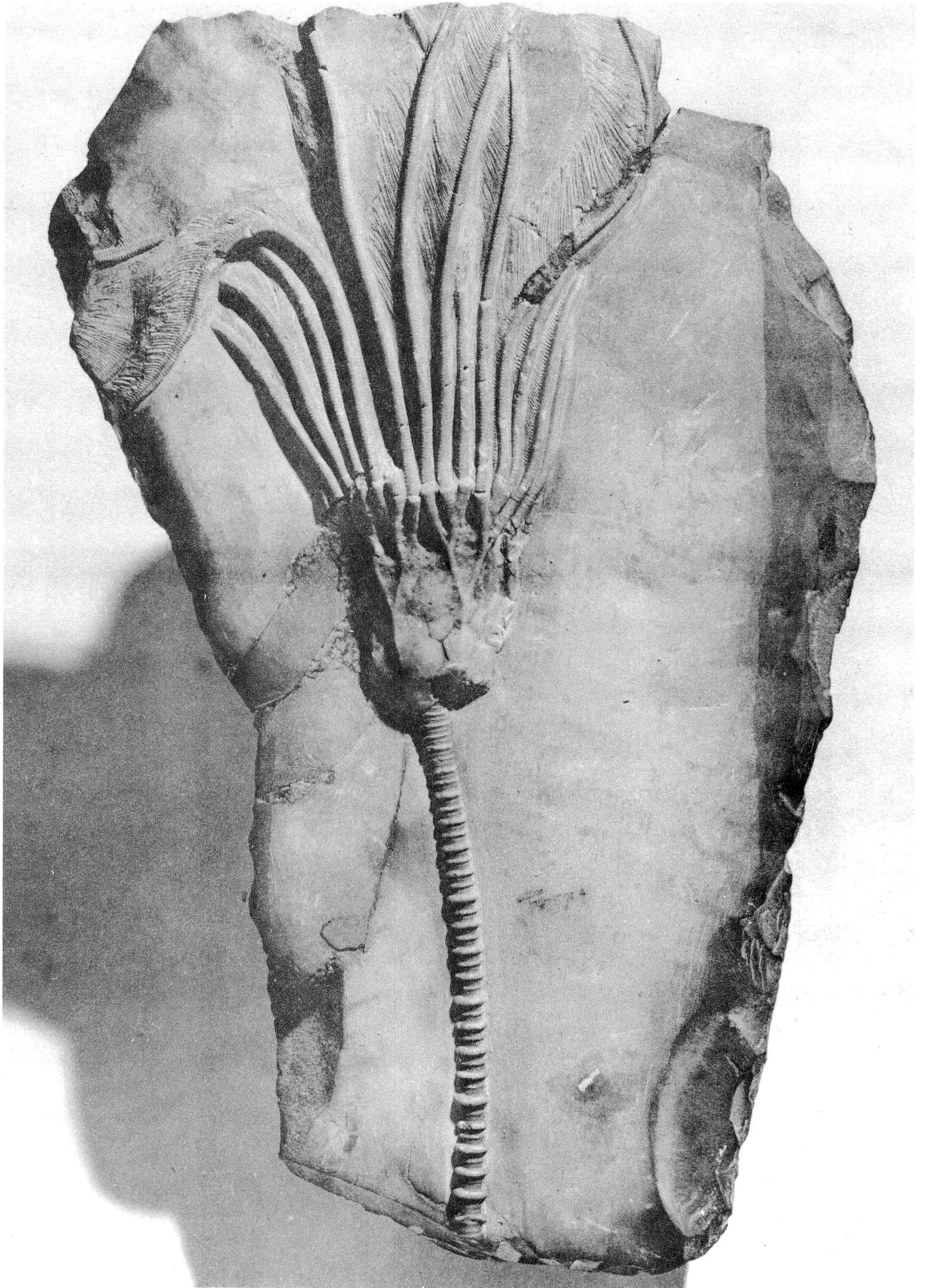


Fig. 3 PERIECHOCRINUS MONILIFER (Miller) Wenlock Limestone, Dudley
nine tenths natural size

visiting scholars. However type and figured specimens, a number of research collections and a very considerable overflow of stratigraphical material including special collections of plants (Old Red Sandstone, Carboniferous and Jurassic), the Arthur Bray collection of Namurian fossils and many others, are now kept in the new section, mostly in wooden cabinets in drawers with sliding tops. These were developed after considerable experimentation and are virtually dust-free. Although some of the palaeontological collections have had to remain for the present in older wooden and metal cabinets where dust remains a major problem, it is hoped shortly to complete the move of all the type and figured specimens to the new cabinets. Moreover the new storage area is now permitting the entire re-housing of the systematic mineral collection, about 9,000 specimens, in the standard dust-free cabinets.

All new accessions of relatively few items are registered and we are slowly overhauling the huge backlog of unregistered material dating back into the middle of the 19th Century. However the intake of research collections of Pennine marine and non-marine faunas of Namurian and Westphalian age, and of Pennsylvanian - Dunkard fossils from North America, has been too great for this to be possible until the material has been utilised in published papers. Some of our registration has been completed by volunteers and we are particularly grateful to Dr. Rogan Jenkinson and his co-workers from Sheffield University who have recently commenced card-indexing the collections from Pin Hole Cave, Creswell Crags.

Display is in two main sections. The First Geology Gallery covers primarily mineralogy and hard-rock petrology. The main exhibits deal with elementary rock classification, systematic mineralogy and principles of mineral identification. There is an introduction to local geology, including Alderley Edge, with a model, a large group of display quality minerals from northern England, a White Watson inlaid section across Derbyshire and several other exhibits of local interest.

In the larger Stratigraphical Hall the arrangement of the displayed collections is in stratigraphical order with a good deal of didactic illustration, primarily for students. Each Period is set out on a national scale with special exhibits, usually in the centres of bays, covering items of particular local or regional interest. In the upper gallery of the Hall the illuminated Geological Column provides a unifying element. Outstanding exhibits include the Williamson Stigmaria (cover) probably the finest example in Europe, the 'fossil forest', in which is included Chelichnus ingens (Binney 1856) from the upper Namurian of Tintwistle, Cheshire, and two footprint slabs from the Keuper of Weston, Cheshire (Black 1846). Both in the upper, and particularly in the lower gallery, extensive use has been made of scale model flesh restorations of extinct vertebrates (Fig. 2). A number of these, including horses and titanotheres, are arranged with fossil material in evolutionary sequence.

Although the Stratigraphical Hall is at present open infrequently to the public, as a result of staff shortage - since its position is not in direct communication with other galleries of the Museum - the Hall is in continuous use during term time by visiting classes of schoolchildren.

