

GCG

NEWSLETTER
OF THE
GEOLOGICAL
CURATORS
GROUP

NUMBER 6

APRIL 1976



MODEL OF MEGANEURA FROM COAL FOREST DIORAMA
IN MERSEYSIDE COUNTY MUSEUM.

Back numbers of Newsletters are still available at 50p. each (including postage). Remuneration must accompany all orders, which should be sent to Tim Riley, Sheffield City Museums, Weston Park, Sheffield S10 2TP.

Submission of MSS

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CONTENTS:

Geological Collections and Collectors of Note:

10. Merseyside County Museums

A. The Museum and its Geological Collections	253
B. List of Type, Figured and Cited Fossils	270
C. References	286

Two Horror Stories of the Eighteenth Century

1. With a Happy Ending	290
2. A Distinctly Sad Ending	291

Report of Meeting on Palaeontological Curating, Oslo, June 4th 1975	294
--	-----

Palaeontological Type Collections in Norway	294
---	-----

Collections and Information Lost and Found:

- | | |
|---|-----|
| A. Collections and Information Currently Sought | 297 |
| B. Collections and Information Found | 301 |

Technical:

- | | |
|---|-----|
| Computer-based Collection Documentation using Infol 2 | 302 |
|---|-----|

Correspondence:

- | | |
|--|-----|
| Irish Type Specimens and Davidson's Monograph | 310 |
| Grant in Aid - Fund for the Preservation of Technological
and Scientific Material | 311 |

Book Review

- | | |
|----------------------------------|-----|
| The Old Metal Mines of Mid-Wales | 312 |
|----------------------------------|-----|

* * * * *

'EPIGRAM on the presentation of the bones of the Iguanodon to
Dr. Mantell of Brighton.

'Our young Geologist, who found
These monstrous Bones deep underground
And sent his parcel, not a light one,
To his enlightened Friend at Brighton;
Imagined, perhaps, like those who send
The marbles of almighty Greece
Here, to some Antiquarian friend,
They'd make a famous Mantel-piece.'

* * * * *

The majority of poems, quotations and extracts published in
G.C.G. have been taken from an Anthology of Geological poems,
cartoons and other literary snippets compiled by Hugh Torrens,
who is keen to glean further items with a view to eventual
publication.

GEOLOGICAL COLLECTIONS AND COLLECTORS OF NOTE

10. MERSEYSIDE COUNTY MUSEUMS

A. THE MUSEUM AND ITS GEOLOGICAL COLLECTIONS

HISTORY OF MUSEUM

Names

- 1851 The Derby Museum of the Borough of Liverpool
- 1860 Free Public Museum of the Borough of Liverpool
- 1880 Free Public Museums of the City of Liverpool
- 1935 The City of Liverpool Public Museums
- 1952 City of Liverpool Museums
- 1974 Merseyside County Museums

In 1851 the 13th Earl of Derby donated his zoological collections to form the basis of Liverpool's first municipal museums. (There were at least two earlier museums in Liverpool: William Bullock's private museum (1801-1809) and the Royal Institution Museum (1820-1877)). The Town Council purchased a building in Duke Street to house the Derby collections but this was not really large enough to display the collection adequately or to accommodate the number of visitors (122,074 in the first year).

In 1853 a new site was acquired on Shaw's Brow (later to become William Brown Street) and William Brown, a local M.P., agreed to finance the building of a museum and library there. The new buildings were officially opened in 1860 although the public were not admitted until the following year. References to the Brown Library and Museum appear in the literature from 1860 to about 1880 but this was never the official title.

The collections remained predominantly of Natural History material until 1867 when Joseph Mayer, a Liverpool goldsmith, presented his archaeological and ceramic collections to the Museum. Thereafter the Natural History section was referred to as the Derby Museum and the Antiquities section as the Mayer Museum. These names continued in use until 1926.

Staff

The post of Keeper of Geology dates back to 1929. Prior to this date, the collections appear to have been the responsibility, at different times, of the Curator of Museums (the Director of today); the Assistant Curator, Derby Museum (i.e. the Curator of Natural History); honorary curators and museum assistants.

THOMAS J. MOORE	Curator, Derby Museum Curator of the Museums	1855 - 1869 1870 - 1892
Rev. HENRY H. HIGGINS	Committee Member Chairman of Museums Sub-Committee	1860 - 1876 1877 - 1893
F. P. MARRATT	Hon. Conchologist & Mineralogist	1872 - 1892
RICHARD PADEN	Curator, Derby Museum	1893 - 1894
HENRY O. FORBES	Director of Museums	1894 - 1910
JOSEPH A. CLUBB	Assistant Curator, Derby Museum Curator of Museums	1895 - 1910 1911 - 1927
WILLIAM S. LAVEROCK	Botanical & Geological Assistant Keeper of Botany	1896 - 1920 1920 - 1929

STELLA HARRIS	Temporary Geological Assistant	1920 - 1925
CHARLES CARTER	Geological Assistant	1925 - 1927
ROBERT G. ABSALOM	Assistant Keeper of Geology Keeper of Geology	1927 - 1929 1929 - 1930
T. EDEN	Keeper of Geology	1932 - 1934
DAVID E. OWEN	Keeper of Geology	1935 - 1947
NORA FISHER (Mrs. N. F. McMILLAN)	Assistant Keeper, Natural History	1937 - 1969
H. RAYMOND SINGLETON	Keeper of Geology	1949 - 1951
GEOFFREY R. TRESISE	Keeper of Geology	1960 to date
BRIAN LATHAM	Trainee	1962 - 1964
JAMES H. NUNNEY	Trainee	1965 - 1966
DOROTHY A. CULLEN (Mrs. D. A. OSLER)	Trainee Assistant Keeper of Geology	1965 - 1966 1966 - 1973
PHILIP W. PHILLIPS	Trainee Assistant Keeper of Geology	1972 - 1973 1973 to date
THOMAS A. HOSE	Trainee	1973 - 1975

One name in the above list merits special mention. The Reverend Henry Hugh Higgins (1818-1893) was the second son of John Higgins of Turvey Abbey, Bedfordshire. After attending Cambridge University (1832-39), he was ordained priest in 1839 and came to Liverpool in 1842 as inspector of church schools. A keen naturalist, he was co-opted onto the Museums Sub-Committee in 1860 and subsequently became its Chairman. From 1861 until his death, Higgins was a voluntary but seemingly indefatigable museum worker. He originally worked on the organisation and exhibition of the invertebrate collections. The arrangement of the display took 12 years and resulted in one of the most comprehensive exhibitions of invertebrate animals ever displayed in a provincial museum. In 1870 he also collected and donated an important collection of Coal Measure plants (see note below) to the Museum.

Higgins appears to have pioneered many of the services which museums now provide as a matter of course. He wrote penny pamphlets on the displays for sale to visitors. He initiated a large diorama showing an albatross and frigate bird in flight against a painted ocean background which covered 130 square feet (and noted that the introduction of two more specimens quite destroyed the scenic effect). In 1884 he prepared a series of 16 cabinets for circulation to local schools: the first school loan service in the country. He also played an active part in the founding of the Museums Association and became its first President. He died on 2 July, 1893 while writing an address which he was due to deliver to the Association on the following day.