6. Educational services

The collections of the Geological Department are used extensively, almost entirely through the staff of the Museum's Education Department, for the teaching of schoolchildren from Primary level upward. Classes are drawn mainly from local schools including both the Greater Manchester Area and Cheshire, but occasional parties may come from as far afield as Shrewsbury and North Wales. The Geology Department has contributed much material for general use, including handling, and also for the production of small exhibits arranged in boxes

and sent out on loan. All the geological galleries are in regular use for teaching, both by our own Education staff and also by other teachers, many of whom have attended in-Service courses organised by our own staff and including excursions into the field. Both we and the Education Department have selected collections suitable for 'O' and 'A'-Level teaching and we occasionally give conducted tours and talks to A-Level pupils. Worksheets are prepared by the Education Department not only for our general exhibits but also for temporary ones such as our recent 'Coalmining History'. Some indication of the interest generated in schoolchildren by the more spectacular aspects of the geological record is reflected in the entries received for the recent competition, 'Draw me a dinosaur'. These numbered 1,200 and included joint work in the preparation of large models. The Education Department also organises the Saturday Club with volunteer workers. The club has a capacity attendance of 80 and at present a waiting list of 40 children with Geology figuring prominently amongst the chosen subjects.

The galleries, and occasionally the stored collections, have been used by visiting University Extra-Mural and W.E.A. classes. The Stratigraphical Hall is ideally suited for this purpose and has been used by one of us (R.M.C.E.) for courses covering evolutionary topics on a number of occasions.

7. Local societies

An Association of Local Teachers of Geology was formed six months ago with Mrs. Ann Dawson, herself a geologist and Head of the Museum Department of Education, as founder and Secretary. The local teachers meet regularly in the Museum.

Manchester Geological Association, consisting primarily of amateurs, was founded in 1925, when it separated from the much earlier Manchester Geological and Mining Society. The Association has retained its links with the Museum and several of its members have periodically contributed to its collections for many years. Both of us serve the Association in editorial capacities and one of us (R.M.C.E.) is also its Honorary Librarian. The Department used to house the Association's library which was transferred, six years ago, to a place in the library of the University Department of Geology. Back numbers of the Journal of Manchester Geological Association and of the later joint Liverpool and Manchester Geological Journal - the Geological Journal since 1964 - are still retained in the Museum's Department of Geology.

8. Site recording

Since the beginning of April we have supervised the work of two geological site-recorders, part of a team of five appointed under the Government's Job Creation Scheme to cover the Greater Manchester Area and to integrate their work with that done in adjacent regions. The site recorders are to use the new G.C.G. cards. Application has been made for the Museum to be registered as a Record Centre and it is hoped that the work can be continued until the end of December 1978.

9. Library

The Manchester Museum Library has been incorporated in the John Rylands University Library of Manchester and is housed in the Christie (Science) Library adjacent to the Museum. The Museum Geology Department holds a number of Palaeontographical Society Monographs and Transactions of the Manchester Geological (and Mining) Society (1841-1906). See also under 'Local Societies'.

For geological maps we are able to utilise the resources of the comprehensive map collections in the University Departments of Geology and Geography.

10. Museum Publications

A list of publications covering museum display and educational work is given in Section C (ii), below.

The Geological Column leaflet (Eagar 1965-1976) provides the bulk of our sales and it is intended continually to revise all subsequent editions.

A short general account of the collections is given in the current Museum Guide (1974). Copies of Jackson (1952) and of Simpson and Broadhurst (1975) are on sale at the Museum bookstall, which also supplies postcards, posters, models of dinosaurs and a number of popular and childrens' books covering aspects of mineralogy, geology and palaeontology.

B. LIST OF TYPE SPECIMENS IN THE MUSEUM SINCE 1952

New type specimens have been divided into biological groups within which they are listed in order of their accession in time. Types described from material already existing in the collections are listed first within each category.

PLANTAE

BYTHOTREPHIS NODOSUS Lacey 1962 Syntypes

Lower Brown Limestone, Viséan, Carboniferous.

Quarry by Pentre Cwm, Dyserth, Vale of Clwyd, north Wales.

Accession numbers LL.3914, LL.3915, 4/5/69, respectively Cwm 4 and Cwm 14 of the J. Walton Collection in 1925.

Acquired by gift from J. Walton.

Lacey, W. S. 1952, p. 20.

Lacey, W. S. 1962, p. 130; text-fig. 2 (LL.3914), pl. 24, figs. 1, 2 (LL.3915).

ANIMALIA

BRYOZOA

All the following material has been acquired by gift from David E. Owen between 1960 and 1969.

FISTULIPORA UMBROSA Owen 1960 Holotype

Gypidula Beds, lower Ludlovian, Silurian.

Right bank of River Wye, between Aber-Duhonw and Glanwye, near Builth Wells.

Accession number LL.1526 A (1), 22/6/1960.

Owen, D. E. 1960, p. 69; pl. 16, figs. 1, 2; text-fig. 1.

FISTULIPORA STRAWI Owen 1960 Holotype

Horizon and locality as for Fistulipora umbrosa, above.

Accession number LL.1526 D, F, 22/6/1960.

Owen, D. E. 1960, p. 70; pl. 16, figs. 3, 4; text-fig. 2.

DEKAYELLA MEGACANTHOPORA Owen 1960 Holotype

As for Fistulipora umbrosa, above.

Accession number LL.1526 (A) (5), 22/6/1960.

Owen, D. E. 1960, p. 71; pl. 16, figs. 5, 6; text-fig. 3.

DEKAYELLA RAMOSA Owen 1960 Holotype

As for Fistulipora umbrosa, above.

Accession number LL.1526 A (3), 22/6/1960.

Owen, D. E. 1960, p. 72; pl. 16, figs. 7, 8; text-fig. 4.

MONOTRYPA FLABELLATA Owen 1960 Holotype

As for Fistulipora umbrosa, above.

Accession number LL.1526 A (4), 22/6/1960.

Owen, D. E. 1960, p. 72; pl. 16, figs. 10, 11; text-fig. 6.

RHOMBOPORA MINIMA Owen 1960 Holotype

As for Fisulipora umbrosa, above.

Accession number LL.1526 A (2), 22/6/1960.

Owen, D. E. 1960, p. 73; pl. 16, figs. 12, 13; text-fig. 7.

PTILODICTYA GRACILE Owen 1960 Holotype

As for Fistulipora umbrosa, above.

Accession number LL.1526 C, 22/6/1960.

Owen, D. E. 1960, p. 74; pl. 16, figs. 14, 15; text-fig. 8.

DEKAYELLA WHITCLIFFENSIS Owen 1962 Holotype

Upper Whitcliffe Beds, upper Ludlovian, Silurian.

Small quarry at SO 4975 7430, near Ludlow.

Accession number LL.2587, 6/9/1961.

Owen, D. E. 1962, p. 200; pl. 29, figs. 1, 2.

BATOSTOMELLA HEMISEPTENSIS Owen 1962 Holotype

Lower Bringewood Beds, lower Ludlovian, Silurian.

Millichope Lodge Gates, Ludlow.

Accession number LL.2589, 6/9/1961.

Owen, D. E. 1962, p. 201; pl. 29, figs. 5, 6.

BATOSTOMELLA HEXAMESOPORA Owen 1962 Syntypes

Horizon and locality as for Batostomella hemiseptensis, above.

Accession numbers LL.2590, LL.2591, 6/9/1961.

Owen, D. E. 1962, p. 202; pl. 29, figs. 7, 8, respectively.

BYTHOPORA PARALLELA Owen 1962 Syntypes

As for Batostomella hemiseptensis, above.

Accession numbers LL.2592, LL.2593, 6/9/1961.

Owen, D. E. 1962, p. 202; pl. 30, figs. 1, 2.

ERIDOTRYPA UMBONENSIS Owen 1962 Holotype

As for Batostomella hemiseptensis, above.

Accession number LL.2594 A, 6/9/1961.

Owen, D. E. 1962, p. 203; pl. 30, figs. 3, 4.

LEIOCLEMA HALLOPOROIDES Owen 1962 Syntypes

Low Shaly Limestone, Shucknell Hill Beds, Ludlovian, Silurian.

Accession numbers LL.2596, LL.2597, 6/9/1961.

Owen, D. E. 1962, p. 204; pl. 30, figs. 9, 10.

LEIOCLEMA LUDLOVENSIS Owen 1962 Holotype

Upper Bringewood Beds, Ludlovian, Silurian.

Weo Edge, near Ludlow.

Accession number LL.2598, 6/9/1961.

Owen, D. E. 1962, p. 205; pl. 30, figs. 7, 8.

ANAPHRAGMA SHUCKNELLENSIS Owen 1962 Holotype

Horizon and locality as for Leioclema halloporoides, above.

Accession number LL.2599, 6/9/1961.

Owen, D. E. 1962, p. 205; pl. 31, figs. 1, 2.

CALAMOTRYPA MILLICHOPENSIS Owen 1962 Syntypes

Horizon and locality as for Batostomella hemiseptensis, above.

Accession numbers LL.2601, LL.2602, LL.2603, 6/9/1961.

Owen, D. E. 1962, p. 207; pl. 31, fig. 4 (LL.2602), fig. 5 (LL.2603), fig. 6 (LL.2601).

- MONOTRYPA PATERELLA Owen 1969, nom. nov. Syntypes
for MONOTRYPA PATERA Owen 1962
Horizon and locality as for Batostomella hemiseptensis, above.
Accession numbers LL.2604, LL.2605 A, 6/9/1961.
Owen, D. E. 1969b, p. 635; Owen, D. E. 1962, p. 209; pl. 32, figs. 3, 4.
- NEMATOPORA HEXAGONA Owen 1962 Syntypes
As for Batostomella hemiseptensis, above.
Accession numbers LL.2594 B, LL.2605 B, 6/9/1961.
Owen, D. E. 1962, p. 210; pl. 32, figs. 5, 6, 7.
- RHOMBOPORA MESOPORA Owen 1962 Holotype
Upper Leintwardine Beds, upper Ludlovian, Silurian.
Quarry at SO 493741, near Ludlow.
Accession number LL.2607, 6/9/1961.
Owen, D. E. 1962, p. 210; pl. 32, figs. 9, 10.
- AMPLEXOPORA? DISCOIDEA Owen 1966 Holotype
Upper Viséan, Dinantian, Lower Carboniferous.
Treak Cliff, Castleton, Derbyshire.
Accession numbers LL.2970, LL.2971 (two sections of the same specimen), 4/2/1969.
Owen, D. E. 1966, p. 140; pl. 8 E, F.
- AMPLEXOPORA? DISCOIDEA Owen 1966 Paratypes
Accession numbers LL.2972, LL.2973, LL.2974, (specimen and two sections respectively), 4/2/1969.
Owen, D. E. 1966, p. 140.
- PENNIRETIPORA TRISERIALIS Owen 1966 Holotype
Horizon and locality as for Amplexopora? discoidea, above.
Accession number LL.2978, 4/2/1969.
Owen, D. E. 1966, p. 141; pl. 9 B.
- PENNIRETIPORA TRISERIALIS Owen 1966 Paratypes
Accession numbers LL.2979, LL.2980, LL.2981, LL.2982, LL.2983, 4/2/1969.
Owen, D. E. 1966, p. 141; pl. 9 A (LL.2983); pl. 9 C (LL.2982).
- RHOMBOPORA RADIALIS Owen 1966 Holotype
As for Amplexopora? discoidea, above.
Accession number LL.2984, 4/2/1969.
Owen, D. E. 1966, p. 142; pl. 9 D.
- RHOMBOPORA RADIALIS Owen 1966 Paratypes
Accession numbers LL.2985, LL.2986, LL.2987, LL.2988, LL.2989, 4/2/1969.
Owen, D. E. 1966, pl. 9 D (LL.2989), F (LL.2985).
- STREBLOTRYPA PECTINATA Owen 1966 Holotype
As for Amplexopora? discoidea, above.
Accession number LL.2995, 4/2/1969.
Owen, D. E. 1966, p. 144; pl. 10 B, C.
- STREBLOTRYPA PECTINATA Owen 1966 Paratypes
Accession numbers LL.2989, LL.2996, LL.2997, LL.2998, LL.2999, 4/2/1969.
Owen, D. E. 1966, p. 144; pl. 10 A (LL.2989).
- STREBLOTRYPA CORTACEA Owen 1966 Holotype
As for Amplexopora? discoidea, above.
Accession number LL.2992.
Owen, D. E. 1966, p. 144; pl. 10 E (LL.2993).
- STREBLOTRYPA CORTACEA Owen 1966 Paratypes
Accession numbers LL.2993, LL.2994, 4/2/1969.
Owen, D. E. 1966, p. 144; pl. 10 D

- WORTHENOPORA CASTLETONENSIS Owen 1966 Holotype
 As for Amplexopora? discoidea, above.
 Accession numbers LL.3000, LL.3001, LL.3002, LL.3003, LL.3004, LL.3005; (a solid specimen and five sections), 4/2/1969.
 Owen, D. E. 1966, p. 145; pl. 10 F (LL.3001), G (LL.3002), H (LL.3000).
- STENOPHRAGMIDIUM RAMOSUM Owen 1969 Holotype
 Hurler Limestone, Viséan, Dinantian, Lower Carboniferous.
 Hessilhead Quarry, Beith, Ayrshire.
 Accession number LL.2669 A, B, 27/11/1968, E. Coll. George Rae.
 Owen, D. E. 1969a, p. 262; pl. 22, B, C.
- TABULIPORA HESSILHEADENSIS Owen 1969 Holotype
 Horizon and locality as for Stenophragmidium ramosum, above.
 Accession number LL.2671 A, B, 27/11/1968, E Coll. George Rae.
 Owen, D. E. 1969a, p. 261; pl. 23 A, B.
- MEEKOPORA DUDLEYENSIS Owen 1969 Paratypes
 Wenlock Limestone, Wenlockian, Silurian.
 Dudley, Worcestershire.
 Accession numbers LL.3216, LL.3217, 14/2/1969.
 Owen, D. E. 1969b, p. 628; pl. 114, figs. 3, 4.
- BATOSTOMELLA MANIFORMIS Owen 1969 Holotype
 Horizon and locality as for Meekopora dudleyensis, above.
 Accession number LL.3218 (specimen with five sections, LL.3218 A, B, C, D, E), 14/2/1969.
 Owen, 1969b, p. 629; pl. 114, fig. 5 (LL.3218 A), fig. 6 (LL.3218 B).
- STENOPORA PRIMAeva Owen 1969 Paratypes
 As for Meekopora dudleyensis, above.
 Accession numbers LL.3219 A, C, LL.3220 A, B.
 As in the case of Meekopora dudleyensis, above, a holotype has not been designated by the author.
 Owen, D. E. 1969b, p. 629; pl. 115, figs. 1, 2.
- HOMOTRYPA OWENI Ross 1965 Holotype
 Hoar Edge Limestone, Caradocian, Ordovician.
 Evenwood Quarry, near Shineton, Shropshire.
 Accession number LL.2807 A.
 Acquired by gift from June R. P. Ross, 20th May, 1963.
 Ross, J. R. P. 1965, p. 5; pl. 2, figs. 3, 5.
- HOMOTRYPA OWENI Ross 1965 Paratypes
 Accession numbers LL.2807 B, C, D, E - L.
 Acquired by gift from June R. P. Ross, 20th May, 1963.
 Ross, J. R. P. 1965, p. 5; pl. 2, fig. 1 (LL.2807 C), fig. 2 (LL.2807 B), fig. 4 (LL.2807 D).
- AMPLEXOPORA? EVENENSIS Ross 1965 Holotype
 Horizon and locality as for Homotrypa oweni, above.
 Accession number LL.2823 A.
 Acquired by gift from June R. P. Ross, 20th May, 1963.
 Ross, J. R. P. 1965, p. 7; pl. 3, figs. 2, 3.
- AMPLEXOPORA? EVENENSIS Ross 1965 Paratypes
 Accession numbers LL.2823 B - L.
 Acquired by gift from June R. P. Ross, 20th May, 1963.
 Ross, J. R. P. 1965, p. 7; pl. 3, fig. 1 (LL.2823 B).