COLLECTIONS

PRE-WAR COLLECTIONS

The geological collections were almost completely destroyed by fire when the Museum was bombed in May 1941. The departmental daybooks and other records were also destroyed; brief details of donations and purchases survive in the annual reports but the full extent of the loss may never be known.

Some of the most notable pre-war collections are listed below; material which survived the blitz is also listed under 'Present Collections'.

1858 EDWARD CHARLESWORTH. British fossils. 2,000 specimens, including 800 Tertiary fossils. According to Moore (1864) the collection also included fossils which had belonged to Dr. Gideon Mantell "including a fine series of vertebrae and limb bones of the *Iguanodon* and some very fine *Cephalopoda*, from the Oxford Clay of Christian Malford." (Destroyed)

A note on Charlesworth, who was curator of the York Museum from 1844 to 1858, appeared in G.C.G. Newsletter 2 (Pyrah, 1974). An obituary notice appeared in Quart. J. geol. Soc. Lond., 50 (1894), pp. 47-50.

1863 LOUIS AGASSIZ. Silurian brachiopods from Anticosti Island, Canada. 50 specimens. (Destroyed)

Louis J. R. Agassiz (1807-1873) was born at Motier, Switzerland but moved to the U.S.A. in 1846. He became Professor at Harvard University in 1853 and founded the Museum of Comparative Zoology there.

For a full biographical study of this world-famous palaeontologist see Lurie (1960).

NATIVE SILICA

A TREATISE UPON A SERIES OF SPECIMENS OF

QUARTZ, ROCK CRYSTAL,

CHALCEDONY, AGATES, AND JASPERS,

AS WELL AS OTHER

Earthy and Metalliferous Minerals
(*Economic and Decorative*),

WITH A CHAPTER UPON

THE FORMATION OF AGATES,
CUTTING, POLISHING, AND STAINING,

WITH A

DESCRIPTIVE CATALOGUE

OF

THE SPECIMENS FORMING THE COLLECTION

OF THE LATE

Right Hon. the Earl of Derby, K.G.,

BEQUEATHED BY HIM TO THE

LIVERPOOL FREE MUSEUM.

BY

BRYCE WRIGHT, F.R.G.S.

LONDON:

WYMAN & SONS, LIMITED,
GREAT QUEEN STREET, W.C.

1894

CATALOGUE

OF A

RICH AND VALUABLE CABINET

OF

MINERALS;

AND, ALSO, OF A SELECT

CRYSTALLOGRAPHICAL CABINET.

CONTAINING

A GREAT VARIETY OF CURIOUS CRYSTALS,

TO THE EXTENT OF SOME THOUSAND SPECIMENS, WITH DRAWINGS AND
MEASUREMENTS ANNEXED:

THE PROPERTY OF THE

LATE WILLIAM PHILLIPS, F.R.S., F.L.S., F.G.S.

AUTHOR OF THE "INTRODUCTION TO MINERALOGY,"
AND (JOINTLY WITH THE REV. W. D. CONYBEARE) OF THE "GEOLOGY OF ENGLAND
AND WALES."

Now to be disposed of by Private Contract.

Further particulars may be had, by application to G. B. SOWERBY, No. 156, Regent
Street, to whom Communications on the subject may be addressed.

LONDON:

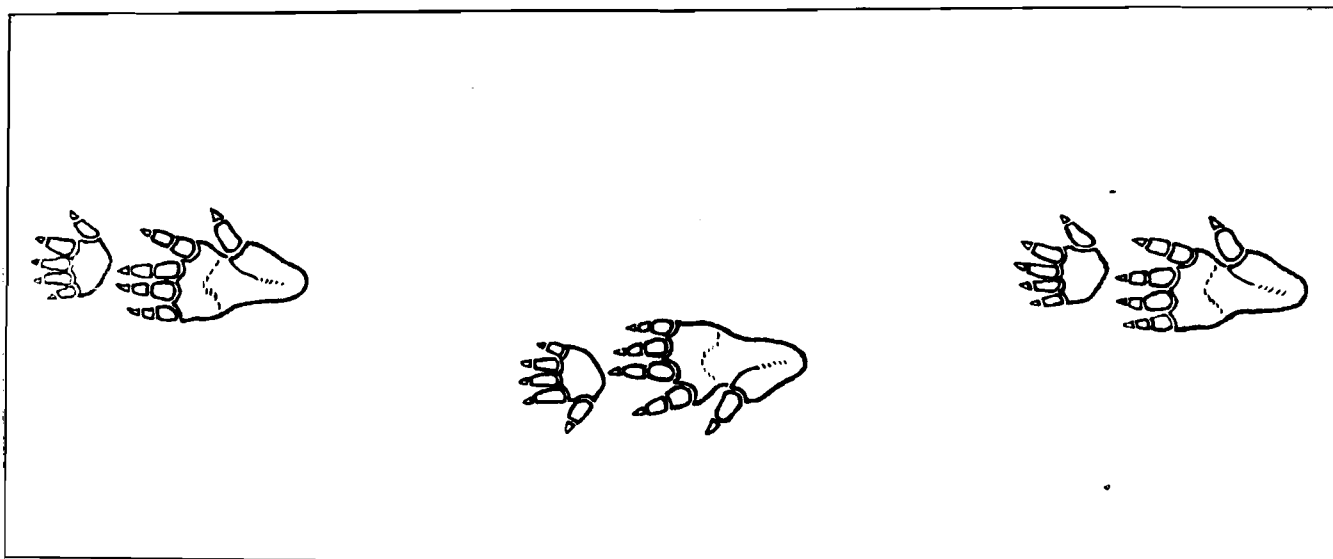
PRINTED FOR HARVEY AND DARTON, GRACE"

1894

- 1865 J. S. BOWERBANK. British fossils. 100 specimens including fish and fossil wood from the London Clay, and Cretaceous sponges. (Destroyed)
- Note: The greater part of Bowerbank's collections went to the British Museum.
- 1870 HENRY HIGGINS. Coal Measure plants. See note under 'Present Collections'.
- 1877 FRANK ARCHER. Paris Basin fossils, collected by Archer and his father, Staff Surgeon Major Francis Archer, and named by D'Orbigny. (Presumed destroyed, but see 1966 note under 'Present Collections'.)
- 1886 THOMAS AUSTIN. Crinoids. See note under 'Present Collections'.
- 1887 WILLIAM PHILLIPS. Minerals. This historic collection formed the basis of his book 'An Elementary Introduction to Mineralogy' published in 1816. After his death the collection was sold by auction in 1829. (Copies of the printed sale catalogue survive at Merseyside County Museum and in the libraries of the Geological Society of London and the British Museum (Natural History).) It was bought by Dr. John Rutter of Liverpool, who bequeathed it to the Medical Institution of Liverpool of which he was founder. Thence it was passed to the Liverpool Museum by the Trustees of the Institution in 1887. 2,500 specimens. (Destroyed)
- William Phillips (1773-1828) was a Quaker bookseller and publisher who was a founder member of the Geological Society of London in 1807. 'An Elementary Introduction to Mineralogy' went through three editions in his lifetime and two after his death. He was also co-author (with W. D. Conybeare in 1822) of 'Outlines of the Geology of England and Wales' - one of the most influential books on British Geology. (See Dictionary of Scientific Biography.)
- 1893 15th EARL OF DERBY. Polished minerals. See note under 'Present Collections'.
- 1918 HENRY BEASLEY. Triassic fossil footprints. 70 specimens. (Presumed totally destroyed: a few footprint slabs without data in the collections may date from before the blitz. However none of these appear to correspond to the specimens figured by Beasley in his extensive collection of photographs and drawings.)