MOLLUSCAAXINUS PUSILLUS Brown 1841

Holotype?

Manchester Marls, upper Permian.
Newtown, Manchester.

Accession number LL.2851, registered 8th January, 1965.

Believed to be from the collections of Captain Thomas Brown fide A. Logan and R. M. C. Eagar.

Brown, T. (in Binney) 1841, p. 66; pl. 6, fig. 32.

Logan, A. 1967, p. 48, includes in SCHIZODUS SCHLOTHEIMI (Geinitz).

LUCINA MINIMA Brown 1841

Holotype?

Horizon and locality as for Axinus pusillus, above.

Accession number LL.2852, registered 8th January, 1965.

Collection as for Axinus pusillus, above.

Brown, T. (in Binney) 1841, p. 66; pl. 6, fig. 33.

Logan, A. 1967, p. 48, includes in SCHIZODUS SCHLOTHEIMI (Geinitz).

BAKEVELLIA BINNEYI (Brown 1841)

Syntypes?

Horizon and locality as for Axinus pusillus, above.

Accession numbers LL.2848, LL.2849, LL.2850, ~~LL.2853~~, LL.2854, LL.2855, registered 8th January, 1965.

Believed to be from the collection of Captain Thomas Brown.

Brown, T. (in Binney) 1841, p. 65; pl. 6, fig. 27 (composite)

Logan, A. 1967, p. 32; pl. 4, fig. 1 (LL.2853), fig. 2 (LL.2854).

ANTHRACONAIA CURTATA (Brown 1849)

Holotype

'The Coal Shale', Westphalian B, Silesian, Carboniferous
Wakefield, Yorkshire.

Accession number LL.2834, registered 12th March, 1964.

Found in the teaching collection of the University Department of Geology by

R. M. C. Eagar and transferred to the Museum in December, 1964. Evidence for identification as the original specimen figured by Brown (1849) is summarised by Weir (1966, pp.361-2).

Brown, T. 1849, p. 173; pl. LXXII, figs. 19, 20.

Weir, J. 1966, p. 361; pl. XL, figs. 1, 2, 3, 4, 5.

ANTHRACONAIA FUGAX Eagar 1962

Holotype

Assumed to be from above the Low Bottom Bed. Communis Zone, Westphalian A, Silesian, Carboniferous.

Fulledge Colliery, Burnley, Lancashire.

Accession number W.603, Wild Collection, registered 29/1/1897

Eagar, R. M. C. 1962, p. 331; pl. 47, figs. 14a, b.

Weir, J. 1969, p. 387; pl. XLIII, figs. 26, 27.

UNIO KENDALLI Jackson 1911

Lectotype

Lower Estuarine Series, 27 feet above the Dogger, Bajocian, Jurassic.
Saltwick, near Whitby, Yorkshire.

Accession number L.10503A, E Coll. J. W. Jackson and P. F. Kendall, registered February, 1915.

Jackson, J. W. 1911, p. 211; pl. 14, fig. 3.

Jackson, J. W. 1952, p. 78.

Woodward, F. R. 1964, p. 235; pl. 15, fig. 1.

UNIO KENDALLI Jackson 1911

Paralectotypes

Accession number L. 10503B, C, D. Coll. J. W. Jackson and P. F. Kendall, registered February, 1915.

Jackson, J. W. 1911, pl. 14, fig.

Jackson, J. W. 1952, p. 78.

Woodward, F. R. 1964, p. 236; pl. 15, fig. 2 (L.10503 B).

- UNIO JACKSONI Woodward 1964 Holotype
 Lower Estuarine Series, 18 inches above the Dogger, Bajocian, Jurassic.
 Brown Alum Quarries, near Peak, Robin Hood's Bay, Yorkshire.
 Accession number L.10506 B, registered February, 1915. E Coll. J. W. Jackson
 and P. F. Kendall.
 Jackson, J. W. 1911, p. UNIO sp.
 Jackson, J. W. 1952, p. 78, UNIO sp.
 Woodward, F. R. 1964, p. 237; pl. 16, fig. 2.
- UNIO JACKSONI Woodward 1964 Paratypes
 Accession number L.10506, A, C, D.
 Jackson, J. W. 1911, p. UNIO sp.
 Jackson, J. W. 1952, p. 78, UNIO sp.
 Woodward, F. R. 1964, p. 238; pl. 16, fig. 3 (L.10506 A)
- UNIO EAGARI Woodward 1964 Holotype
 Lower Estuarine Series, Bajocian, Jurassic.
 Haiburn Wyke, near Scarborough, Yorkshire.
 Accession number L.10505 B, registered February, 1915, E Coll. J. W. Jackson.
 Jackson, J. W. 1911, p. 212, UNIO sp.
 Jackson, J. W. 1952, p. 78, UNIO sp.
 Woodward, F. R. 1964, p. 238; pl. 16, fig. 1.
- ANODONTA? BILTONI Woodward 1964 Holotype
 Horizon and locality as for Unio eagari, above.
 Accession number L.10505 A, registered February, 1915, E Coll. J. W. Jackson.
 Jackson, J. W. 1911, p. 212, UNIO sp.
 Jackson, J. W. 1952, p. 78, UNIO sp.
 Woodward, F. R. 1964, p. 237; pl. 16, fig. 4.
- BISTRIALITES CROWDECOTENSIS Selwyn Turner 1954 Holotype
 Upper Viséan, Dinantian, Carboniferous.
 Crowdecote, Derbyshire.
 Accession number L.11561, registered May, 1920.
 History unknown (fide J. W. Jackson)
 Turner, J. S. 1954, p. 305; pl. XXI, figs. 10, 11, 12.
- PSEUDOCATASTROBOCERAS SHOLVERENSE Selwyn Turner 1965 Holotype
 Bullion Mine Marine Band, lenisulcata Zone, Westphalian A, Silesian, Carboniferous.
 Sholver, Moorside, near Oldham, Lancashire.
 Accession number LL.91, registered May, 1927.
 E Coll. W. F. Holroyd.
 Turner, J. S. 1965, p. 243; pl. V, figs. 8, 9, 10, 11; text-fig. 2h.
- PSEUDOCATASTROBOCERAS PULENSE Selwyn Turner 1965 Holotype
 Marsdenian, Namurian, Silesian, Carboniferous.
 Pule Hill shaft, Pule Hill, near Marsden, Yorkshire.
 Accession number LL.183 A, registered July, 1930.
 E Coll. J. Barnes.
 Turner, J. Selwyn, 1965, p. 242; pl. V, figs. 12, 13, 14, 15.
- CARBONICOLA ARTIFEX Eagar 1954 Holotype
 2 feet 6 inches to 2 feet 9 inches above the Bassy Mine, lenisulcata Westphalian A,
 Silesian, Carboniferous.
 Borehole 51, Hagg Site (National Coal Board), Huyton, near Liverpool.
 Accession number LL.449, 18/10/1945.
 Acquired by gift from the Ministry of Fuel and Power, through A. E. Phaup.
 Eagar, R. M. C. 1954, p. 46; pl. 1, fig. vii; text-fig. 2g.

CARBONICOLA DECLINATA Eagar 1954

Holotype

75 feet above the Bassy Mine, lenisulcata Zone, Westphalian A, Silesian, Carboniferous.
Cutting in East Lancashire Road at Windle Smithies, near Dentons Green,
St. Helens, Lancashire.

Accession number LL.1191, 10/4/54.

Acquired by gift from R. M. C. Eagar, 1953.

Eagar, R. M. C. 1954, p. 49; pl. 1, fig. x; text-fig. 2a.

CARBONICOLA EXTENUATA Eagar 1956

Holotype

70 feet above the Halifax Hard Coal, lenisulcata Zone, Westphalian A, Silesian,
Carboniferous.

Harrow Clough, Stainland, near Halifax, Yorkshire.

Accession number LL.1220, 27/9/1954.

Acquired by gift from R. M. C. Eagar, 1954.

Eagar, R. M. C. 1956, p. 360; pl. XXVI, fig. v; text-fig. 6h.

ANTHRACONAIA PULCHELLA Broadhurst 1959

Holotype

About 30 feet above the Top Furnace Mine, Lower similis-pulchra Zone,
Westphalian B, Silesian, Carboniferous.

Oak Colliery, Hollinwood, near Oldham.

Accession number LL.1420, 29/6/57.

Acquired by gift from F. M. Broadhurst, June 1957.

Broadhurst, F. M. 1959, p. 524, fig. 1, xvii.

CARBONICOLA PONTIFEX Eagar 1962

Holotype

29 feet below the Cnapiog Coal, lenisulcata Zone, Westphalian A, Silesian,
Carboniferous.

Cwm Gwrelech, Pont Walby, Glynneath, South Wales.

Accession number LL.2632, 8/11/1961.

Acquired by gift from D. G. Jones, April, 1959.

Eagar, R. M. C. 1962, p. 329; pl. 48, fig. 6; text-fig. 11 J.

ECHINODERMATA

Macurda, D. B. Jr. (in litt to R.M.C.E. 16/3/1963) concluded from his examination
of our blastoids from the Cumberland collection registered LL.8704 A, B and
LL.8705, that at some time before 1945 the labels of these two items became
accidentally interchanged. Accordingly these three specimens are re-listed.

OROPHOCRINUS VERUS (Cumberland 1826)

Holotype

Viséan, Dinantian, Carboniferous.

Borders of Yorkshire and Lancashire.

Accession number L.8705 A (not L.8704, as given by Jackson, 1952), registered
8th February, 1909.

E Coll. George Cumberland.

Cumberland, G. 1826, pp. 31, 32; pl. B. figs. 1, 2.

Macurda, D. B. Jr 1963; pl. 13, figs. 16, 17.

Macurda, D. B. Jr 1965, p. 1089; pl. 123, fig. 29.

OROPHOCRINUS VERUS (Cumberland 1826)

Paratype

Accession number L.8705 B, registered 8th February, 1909

E Coll. George Cumberland.

Macurda, D. B. Jr 1963, pl. 13, figs. 18, 19.

Macurda, D. B. Jr 1965, pl. 123, fig. 30.

MITRA DEPRESSA Cumberland 1826

Holotype?

Viséan, Dinantian, Carboniferous.

Locality unknown.

Accession number L.8704, registered 8th February, 1909.

E Coll. George Cumberland.

Cumberland, G. 1826, pl. B, fig. 3 (vide Macurda 1965).
 Macurda, D. B. Jr 1965, p. 1085 recorded the specimen as missing. It was however found 18 months later, having been returned by a borrower to the University Department of Geology, in error. At present Macurda (ibid.) rejects this specimen from Orophocrinus.

ARTHROPODA

The following items were acquired by gift from J. Miller on 8/9/73.

COIGNOUINA DECORA Miller 1973 Holotype

Viséan, Dinantian, Carboniferous.
 Fissure filling in quarry on southwest corner of Crow Hill, Worston, near Clitheroe, Lancashire.
 Accession number LL.4202.
 Miller, J. 1973, pp.116, 117; fig. 1; pl. 1, figs. 2, 3, 4.

COIGNOUINA DECORA Miller 1973 Paratypes

Accession numbers LL.4203, LL.4204, LL.4205.
 Miller, J. 1973, p. 116; pl. 1, fig. 5; pl. 2, figs. 1, 2 (LL.4203).

CARBONOCORYPHE HAHNORUM Miller 1973 Holotype

Horizon and locality as for Coignouina decora, above.
 Accession number LL.4206.
 Miller, J. 1973, p. 119, fig. 2 C; pl. 2, figs. 6, 7.

CARBONOCORYPHE HAHNORUM Miller 1973 Paratypes

Accession numbers LL.4207-4245, excluding LL.4222.
 Miller, J. 1973, p. 119; pl. 2, fig. 4 (LL.4208), fig. 5 (LL.4207), fig. 9 (LL.4223). The original of Miller ibid., pl. 2, fig. 8 was not received by us.

Current research : Palaeontological material being at present investigated, or on which work has been recently completed, includes coal balls (Mr. J. G. Holmes), Coal Measure plants - Lepidodendrales (Dr. B. A. Thomas), Jurassic plants from Yorkshire (Professor T. M. Harris); Ordovician corals (Dr. J. S. Jell); Dinantian brachiopods (Dr. Howard Brunton); Silurian marine bivalves (Dr. Lindsay Marsh), Namurian and Westphalian non-marine bivalves and burrows (R.M.C.E.); Carboniferous goniatites (Professor F. Hodson and Dr. W. H. C. Ramsbottom); Yorkshire Jurassic ammonites (Miss Beris Cox), Middle Jurassic ammonites of the English midlands (Mr. C. F. Parsons); Silurian trilobites (Dr. A. Thomas), Carboniferous trilobites (Dr. J. Gandl, West Germany and Dr. J. Miller); arthropods from Sparth Bottoms, Rochdale (Drs. E. S. Richardson and F. R. Schram, U.S.A.) and scorpions from the same locality (Dr. E. N. Kjelleswig-Waering, U.S.A.); Lower Palaeozoic cystoids (Dr. C. P. C. Paul); sections made by Lomax of Palaeozoic fish (Dr. C. Patterson), Westphalian rhizodont fish (Mr. P. Rose) and fish remains from Pin Hole Cave, Creswell Crags (Mr. M. R. Wilkinson); Rhaetic and Triassic reptiles (Mr. T. R. Smithson and Dr. Roberta Paton, respectively); Pin Hole rodents (Dr. D. Mayhew) and mammalian bones (Mr. R. M. Jacobi and Dr. J. Rackham); dating techniques on bones of bison from Windy Knoll, Derbyshire (Professor W. G. Armstrong, Drs. L. B. Halstead and R. H. Johnston), Pin Hole flints (Dr. A. M. Mellors) and Devonian (Old Red Sandstone) trace fossils (Dr. G. Walkden).