CHIROTHERIUM FOOTPRINTS FROM STORETON QUARRY, MERSEYSIDE.



Henry Charles Beasley (1836-1919), three times President of the Liverpool Geological Society, is "by far the most important figure in the history of British vertebrate ichnology" (Sarjeant, 1974). He persuaded the proprietor of the Storeton quarries in Cheshire to excavate and preserve slabs of sandstone showing the footprints for which the quarry was famous. Some of these slabs Beasley acquired for his own collections; he also arranged for specimens to be sent to such institutions as the British Museum, Liverpool Museum and Liverpool University.

He wrote to, or visited personally, any museum in Britain which he knew to contain footprint specimens. In this way he built up an unrivalled collection of annotated drawings and photographs of fossil footprints. His photographic collection is now in the possession of the Liverpool Geological Society and housed at Liverpool University. A manuscript catalogue to this collection was produced by W.A.S. Sarjeant in 1971.

Sarjeant (1974) subsequently gave a full account of Beasley's work on Triassic footprints. His reference to the Beasley collection is, however, inaccurate in one point of detail. Harris (1925), in her account of the Liverpool Museum collections, states: "The collections of the late H. C. Beasley were presented to the Museum in 1918 by Councillor C. Sydney Jones". Sarjeant appears to have been misled by the reference to "the late H. C. Beasley"; he quotes her account quite accurately on p. 310 but elsewhere (p. 299) states "Beasley's collection of fossil footprints was posthumously donated to the Liverpool Public Museum".

In fact Beasley died on 17 December 1919, the year after the donation of the collection. The most logical assumption is, therefore, that he sold his collection to Councillor Jones, who then presented it to the Museum.

An obituary notice appeared in Geol. Mag. 57 (1920) pp. 94-95.

1936 J. WILFRID JACKSON. Pleistocene & Holocene molluscs. See note under 'Present Collections'.

For a more detailed account of the pre-war collections see Harris (1925).

PRESENT COLLECTIONS

Parts of four important pre-war collections survived the blitz. All other material in the collections has been acquired since 1941. .

Pre-Blitz Survivals

- 1870 HENRY HIGGINS. The Ravenhead Collection of Coal Measure plants. Collected from the shales associated with the Ravenhead Coals (Middle Coal Measures) exposed in a railway cutting at Thatto Heath, St. Helens. Contains type, figured and cited material: see Higgins (1871); Marrat (1872); Kidston (1889); and Morton (1891, pp. 50-53 and 59). Between 500 and 600 specimens.

Note: Some of the best material from this collection was destroyed in 1941.

- 1886 THOMAS AUSTIN. Crinoids, many from the Carboniferous Limestone of Hook Point, Co. Wexford, and from other Irish, British and U.S.A. localities. An important collection which formed the basis of a monograph by Austin & Austin (1843-47). (Other specimens figured in this monograph are in the collections of the Geological Survey Museum, the British Museum (Natural History) and Bristol Museum.)
- The collection also includes type material figured by Wright (1950-60) in his monograph on the British Carboniferous Crinoidea and by the same author in a series of earlier papers (see bibliography). Austin specimens have also been figured by Bather (1914, 1918) and Macurda (1965). 500 specimens.

Thomas Austin (1795-1881), a major in the Napoleonic Wars, retired from the Army after being wounded in action, settled in Bristol and took up the study of Geology. Thereafter he published a series of scientific papers and in 1843, in collaboration with his son, began a 'Monograph on Recent & Fossil Crinoidea'. According to Wright (1943) this was to be published by subscription, each part costing 3s. 6d. A few hand-coloured copies were also produced at 5s. By 1847 eight of the proposed 20 parts had been published but the work was never completed, probably because of financial difficulties. 44 plates intended for the later parts are now in the possession of the British Museum.

For Austin material in other museums, see Woodward (1904, p. 262).

- 1893 EDWARD HENRY STANLEY. Agates and other polished stones. This collection was built up between 1870 and 1892 and bequeathed by Lord Derby to the Museum. A printed catalogue to the collection was prepared by Bryce Wright (1894) who claims: "All specimens of sufficient merit arriving in London were submitted for Lord Derby's inspection, and a careful selection (made, needless to say, with the most refined taste) resulted in the unique and, it may be fairly claimed, most beautiful collection of Agates and allied material ever made."
- 782 specimens are listed in the catalogue but only 112 of these survived the blitz.

- 1936 J. WILFRID JACKSON. Pleistocene & Holocene molluscs, mainly British. (Fossil material from a collection of modern shells.) 240 specimens.

J. W. Jackson, Keeper of Geology at Manchester Museum from 1907 until his retirement in 1945, has been a prolific collector all his life. Liverpool Museum subsequently purchased his rock and mineral collection in 1942, and fossil collections in 1945, 1967 and 1971.

Dr. Jackson is now in his nineties and in recent years his collecting has generally been restricted to the area around his home in Buxton, Derbyshire.

Post-Blitz Additions

- 1942 CHARLES TRELEASE. Minerals, mainly British. The purchasers of the original collections included (besides Liverpool Museum): Leicester Museum; Kings College, London; Bristol University; and a number of private individuals. 200 specimens.

GROSVENOR MUSEUM, CHESTER. Fossils, mainly British. 400 specimens.

Miss KATHLEEN CROSSE. British and Foreign fossils. 1,400 specimens.

J. WILFRID JACKSON. Rocks and Minerals. 150 specimens.

- 1943 Sir HUGO RUTHERFORD. Crystals and cut stones. 20 specimens.

- 1944 H. WILLOUGHBY ELLIS. 3 collections:

(a) Vertebrate fossil remains (mainly teeth) from Kent's Cavern, Torquay. This material was obtained during the systematic exploration of the cave financed by the British Association and carried out under the direction of William Pengelly between 1864 and 1880.

The British Museum and the Torquay Natural History Society were given first refusal on all material found, and a further 1,200 specimens were distributed to 17 other institutions. According to Lowe (1923): "All this, far from exhausting the store, left large quantities of less interesting material which is hidden away in various parts of the Torquay Museum buildings still in the boxes as originally packed".