A piece of the Sinai (Kantarrah) meteorite is being investigated by Professor F. Hassan of Cairo University, and the mineral species forbesite (a type) by Dr. R. S. W. Braithwaite.

ACKNOWLEDGEMENTS

Dr. J. W. Jackson has supplied much information on the history of the Museum collections and we are especially grateful to Dr. Hugh Torrens and

Mr. Brian Page for further historical references. For some data on Herbert Bolton and Joseph Strutt we also thank respectively Mr. M. Taylor, of Towneley Hall Art Gallery and Museum and Mr. M. Stanley of Derby City Council Museums.

C. REFERENCES TO LITERATURE

(i) Papers, mainly those published since 1952, in which Manchester Museum material is figured, cited or broadly referred to

This list supplements the references given by Jackson (1952), but is not exhaustive, and we would welcome learning of further papers. We have added some older papers to which reference is made in Section A.

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(Dr. J. W. Jackson has marked in our copy several figures of which the material has been found in the Manchester Museum).
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Michael Eagar
and
Rosemary Preece
The Manchester Museum
The University
Manchester M13 9PL

POSTSCRIPT

Since this paper went to the press we have found two more references to Manchester Museum material. These should be added to Part C, section (i).

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COLLECTIONS AND INFORMATION LOST AND FOUND

COLLECTIONS AND INFORMATION SOUGHT

44. LOWER DEVONIAN BRACHIOPODS

Martin Evans of the Department of Geology, University College, Singleton Park, SWANSEA SA2 8PP is working on British material of these brachiopods. He has located collections in Museums in London and Cambridge with additional material at Torquay, Penzance and Barnstaple but both he (and the Newsletter) would welcome information of other collections and collectors of material of this nature.

COLLECTIONS AND INFORMATION FOUND

7. CAPTAIN R. B. BENNETT (fl. 1850-1880)

Ron Cleevely of the British Museum (Natural History) kindly writes (24.6.77) that the material in the BM(NH) of Pernopecten sowerbyi McCoy which we suggested (GCG 9 453) might also have been of Bennett's collecting, proves not to be. The Museum Registers record that specimens 30329-30363 were purchased from the well-known London dealer James Tennant in April, 1852 with, in bracket's, - Coles' collection. There seems to be no connection of this material with Bennett.

12. JAMES ECCLES (?-1915)

Alan Howell of Bolton Museum kindly visited Blackburn Museum in search of the Eccles collection and reports as follows (23.11.1977).

"There are certainly collections of minerals and rocks there made by James Eccles F.G.S. The rocks are housed loose with their labels in large wooden trays, however the specimens are unmarked and I didn't feel very confident about the label/specimen associations. The minerals have fared somewhat better, though again they are un-marked. They are mostly bagged with handwritten labels but rather crowded into small cardboard boxes. They have suffered from this, and probably from previous mishandling. This is a pity as the material appeared to be rather better than average. Some Solenhofen fossils are present though I could only get near enough to physically examine one specimen which was unlabelled in any way.

I naturally took a photocopy of the figured brachiopod Dr. Brunton is seeking but failed to locate it or any other material from Caldor Low. Neither did I find any label or reference to any Eccles fossil material, except the Solenhofen stuff. This latter appears to be unlabelled however, so it is possible that Eccles material might be present incognito. There does seem to be a good selection of productids from widely varying localities, many with handwritten labels; however I wasn't convinced of a match between their handwriting and that on the labels accompanying the Eccles minerals.

I have spoken to their local history librarian on the phone and he has looked for James Eccles obituary circa 1915 but found nothing. He says the annual report of 1900-01 mentions the Solenhofen fossils being 'arranged' by a J.G. Goodchild from Scotland. I hope to examine these annual reports and the early accession registers sometime next week. As for the rest of the material - an interesting selection with quite a bit of German material (Eccles had German connections to get his Solenhofen material), Devonian orthocones from Wissenbach bearing the name F.A. Roemer (1809-1869) and quite a few vertebrate remains from the Kupperschiefer."

Dr. Howard Brunton of the Department of Palaeontology, British Museum (Nat. Hist.) has subsequently located the James Eccles brachiopod figured by Thomas Davidson. He writes 8.12.77 as follows:

"After a wait of about 18 months I have had sent down from I.G.S. Leeds

their collection of Levitusia specimens [Productus humerosus J. Sow being the type species of Levitusia]. One of them I recognised as probably being the J. Eccles specimen I have been chasing. The information with this specimen was no help, other than the locality being correct, i.e. Caldon Low, Staffs. Anyway, I have chased up the I.G.S. (Institute of Geological Sciences) records down here and find that J. Eccles did make two small presentations of specimens to the M.P.G.*; the important one being April 1873 and included 2 specimens of Productus humerosus/sublaevis from Caldon Low. The I.G.S. 1865 catalogue has no mention of Productus species from Caldon Low; the 1896 catalogue mentions two specimens of P. sublaevis from Caldon Low, but makes no mention of Eccles. However, I think there can be little doubt but that the records are of the same 2 specimens. It is one of those 1896 register specimens which I recognised as being virtually identical to the T. Davidson drawing of the Eccles specimen. So I think I am home and dry on that one! For the record the 1873 donation included about 10 species of Carboniferous brachiopods and, I think corals. The other donation was a single Isle of Wight brachiopod.
* (M.P.G. = Museum of Practical Geology).

(One could not have a better example than this of the importance of correct and complete documentation of material at all stages. In this case the crucial name of the collector cum donor was missing from the chain as was the fact that a figured specimen was concerned).

23. WILLIAM DAVID VARNEY (c. 1893-)

News of part of his collection has come from two sources. Tony Cross Acting Curator of Peterborough City Museum writes 15.11.1977:

"Peterborough Museum had no list of its geological collections when the City Council assumed responsibility for the building and the collections from the Museum Society in 1968. In the summer of that year a Museum Studies student on attachment from the Leicester Course (Mike Jones no less!), listed the fossils which were contained in large desk cases, some in display others stored underneath. The list shows some fifty specimens donated by W.D. Varney, mainly from the Inferior Oolite of Dundry, of which thirty-nine were found when I began sorting and cataloguing the collections following my appointment in 1973. All were mounted on card with the collectors name. Of this number twenty are ammonites and these are all from Dundry.

To date I have found no trace of the date of acquisition of this collection, although I did discover that he donated a collection of English Freshwater and land snails in 1934."