It seems clear that it was some of this "less interesting material" that Willoughby Ellis acquired. How he did so remains a mystery. Additional Pengelly material (readily identifiable by the excavation numbers written on the specimens) is included in the Bolton Museums collections. The accessions register records that this material (Acc. No. 7203) was purchased in 1903 from W. J. Else who was curator of the Torquay Museum from 1897 to 1912. Since Else appears to have been the source of the Pengelly corals in the Willoughby Ellis collection (see note below), it may be that he was instrumental in providing him with the Kent's Cavern material as well but this is pure speculation. Dr. Harris, the present curator, informs me that the minute books of the Torquay Natural History Society contain no record of any transfer of Kent's Cavern material to Willoughby Ellis. 4,370 specimens.

(b) Polished Devonian corals from Torquay and South Devon. The collection was made between 1908 and 1925 and a substantial minority of the specimens bear collector's initials and/or dates. 50 specimens are marked 'H.W.E.' and these he presumably collected himself.

86 undated specimens bear the initials 'T.W.F.' who is assumed to have been the Rev. T. W. Freckleton who was minister of the Unity Church, Lonsdale Square, London in 1878 - a label written on the back of a church calendar for that year providing the only evidence of identity. His collection of minerals and fossils was sold in 1903 (*Athenaeum* May p. 578) but we have not been able to establish whether Willoughby Ellis acquired them then or at a later date.

18 specimens bear Pengelly's name and most of these are also marked 'Else' or, in one case, 'Coll. Pengelly per Else'. Since Pengelly died in 1894 and Willoughby Ellis apparently started his collection in 1908, it seems logical to assume that W. J. Else was the person from whom the Pengelly specimens were obtained.

In 1920, Willoughby Ellis acquired 62 specimens which were formerly in the collection of Dr. Samuel Grose (a retired surgeon and a member of the Torquay Natural History Society) who died in December 1919. 12 specimens, dated February 1921, are marked 'Bequeathed to me by the late John French' and a further 67 specimens from French's collection were acquired in the same month. 22 specimens came from 'Dr. Butler', 13 in February 1916, and 7 in March 1923 (2 are undated).

In addition many specimens appear to have been bought from local dealers, particularly J. Phillips and J. Collins/J. Collings (early labels show the former spelling, later ones almost invariably the latter) who also polished many of the specimens in the collection. 932 specimens.

(c) General fossil collection, mainly British. Lias, Gault, Chalk and Barton Beds material is well represented. 500 specimens.

H. Willoughby Ellis (1869-1943) does not appear to have been a resident of Torquay although he was clearly a regular visitor. Born at Burton-on-Trent, he was living at Berkswell, Warwickshire in 1910. He donated a fossil coral to Torquay Museum in 1911 and became a member of the Torquay Natural History Society in 1920. His address was then Lancaster Place, London N.W.3. He moved to Sevenoaks, Kent in 1926; to Chiselhurst in 1933; and to Weybridge, Surrey in 1934. He was still living at Weybridge at the time of his death in October 1944. His geological and archaeological collections were purchased by Liverpool Museum in December of that year. York Museum acquired the main part of his entomological collections.

1945 J. WILFRID JACKSON. Fossil collection: includes Pleistocene vertebrate material from Torbryan Cave, Devon and Cresswell Cave, Derbyshire. 400 specimens.

1947 HENRY SEYMOUR. Irish rock types. 96 specimens.

1948 F. GILBERT SMITH. "Amber". A too-good-to-be-true collection of polished resin containing insects, lizards and plant remains. Some specimens may be genuine amber; none are localised. 100 specimens.

1950 IMPERIAL INSTITUTE, LONDON. Burmese Minerals & Gemstones. 90 specimens.

1952 BETHELL ROBINSON. Polished Agates. 30 specimens.

Prof. CAMPBELL BROWN. Minerals. 32 specimens.

- 1953 JOSEPH DAVIES. Rock types from North Wales and North-West England. 55 specimens.
- 1954 J.K.P. EDWARDS. British fossils, mainly Jurassic and Cretaceous. 100 specimens.
- 1956 A.W. STELFOX. Pleistocene and Holocene mollusca: mainly British and Irish. (Fossil material from a collection of modern shells.) 250 specimens.
- 1958 Dr. BLAIR MACAULEY. British fossils - mainly Eocene and Oligocene. 48 specimens.
- 1960 KENDAL MUSEUM, KENDAL. British fossil collection. 1,650 specimens.
(This purchase comprised the entire reserve collections at Kendal Museum in 1960. Specimens actually on display were not included in the purchase but, even allowing for this, the 1935 catalogue shows that the collections were then considerably larger. We have not been able to discover what became of the additional material.)
- 1963 HORSHAM MUSEUM, SUSSEX. Pleistocene vertebrate fossils. 20 specimens.
- 1965 PHILIP CAMBRIDGE. Plio-Pleistocene fossils from the British crags, and from the Netherlands, Belgium & Germany. 125 specimens.
- A.E. SALISBURY. Cenozoic fossils. 100 specimens.
- 1966 Source unknown: Paris Basin fossils, mostly Lutetian. 120 specimens.
possible part of
the Archer collection
(1877)
- 1967 J. WILFRID JACKSON. Fossil Cowrie shells: Cenozoic. 40 specimens.
- 1969 MANX MUSEUM, DOUGLAS. Plio-Pleistocene fossils from the British crags. 140 specimens.
- Miss O. WILSON. Cornish rocks (100 specimens) and minerals (110 specimens).
- 1970 E. NEAVERSON. Lower Carboniferous fossils from North Wales, mainly corals and 'reef-knoll' brachiopods from the Prestatyn area. 1,500 specimens.
- Material donated by Liverpool University. The greater part of Neaverson's collection is divided between the Leeds Office of the Institute of Geological Sciences and University College of Wales, Aberystwyth.

1971 J.W. KITCHEN. British fossils, mostly from the Plio-Pleistocene crags. (Fossil specimens from a collection of recent shells.) 70 specimens.

J. WILFRID JACKSON. Fossils, mainly from the Lower Carboniferous of Derbyshire. These include specimens cited by Weir (1931) and Longstaff (1933). In addition to his own collecting, Jackson obtained specimens by exchange with F.J.North, H. Day, Holroyd and others.

The collection also includes Lower Palaeozoic and Mesozoic fossils, together with a collection of Pleistocene molluscs from the Burtle Beds of Somerset (cited by Bulleid & Jackson, 1937, 1941). 1,200 specimens.

Taken as a whole, the collections are reasonably comprehensive but the loss of most of the pre-war material means that strong points are relatively few. The surviving material is, however, in good condition and is mostly well documented.

The fossil collections are extensive (an estimated 17,500 specimens) and predominantly of British material. The marine Devonian and the Lower Carboniferous are particularly well represented and there is also a large collection of Pleistocene and Holocene molluscs. (The main weakness lies in the Lower Palaeozoic systems in general, and the Cambrian in particular.) Unusual specimens include a Protoceratops egg, two Aepyornis eggs and a complete skeleton of Megaceros giganteus.

The rock and mineral collections are much smaller. The rock collections (c. 2,800 specimens) are predominantly British but contain about 20% foreign material, including 200 American rock types. Conversely the mineral collections (c. 2,550 specimens) have a strong overseas bias with only about 25% British material. There is also a collection of 400 cut gemstones.