Colin Parsons of Liverpool writes in more disturbing vein. He visited Peterborough Museum in June 1969 and then saw about fifty Inferior Oolite ammonites from Dundry near Bristol of almost unequalled quality in a glass topped showcase. These were specimens of W.D. Varney's collection. About a year later he visited the Museum but the gallery in question was roped off and he was not allowed to study the material. He then wrote to the curator who, replying, denied any knowledge of the Varney-Dundry ammonites he sought but invited him to call and see if they could be found. When he was subsequently able to visit the curator was too busy!

When Colin finally succeeded in seeing this material again in December 1976 he found that a number of the more important specimens had completely disappeared, without trace in the 6½ years which had intervened. These must be the 22% of the collection whose loss is noted above by Tony Cross in this period.

More encouraging news comes from Tony Cross' recent enquiries who also reports:

"I looked at local directories and managed to trace W.D. Varney around the city of Peterborough at various addresses and discovered that he joined the Natural History Scientific and Archaeological Society in 1922. To my amazement I found out that he is still alive, although now resident in a nearby Old Folks Home. His daughter told me that at 84 his mind is not what it was, but I intend to visit him in the near future and will send additional details if they are forthcoming."

We look forward to Tony's further information from Mr. Varney. We can only hope his collection does not suffer in future years a repetition of the neglect it has already suffered.

28. ISAIAH DECK

A little additional information has come to light which may be of interest. Deck was elected a Fellow of the Geological Society on 4th April 1838 and gave donations to the Geological Society Museum in 1838 and in 1839, both of casts of fossils.

He died on 22nd February 1854 and, given this information, we hope someone in the area can track down his obituary notice in a Cambridge or East Anglian newspaper. Information will be welcomed.

Justin Delair kindly writes 1.12.1977 that the New Monthly Magazine Feb. 1827 pt. 3, p.83 records a fossil chelonian dredged off "Stone Ridge" 4 miles off Harwich Harbour and preserved by Mr. Deck (i.e. I. Deck), a chemist of Cambridge, who later gave it to Norwich Museum.

P. J. Lawrence of the Castle Museum, Norwich kindly writes 9.12.77 'There is a reference in our donor's index to a Mr. Deck having made two separate donations to the Castle Museum, both in 1837. The first of these collections was a small one, twenty-five specimens of British rocks, eleven of which I have been able to locate and put together. Several of the others, I suspect, are lingering in our as yet uncatalogued petrology collections. All the labels with the eleven specimens bear the initial G. Deck. The accession book gives the donor as a Mr. Deck of Cambridge (through Miss Johnson). It is quite possible, therefore, that this is the same I. or J. Deck mentioned in the article. The other accession number attributable to Mr. Deck is 53.37, again for 1837, which lists two specimens only, a cast of a shark's tooth, *Squalus* sp. from Felixtowe, and a cast of a trilobite, Delphinocephalus caudatus from Dudley. Both these specimens have been located.'

31. GEORGE HIGHFIELD MORTON (1826-1900)

Philip Phillips, Merseyside Museums kindly writes 7.11.1977 with two references to biographical details of Morton in a) *The Amateur Geologist* vol. 5 pt. 1, pp. 18-22 G. H. Morton - the Ultimate Amateur a short biographical study of the founder of the Liverpool Geological Society by K.J. SLOAN 1970.
b) *The Liverpool Geological Society A Retrospective of 50 years existence and work* by W. HEWITT 1910, pp. 82-86, 110-112 on G. H. Morton.

Philip knows of two major collections of Morton material one in the British Museum (Nat. Hist.) of Carboniferous Limestone material from North Wales and much other material (see *History of the Collections contained in the Natural History Departments of the British Museum* vol. 1, Geology, p.313 1904). This included the majority of Morton's fossil collection (over 4000 specimens) and was accompanied by a "Manuscript Catalogue of Lower and Upper Palaeozoic Fossils dated 1885 in 2 volumes" which is still preserved in the BM (NH) Palaeontology Department library (see F.C. SAWYER 1971, A short history of

the Libraries and List of MSS and original drawings in the British Museum (Nat. Hist.) Bull. B.M.(N.H.) Historical 4, No. 2 p. 162).

Morton's main collection of minerals and rock specimens is in the Geological Department of Liverpool University where it is again accompanied by a manuscript catalogue of the collection which is still preserved.

It seems likely that the odd specimens of his collections in Merseyside County Museum and Huddersfield Museum (see GCG 10, 490) may be directly relatable to the Manuscript Catalogues held in London and Liverpool.

45. WHITE WATSON (1760-1835)

We have several times mentioned the inlaid geological sections made and sold by Watson.

Alan Howell has found another in the Blackburn Museum collections. It is from Combs Moss to Bolsover and headed 'A section of the strata in Derbyshire from East to West by White Watson FLS' and Alan says looks rather crude compared with one previously illustrated in the newsletter.

This section is compiled by
H. S. Torrens
to whom all related correspondence
should be addressed

CURATORIAL LICENCE

The following items come from the tissue paper wrappings of a small collection of minerals and fossils found whilst documenting our geological collections. Unfortunately there is no record of the donor. Bracketed are my identifications of the specimens.

1. "A real bit of an ammonite"
2. The best, I think of it's kind I have ever found. Heaven knows what it was. (Radiating pyrite)
3. Can this be a 'Sea slug'. Beche-de-mer? (flint nodule)
4. Give it up, but I don't imagine it was an accident. (fragment of flint)
5. Anemone, and matrix. Notice the 5 segments of the anemone. (Cidarid)
6. Some kind of tissue formed in layers or bands. Beats me to suggest what. I don't think shell. (banded flint)
7. A sort of polyp. Core is comparatively soft in these. You can poke a pin in, for quite a way. (Sponge in flint)
8. Another polyp. (Sponge in flint)

Brian R. Sawford,
Keeper of Natural History
Hitchin Museum & Art Gallery

TECHNICAL

LABORATORY HOT PLATES

A Suggested Modification

Our experience leads us to believe, that there may be departments of geology, that have difficulty in obtaining a hot-plate with a temperature control and indicating device, that really meets their requirements.

Most hot-plates in use, have incorporated a simmerstat, this provides a coarse automatic method of temperature control.

The simmerstat principle, and the fact that there is usually no temperature indicator, often makes the equipment unsatisfactory.

As hot-plates 'age', the simmerstat often goes wild, resulting in temperature fluctuations, that can ruin a partially prepared thin section.

With the increased variety of thermo-plastic resins, used in geological preparations, there is, in turn, a greater requirement for an improved method of temperature control, coupled to some form of indicating device.

We have developed a relatively simple and inexpensive modification to our 'aged' hot-plate, and now benefit from a stable indicated temperature.

Principle

Depends for its action upon the fact, that the simmerstat is disconnected from the circuit, and that a reduced voltage, is applied to the elements, via a step-down transformer.

Indicating Device

This is simply an aluminium block, approx. dimensions, $1\frac{1}{2}$ " x $1\frac{1}{2}$ " x $1\frac{1}{2}$ ", a hole drilled in the centre to accommodate a thermometer, that will indicate up to 100 degrees centigrade.

Modification

It is recommended that the work be carried out by a competent electrical tradesman.

Procedure

Disconnect the internal element lead from the simmerstat, and connect this to the mains input, - LINE.

Position the aluminium block and thermometer to the surface of the hot-plate. (Indicating Device).

Connect a variac into the incoming mains, and by progressive voltage step selection, check the voltage that will maintain the temperature you require. Note: A delay will be involved during voltage and temperature changes.

The final voltage and current, will decide the step-down transformer you require.

Available from Radio Spares, approx. cost, £8.

An auto-transformer may be used, and if all output tapings are utilized, a wide controlled range of temperatures can be achieved.

The transformer should be enclosed in a simple manufactured box, having some ventilation holes. An indicator lamp and holder may be mounted on top, and connected to show power ON.

K. Clifford, Senior Technician,
Sunderland Polytechnic, Dept. Mining/Geology

REMOVAL OF POLYESTER RESIN

A.C. Howell's "Problems with resin at Bolton" (G.C.G. 9, 466) reminded me of a technique for dealing with the other type of resin he mentions. Polyester (Glass fibre) type resins can be gelatinised and removed using "Nitromors" paint stripper and washing between successive applications. Water sensitive material can be immersed in neat methylene chloride (Dichloromethane) which is the active component of the paint stripper.

In all cases the "Nitromors" or methylene chloride should be handled with great care in a fume cupboard as this organic solvent is a powerful narcotic.

A final point is that glass fibre-polyester resin casts can be finely etched by application of a single coat of "Nitromors" to give a suitable matt surface on which subsequent coats of paint can acquire proper adhesion.

Peder Aspen, Cockburn Museum,
Dept. of Geology, Edinburgh University.

REPRINT ANNOUNCED

In our first issue we noted the major work in Geological biography (and that it was largely ignored) published in 1938 by K. Lambrecht and W. and A. Quenstedt *Palaeontologi - Catalogues bio-bibliographicus* (which for non classical scholars means Palaeontologists - a bio-bibliographic catalogue) published by W. Junk Gravenhage 495 pages as part 72 of the irregular serial *Fossilium Animalium pars. 1. Animalia*.

This work contains a mass of information which helps to identify the 3000 palaeontologists listed and thereby their collections. Arno Press of Three Park Avenue, NEW YORK, NEW YORK 10016 have announced a reprint of this book available from November 1977 at \$30. It should be in the library of every Museum containing geological material.

As supplements to this Gaston Mayer of Karlsruhe, W. Germany has published the following most useful papers detailing additional West German palaeontologists

- a) *Badische Palaontologen vorzuglich Liebhabes die im Cat. bio-bibl. von Lambrecht & Quenstedt (1938) fehlen.*
Der Aufichluss 25 heft 9 477-495. 1974
- b) *Wurttembergische Palaontologen, vorzinglich Liebhabes die im Cat. bio-bibl. von Lambrecht & Quenstedt (1938) fehlen.*
Jh. Ges. Naturkde Wurttemberg 131, 50-124. 1976.

NOTICES

MUSEUM EDUCATIONAL SERVICES IN GEOLOGY

GCG has been asked by the Association of Teachers of Geology to catalogue museum educational services for geology teachers and students. This information will be published by ATG in a special issue of their journal "GEOLOGY teaching" in June 1978.

I would be grateful if you could complete the enclosed questionnaire so that we can collect the relevant information. Also any general thoughts on the subject would be welcome. I think it is essential to remember that the catalogue will be made available to a large number of geology teachers at schools, colleges and universities throughout the country.

Andrew Mathieson
Assistant Schools Organizer,
(Geology),
City of Bristol Museum & Art Gallery

FOSSIL - COLLECTING POLICIES

A discussion session at the forthcoming meeting of the Geological Curators Group and the Palaeontological Association at the National Museum of Wales in April will be devoted to fossil-collecting policies, and to the collection of particular groups of fossils by particular museums. It would be very helpful to know which museums have stated, preferably written, collecting policies for fossils. Would any such Institute please send details to Dr. W. D. I. Rolfe, Hunterian Museum, The University, Glasgow G12 8QQ, by mid-March 1978.

GEOLOGICAL ENQUIRIES

A list of standard leaflets used by museums to answer the most common geological enquiries is currently being compiled.

Any museum willing to provide copies or details of its leaflets for inclusion in this list should contact

Mr. Thomas Sharpe
c/o Dept. of Museum Studies,
University of Leicester,
152 Upper New Walk,
LEICESTER,
LE1 7QA

It would be most helpful to Mr. Sharpe if an indication of availability and cost was included.

STOP PRESS

Following our AGM at Bath in December this article appeared in the Bath Chronicle

Talks soon on Bath treasures

TALKS are expected shortly between Bath and Avon councils over the future of the Moore geological treasures at the Reference Library in Queen Square.

An inventory of the collection, which dates back to the early 1850s, is still being prepared.

Avon inherited the building as an educational trust under reorganisation of local government, but the county's community leisure committee were reminded yesterday that Bath councillors regard the collection as part of the city's heritage.

The committee chairman, Coun Peter Abraham, and Mr Neville Pearce, Avon's director of administration and county solicitor, are visiting Bath soon to have a look at a collection, described as "of incalculable value to the geological community."

Mr Pearce told the committee it was probable Bath would be considering the appointment of a full-time museum curator.

Our Chairman has written as follows in reply to this article.

We were delighted to read your notice in the Chronicle recently of the probability of talks to be held shortly between Bath and Avon councils over the future of the Bath Geological Collections in Queen's Square. It is good to know that those in whose care the collections now are becoming aware of the importance of this material. It is just over 10 years ago that the then custodian was justifying the lack of attention given to the collections by stating "We might be busily preserving objects of rubbish".

Amongst the possible rubbish is a great deal of material of both historic and scientific importance and it is quite untrue to say that it is all of "the Moore collection". Apart from the material collected by Charles Moore there is or should be a lot of material brought together in the very early days of geology in Bath. One needs only to mention that the collection of William Lonsdale (1794-1871), first curator of the Geological Society of London, is amongst this other material and amounts over 1100 specimens of scientific and historic importance, the majority of it used and cited in his classic publication of 1832 - the first detailed description of the Geology of Bath. Also among this extra material and of even greater historic importance are the collections left by Rev. Benjamin Richardson (c.1759-1832) of Woolverton and Farleigh Hungerford who was William Smith's closest associate in his pioneering studies of Bath geology before Charles Moore was even born.

Regrettably the material not forming part of the Moore collection has suffered even greater neglect having been removed from display at the Old Bath Royal Literary and Scientific Institution as early as the 1890's when it was "thrust into a cellar without attention to the order of sequence".

In view of this one must hope the Bath collection will cease to be called the Moore collection (which is of course of undeniable importance) and soon acquire the more correct name of "the Bath Geological Collections". At the same time we must thank both the councillors who have now seen the need for positive action and Ron Pickford, whose valiant efforts over the years have ensured the survival of the collections.

Bath Chronicle
11th Jan 1978



Lapmaster

LAPMASTER 15 is a new addition to the LAPMASTER range of machines, and it is not only suitable for Laboratory or Metallurgical use but is equally capable of small batch production work.

This size of machine is available fitted with various types of Lap Plates such as Copper, Brass, Ceramic, for specialised lapping and polishing operations, as well as being capable of being fitted with special Jigs and Fixtures for lapping and polishing awkward shaped components.

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