CURATORIAL CONDITION OF COLLECTIONS

The main reference collections are stored in wooden cabinets, drawer size 2' x 2'. Every specimen in these collections has been accessioned and numbered.

FOSSILS 247 drawers. The basic classification is stratigraphical (3 drawers of Cambrian fossils, 11 of Ordovician fossils etc.). Larger stratigraphic units are then divided up according to fossil type: the 33 drawers of Lower Carboniferous fossils include 7 of corals, 9 of brachiopods and so on.

There is a card index (estimated to contain about 8,400 entries) which covers all the fossils included in the main reference collections. This is divided up according to phyla, with the cards arranged alphabetically within each division.

ROCKS 136 drawers. Divided into metamorphic, sedimentary and igneous rocks. The sedimentary rocks are arranged stratigraphically, the igneous and metamorphic rocks according to rock type.

MINERALS 130 drawers. Minerals are classified according to the Hey Chemical Index published by the British Museum (Natural History) and the storage is arranged in Index sequence.

In addition there are suites of rock types from various areas of the British Isles (18 drawers) and collections to illustrate the physical properties of minerals and various types of geological phenomena (13 drawers).

The following specialised collections are stored separately from the main reference collections:

HIGGINS	Coal Measure plants
AUSTIN	Crinoids
DERBY	Agates and polished stones
WILLOUGHBY ELLIS	Devonian corals
	Kent's Cavern material
JACKSON	Lower Carboniferous fossils
NEAVERSON	Lower Carboniferous fossils.

The surviving minerals of the Derby collection are in good order, and the printed catalogue of 1894 provides detailed descriptions of each specimen.

The Kent's Cavern material was identified by Dr. J. W. Jackson in 1964 and, though housed in an antiquated cabinet, is in a reasonable state of order.

Work is in progress on the Higgins plants and the Jackson fossils. Card indexes (using IRGMA record cards) are being prepared for both collections.

The Austin crinoids, the Willoughby Ellis corals and (especially) the Neaverson fossils are in need of re-examination and redetermination.

LIBRARY

The departmental library includes the following periodicals:

Quarterly Journal of the Geological Society	1845 - 1937 1957 - 1971
Journal of the Geological Society	1971 - 1976 (continuing)
Palaeontographical Society Monographs	1848 - 1901 1909 - 1976 (continuing)
The Geologist	1858 - 1862
Proceedings of the Liverpool Geological Society	1859 - 1950
Liverpool & Manchester Geological Journal	1951 - 1961
Geological Journal	1962 - 1976 (continuing)
The Geological Magazine	1873 - 1912 1925 - 1952 (part run)
Proceedings of the Geologists Association	1874 - 1937 (part run) 1952 - 1976 (continuing)
Proceedings of the Yorkshire Geological Society	1900 - 1911 1926 - 1976 (continuing)
Palaeontology	1962 - 1976 (continuing)

Map collections include all 1-inch and 1 : 50,000 Geological Survey maps of England, Wales and Scotland currently available, together with a few pre-war sheets. The library contains a number of sheet memoirs, mainly dealing with the local area (Merseyside, Lancashire, Cheshire). As a result of wartime losses, however, many out-of-print memoirs (including the 1923 Liverpool volume) are lacking.

DISPLAYS

The Natural History gallery, opened in 1974, includes geological displays with the main emphasis on palaeontology.

The geological section of the gallery has been given the title 'The Earth Before Man'. The initial displays deal with rocks and their formation,

and fossils - their nature, formation and use in correlating successions. 12 cases summarise the changes in the life of the different geological periods, and form an introductory bay to a tunnel where the displays highlight the main evolutionary advances throughout geological time. Successive displays illustrate: Trilobites; Silurian sea diorama; Silurian fossils; Devonian fish; the Coelacanth - a living fossil; Coal Forest diorama; Carboniferous plants; the formation of coal; the Age of Reptiles; Ichthyosaurs; Jurassic dinosaurs; Cretaceous dinosaurs; Protoceratops and dinosaur eggs; Pterosaurs; Archaeopteryx; Mesozoic mammals; the Ice Age; Ice Age diorama; Ice Age animals; the evolution of Man. (See cover and opposite page.)

Large free-standing exhibits include the skeleton of a Giant Deer and casts of the skeletons of two dinosaurs, Allosaurus and Camptosaurus.

Displays on geological themes elsewhere in the gallery include a small display of mineral ores (under 'Natural Resources') and cases dealing with the evolution of echinoids and cephalopods (in the 'Principles of Evolution' section).

Minerals, in particular, are poorly represented in the permanent displays but a temporary exhibition of minerals was on show during the winter months of 1975/76.

It is hoped that, as the Museum's older galleries are redeveloped, new displays dealing with the Geology and Natural History of Merseyside can be introduced.

EDUCATIONAL SERVICES

The Museum organises classes in Geology at all levels from adult education to primary schools. The Museum Education Service runs training courses for teachers in projects for primary and secondary schools which make use of the gallery displays, handling trays of specimens and museum workbooks. Practical classes for C.S.E. and 'O' level Geology are also run by the Education Service (using selected material from the reserve collections) but the curatorial staff normally assist with 'A' level classes. In addition test sessions are organised prior to the 'O' and 'A' level examinations each summer. Schools making use of these services come from inside and outside the county boundary.

A number of W.E.A. classes make regular evening visits to the department for practical work. Members of the departmental staff themselves give occasional lecture courses for both the W.E.A. and University Extra-Mural departments.



MODEL AND EGG OF PROTOCERATOPS.



MUSEUM PUBLICATIONS

'The Earth Before Man' - a guide to the Geological Gallery.

Colour postcards: Coal Forest; Ichthyosaur; Protoceratops; Mammoth.

Handbooks produced by the British Museum (Natural History) and the Geological Museum are sold at the museum shop, together with a selection of geological postcards and posters.

ACKNOWLEDGEMENTS

I am indebted to Martin Warren who prepared a detailed report on the sources of the Willoughby Ellis coral collection while on attachment from the Museum Studies course at Leicester. Also to Dr. Norman Harris of the Torquay Museum and Geoff. Hancock of Bolton Museum for biographical information on H. Willoughby Ellis. In addition Dr. Hugh Torrens supplied copious references to both collectors and collections.

My colleague Philip Phillips prepared the bibliography (which follows part 'B') while Colin Greatbanks compiled the list of staff.

Geoffrey Tresise,
Keeper of Geology,
Merseyside County Museums,
Liverpool.

* * * * *

B. LIST OF TYPE, FIGURED AND CITED FOSSILS

The specimens have been divided into biological groups, e.g. Plantae, etc. and within each group they are listed in order of accession number. In each case the specimen appears under the most recent name which has been applied to it in the literature. (Note that this is not always the current name.)

PLANTAE

The following specimens were collected from the Middle Coal Measures, during the excavation of a railway cutting near Ravenhead, St. Helens. They were presented to the Museum in 1870 by the Rev. H. H. Higgins.

- ALETHOPTERIS DECURRENS Dawson Figured
Higgins A.
Marrat, F.P. in Higgins, H.H., 1872. p. 108, pl. 2, fig. 3.
- ALETHOPTERIS DECURRENS Dawson Figured
Higgins B.
Marrat, F.P. in Higgins, H.H., 1872. p. 108, pl. 2, fig. 2.
- RHACOPHYLLUM sp. Figured
Higgins C.
Marrat, F.P. in Higgins, H.H., 1872, pl. 1, fig. 2.
Figured as "Rootstock of a Fern"
Kidston, R., 1889. p. 410.
- ASTEROPHYLLITES CHARAEFORMIS Sternberg Figured
Higgins D.
Higgins, H.H., 1871 a. p. 19, pl. 1, fig. 17.
Figured as "Terminal portion of the foliage of a calamite"
Crookall, R., 1969. p. 708.
- BOTHRDENDRON MINUTIFOLIUM Boulay Figured
Higgins E.
Kidston, R., 1889. pp. 412-413, pl. II, fig. 6.
- CALAMITES CANNAEFORMIS Schlotheim Figured
Higgins F.
Higgins, H.H., 1871a. pl. 1, fig. 2.
Crookall, R., 1969. p. 633.
- CALAMITES VARIANS var. INCONSTANS Weiss Figured
Higgins G.
Kidston, R. 1889, pp. 398-400, pl. I, figs. 1, 1a.
- CALLIPTERIS CONFERTA Sternberg ? Figured
Higgins H.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 12, figs. 8; 8a.
- CAULOPTERIS c.f. WORTHENI- Lesquereux Figured
Higgins J.
Marrat, F.P. in Higgins, H.H. 1872. pl. 10, fig. 1.
- Obcordate leaf of a Fern allied to Genus NEPHROPTERIS Figured
Higgins K.
Higgins, H.H., 1871a. pl. 1, fig. 11.
- NEUROPTERIS DENTATA Lesquereux Figured
Higgins L.
Higgins, H.H., 1871a. pl. 1, fig. 13.
Described as "Portion of stem which dentate amplexicaul leaf"
Marrat, F.P. in Higgins, H.H., 1872. pp. 103-104.
Described as NEPHROPTERIS DENTICULATA.
Kidston, R., 1889. p. 408, pl. II, fig. 5.

- NEPHROPTERIS TRIANGULARIS Marrat 'Holotype'
Higgins M.
Marrat, F.P. in Higgins, H.H., 1872. p. 104, pl. 1, fig. 1.
- NEPHROPTERIS sp. Figured
Higgins N.
Marrat, F.P. in Higgins, H.H., 1872. p. 104, pl. 12, fig. 2.
- NEPHROPTERIS sp. Figured
Higgins P.
Marrat, F.P. in Higgins, H.H., 1872. p. 104, pl. 12, fig. 1.
- NEUROPTERIS HIRSUTA Lesquereux Figured
Higgins Q.
Marrat, F.P. in Higgins, H.H., 1872. p. 106, pl. 2, fig. 4.
- NEUROPTERIS HETEROPHYLLA Brongniart Figured
Higgins R.
Marrat, F.P. in Higgins, H.H., 1872. pp. 105-106, pl. 6, fig. 1.
- NEUROPTERIS HETEROPHYLLA Brongniart Figured
Higgins S.
Marrat, F.P. in Higgins, H.H., 1872. pp. 105-106, pl. 12, fig. 3.
- NEUROPTERIS OBCORDATA Marrat ?Holotype
Higgins T.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 2, fig. 5.
- ODONTOPTERIS BRARDII Brongniart Figured
Higgins U.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 12, fig. 4.
- ODONTOPTERIS HETEROPHYLLA Lesquereux Figured
Higgins V.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 9, fig. 5.
- ODONTOPTERIS HETEROPHYLLA Lesquereux Figured
Higgins W.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 9, fig. 4.
- ODONTOPTERIS NEUROPTEROIDES Marrat Syntype
Higgins X.
Marrat, F.P. in Higgins, H.H., 1872. p. 107, pl. 7, fig. 1.
- SPHENOPOLYPODIACEAE : PECOPTERIDAE Figured
Higgins Y.
Higgins, H.H., 1871a. pl. 1, figs. 7, 8.
Figured as "... robust Ferns, referred to the division SPHENOPOLYPODIACEAE, Schimper." and "... the form is that of the PECOPTERIDAE."
- PECOPTERIS AEQUALIS Brongniart Figured
Higgins Z.
Marrat, F.P. in Higgins, H.H., 1872. p. 108, pl. 3, fig. 2.
- PECOPTERIS OREOPTERIDIS Lindley and Hutton Figured
Higgins AA.
Higgins, H.H., 1871a. pl. 1, fig. 9.

- SIGILLARIA ARZINENSIS Corda Figured
 Higgins AB.
 Kidston, R., 1889. p. 413, pl. 1, figs. 2, 2a.
- SPHENOPTERIS CORIACEA Marrat Holotype
 Higgins AC.
 Marrat, F.P. in Higgins, H.H., 1872. pp. 98-99, pl. 9, fig. 1.
 Kidston, R., 1889. p. 406, pl. 1, figs. 4, 4a, 4b.
 Kidston, R., 1923. p. 77, pl. XVIII, figs. 3, 3a.
- SPHENOPTERIS CURTILOBA Dawson Figured
 Higgins AD.
 Marrat, F.P. in Higgins, H.H., 1872. p. 105, pl. 5, fig. 5.
- SPHENOPTERIS DISSECTA Brongniart Figured
 Higgins AE.
 Marrat, F.P. in Higgins, H.H., 1872. p. 102, pl. 5, figs. 1, 2.
- SPHENOPTERIS FOOTNERI Marrat Syntype
 Higgins AF.
 Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 8, fig. 2.
 Kidston, R., 1889. p. 406-407, pl. 2, fig. 3.
 Kidston, R. 1923. pp. 117-120, pl. XXIV, figs. 1, 1a, 1b.
- SPHENOPTERIS MARRATII Kidston Syntype
 Higgins AH.
 Kidston, R., 1889. pp. 403-405, pl. II, fig. 2.
- SPHENOPTERIS MARRATII Kidston Syntype
 Higgins AJ.
 Higgins, H.H., 1871a. pl. 1, fig. 1.
 Figured as "Fern of the group SPHENOPTERIS-GYMNOGRAMMIDES, Schimper."
 Marrat, F.P. in Higgins, H.H., 1872. p. 98.
 Cited as SPHENOPTERIS TRIFOLIATA Artis.
 Kidston, R., 1889. pp. 403-405, pl. II, fig. 1.
 Kidston, R., 1923. pp. 47-49, pl. VIII, figs. 1, 1a.
- SPHENOPTERIS MULTIFIDA Marrat
 Higgins AK.
 Marrat, F.P. in Higgins, H.H., 1872. p. 102, pl. 5, fig. 4.
 This specimen appears to be the counter-part of the one figured, which is missing.
- SPHENOPTERIS PLUMULA Marrat Holotype
 Higgins AL.
 Marrat, F.P. in Higgins, H.H., 1872. pp. 99-100, pl. 5, fig. 3.
- SPHENOPTERIS MIXTA Schimper Figured
 Higgins AM.
 Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 8, figs. 1, 1a, 1b.
 Described as SPHENOPTERIS PULCHRA Marrat.
 Kidston, R., 1889. pp. 405-406.
 Kidston, R., 1923. pp. 75-77, pl. XI, figs. 6, 6a, 6b, 6c.
- SPHENOPTERIS SAUVERI Crepin Figured
 Higgins AN.
 Higgins, H.H., 1871a. pl. 1, fig. 10.
 Figured as "More robust Ferns, referred to the division SPHENOPOLYPODIACEAE; Schimper."
 Kidston, R., 1923. p. 51.
 Cited as S. SAUVERI Crepin.

- SPHENOPTERIS SPINOSA Goepfert Figured
Higgins AP.
Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 4, fig. 1.
- SPHENOPTERIS SPINOSA Goepfert Figured
Higgins AQ.
Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 4, fig. 3.
- SPHENOPTERIS SPINOSA Goepfert Figured
Higgins AR.
Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 4, fig. 4.
- SPHENOPTERIS SPINOSA Goepfert Figured
Higgins AS.
Marrat, F.P. in Higgins, H.H., 1872. p. 101, pl. 4, fig. 5.
- SPHYROTHYRIS OBLIQUA (Marrat) Holotype
Higgins AT.
Marrat, F.P. in Higgins, H.H., 1872. p. 99., pl. 9, figs. 3, 3a.
Figured as SPHENOPTERIS OBLIQUA Marrat
Kidston, R. 1889. pp. 402-403, pl. I, figs. 3, 3a, 3b, 3c, 3d.
Described as SPHYROPTERIS OBLIQUA Marrat.
Kidston, R., 1923. pp. 363-364, pl. LXXXIV, figs. 6, 6a, 6b, 6c, 6d, 7.
- Plants of doubtful affinity : possibly Algae Figured
- Higgins AU.
Marrat, F.P. in Higgins, H.H., 1872. pl. 13, fig. 1.
- Plants of doubtful affinity : possibly Algae Figured
- Higgins AV.
Marrat, F.P. in Higgins, H.H., 1872. pl. 13, fig. 2.
- Delicate Ferns having a general resemblance to the Filmy-Ferns Figured
- Higgins AW.
Higgins, H.H., 1871a. pl. 1, fig. 6.
- SPHENOPTERIS FOOTNERI ? Marrat Figured
- Higgins AX.
Higgins, H.H., 1871a. pl. 1, fig. 3.
Marrat, F.P. in Higgins, H.H., 1872. pl. 8, fig. 4.
Figured as "Circinate foliage of the same plant?" (S. FOOTNERI)
- A young Fern, just unfolding its leaves
- Higgins AY.
Marrat, F.P. in Higgins, H.H., 1872. pl. 12, fig. 5.
- A young Fern, covered with fine hair-like palae Figured
- Higgins AZ.
Marrat, F.P. in Higgins, H.H., 1872. pl. 12, fig. 7.
- Stem Figured
- Higgins BA.
Marrat, F.P. in Higgins, H.H., 1872. pl. 11, fig. 1.
Cited as "Stem of a tree fern."
Kidston, R., 1889. p. 415.
- Plants of doubtful affinity : possibly Algae Figured
- Higgins BB.
Marrat, F.P. in Higgins, H.H., 1872. pl. 13, fig. 3.
- Plants of doubtful affinity : possibly Algae Figured
- Higgins BC.
Marrat, F.P. in Higgins, H.H., 1872. pl. 13, fig. 4.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Syntype
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Locality unknown, probably Shapp Tollbar Quarry, Westmorland, England.

(see note in Kidston, 1885 p. 566)

Accession number 60.64.NB

Acquired by purchase from Kendal Museum

Kidston, R. 1885. pp. 562-566, pl. 18, fig. 1.

Describe and figured as LYCOPODITES (SIGILLARIA) VANUXEMI Goepfert.

Kidston, R. 1901. pp. 38-39.

Cited as ARCHAEOSIGILLARIA VANUXEMI (Goepfert).

Jackson, J.W. 1910. p. 78

Cited as A. VANUXEMI.

Krausel, R. and Weyland, H. 1949. pp. 139 and 147.

Renamed as ARCHAEOSIGILLARIA KIDSTONI sp. nov. quoting Kidston's
figured specimens as syntypes.

Lacey, W.S. 1962. pp. 143-144

Compares Westmorland specimens with A. STOBBSI sp. nov.

Crookall, R. 1966. pp. 478-479, pl. XCVIII, fig. 1.

Described and figured as A. KIDSTONI. The accession number is given
as 60.64.RA., while the specimen has been reregistered as 60.64.NB.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Figured
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Shap Tollbar Quarry, Westmorland, England.

Accession number 60.64.NC

Acquired by purchase from Kendal Museum

Crookall, R. 1966. pp. 478-479, pl. 18, fig. 8.

Described and figured as A. KIDSTONI, the accession number is given
as 60.64.RB on the plate and 60.64.RC in the text. The specimen has
since been reregistered as 60.64.NC.

There are references (Kidston 1901, pp. 38-39, Jackson, 1910, p. 78) to
specimens in Kendal Museum accompanying those figured by Kidston 1885, but
they are not specific enough to identify the specimens with certainty.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Syntype
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Shap Tollbar Quarry, Westmorland, England.

Accession number 60.64.ND.

Acquired by purchase from Kendal Museum.

Kidston, R. 1885. pp. 562-566, pl. 18, figs. 2, 3a, 3b, 5.

Kidston, R. 1901. pp. 38-39.

Jackson, J.W. 1910. p. 78.

Krausel, R. and Weyland, H. 1949. pp. 139 and 147.

Lacey, W.S. pp. 143-144.

Crookall, R. 1966. pp. 478-479, pl. XCVIII, figs. 3, 5.

The accession number is given as 60.64.RC, while the specimen has
been reregistered as 60.64.ND.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Figured
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Shap Tollbar Quarry, Westmorland, England.
Accession number 60.64.NE.

Acquired by purchase from Kendal Museum.

Crookall, R. 1966. pp. 478-479. pl. XCVIII, fig. 8.

The accession number is given as 60.64.RD, since reregistered as 60.64.NE. See note after 60.64.NC.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Syntype
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Shap Tollbar Quarry, Westmorland, England.
Accession number 60.64.NF.

Acquired by purchase from Kendal Museum

Kidston, R. 1885. pp. 562-566, pl. 18, fig. 4.

Kidston, R. 1901. pp. 38-39.

Jackson, J.W. 1910. p. 78.

Krausel, R. and Weyland, H. 1949. pp. 139 and 147.

Lacey, W.S. 1962. pp. 143-144.

Crookall, R. 1966. pp. 478-479, pl. XCVIII, figs. 2, 6.

The accession number is given as 60.64.RF., the specimen has since been reregistered as 60.64.NF.

ARCHAEOSIGILLARIA KIDSTONI Krausel and Weyland 1949 Syntype
Carboniferous Limestone (probably lower part of CANINIA Zone), Carboniferous.
Shap Tollbar Quarry, Westmorland, England.
Accession number 60.64.NH.

Acquired by purchase from Kendal Museum

Kidston, R. 1885. pp. 562-566, pl. 18, figs. 6, 6a.

Kidston, R. 1901. pp. 38-39.

Jackson, J.W. 1910. p. 78.

Krausel, R. and Weyland, H. 1949. pp. 139 and 147.

Lacey, W.S. 1962. pp. 143-144.

Crookall, R. 1966. pp. 478-479. pl. XCVIII, fig. 7.

The accession number is given as 60.64.RG, the specimen has since been reregistered as 60.64.NH.

EQUISETITES KEUPERINA G.H.Morton 1863. Holotype
Keuper Sandstone, Triassic.

Storeton Quarry, Birkenhead, Merseyside.

Accession number 1969.131. There is no record of the original number.

Acquired by gift from the Royal Institution (per G.H.Morton) in 1889.

Morton, G.H., 1863a. p. 17.

Describes a figure of the specimen 'published' by the Natural History Society of Liverpool and proposes the above name.

Morton, G.H., 1863b. p. 20, pl. 16, fig. f.

ANIMALIAMOLLUSCA

UNIO CUMBERLANDI Woodward 1965 2 Paratypes

Headon Beds, Oligocene.

Colwell Cliff, Isle of Wight.

Accession number 1965.64.

Acquired by gift from F. R. Woodward, 24th March, 1965.

Woodward, F.R. 1965. p. 320.

BELLEROPHON COSTATUS J. de C. Sowerby 1824 Cited

Visean, Carboniferous Limestone.

Whitewell, Derbyshire, England.

Accession number 1971.305.ADH

Acquired by purchase from J. W. Jackson, 14th Oct. 1971.

Weir, J. 1931. p. 799.

BELLEROPHON SOWERBYI d'Orbigny 1840 Cited

Visean, Carboniferous Limestone.

Castleton, Derbyshire, England.

Accession number 1971.305.ADK.

Acquired by purchase from J. W. Jackson, 14th Oct. 1971.

Weir, J. 1931. p. 792.

BELLEROPHON TENUIFASCIA J. de C. Sowerby 1824 Cited

Visean, Carboniferous Limestone.

Treak Cliff, Castleton, Derbyshire, England.

Accession number 1971.305.ADS

Acquired by purchase from J. W. Jackson, 14th Oct. 1971.

Weir, J. 1931. p. 790.

EOPTYCHIA SULCATA (de Koninck 1881) Cited

Visean, Carboniferous Limestone.

Treak Cliff, Castleton, Derbyshire, England.

Accession number 1971.305.AEC.

Acquired by purchase from J. W. Jackson, 14th Oct. 1971.

Longstaff, J. 1933. p. 113.

WAAGENELLA FERUSSACI (d'Orbigny 1840) Cited

Visean, Carboniferous Limestone.

Treak Cliff, Castleton, Derbyshire, England.

Accession number 1971.305.AKU.

Acquired by purchase from J. W. Jackson, 14th Oct. 1971.

Weir, J. 1931. p. 814.

The collections contain at least some of the mollusc material cited by Bulleid and Jackson (1937, 1941) from the Burtle Beds of Somerset. They were purchased from J. W. Jackson on 14th October, 1971.

Also in the collection are the bivalves and gastropods from the Holocene Shell-Banks around Lough Foyle, Northern Ireland cited by McMillan (1957). They were transferred from the Department of Invertebrate Zoology and bear the accession number 1975.462.BH.

SCROBICULARIA PLANA (de Costa)

Cited

Post-Glacial, Holocene.

Lewes Road, Wallasey, Merseyside.

Accession number 1975.462.AH.

Acquired by gift from Mr. N. F. Ellison, via Department of Invertebrate Zoology. Davies, J. and McMillan, N.F., 1956. p. 507.

ECHINODERMATA

'PENTACRINUS MILLERI' Austin

Figured

Lower Oolite (Inferior Oolite), Jurassic.

Locality unknown.

Austin Collection number 12.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Austin, T. and T. 1847. pp. 120-121, pl. xvi, fig. 1d.

BLOTHEROCRINUS LONGIDACTYLUS (T. & T. Austin 1847)

Lectotype

Tournaisian, Carboniferous.

Clevedon Bay, near Walton Castle, Somersetshire.

Austin Collection number 58.

Acquired by purchase from Major Thomas Austin, 18th April, 1886.

Cumberland, G. 1821. p. 90, pl. 3, fig. 1.

Described as "encrinus of an entirely new species".

Mantell, G.A. 1839. pp. 586-587, tab. 119.

Figured as "Cup-like Encrinite (CYANTHOCRINUS PLANUS)".

Austin, T. and T. 1847. p. 88, pl. xi, fig. 3a.

Described as POTERIOCRINUS LONGIDACTYLUS.

Wright, J. 1935. p. 203.

Cited as PACHYLOCRINUS LONGIDACTYLUS (Austin)

Wright, J. 1951. pp. 36-38. pl. VIII, fig. 6.

Designated as Lectotype of B. LONGIDACTYLUS (Austin)

BLOTHEROCRINUS LONGIDACTYLUS (T. & T. Austin 1847)

Paralectotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection numbers 60 and 60a.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1951. pp. 36-37.

"Nos. 60 and 60a consist of arm fragments which probably do not belong to the present species, but are too badly preserved for accurate determination".

BLOTHEROCRINUS BREVIDACTYLUS (T. & T. Austin 1843) Lectotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 61.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Austin, T. and T. 1843 pp. 198.

Described as CLADOCRINITES BREVIDACTYLUS.

Austin, T. and T. 1847. p. 89, pl. xi, fig. 4a.

Described as POTERIOCRINUS ABBREVIATUS.

Wright, J. 1934. pp. 257-258. p. XV, fig. 7.

Described as PACHYLOCRINUS BREVIDACTYLUS (Austin)

Wright, J. 1951. pp. 38-39, pl. X, fig. 6.

Described as BLOTHROCRINUS BREVIDACTYLUS (T. and T. Austin)

PACHYLOCRINUS ? WEXFORDENSIS Wright 1951

Figured

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 62.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1934. p. 256, pl. XV, fig. 10.

Cited as PACHYLOCRINUS LATIFRONS (Austin)

Wright, J. 1951. pp. 66-67. pl. XXXI, fig. 1.

Provisionally assigned to P? WEXFORDENSIS sp. nov.

GRAPHICOCRINUS ? AUSTINI Wright 1952

Holotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 63.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1952. p. 104, pl. XXXVI, figs. 16, 17.

Designated as Holotype of GRAPHOCRINUS ? AUSTINI sp. nov.

ONYCHOCRINUS POLYDACTYLUS (M'Coy 1844)

Figured

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 64.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1934. pp. 258 and 260-261, pl. XV, fig. 5, text-fig. 31.

States "For the present, therefore, I regard the Austin's no. 64 as a young example of O. POLYDACTYLUS."

Wright, J. 1954. pp. 172-174, pl. XIV, fig. 12, text-fig. 92.

States "The writer now considers the determination doubtful owing to the branching of the arms at the distal ends without traces of ramules."

- OPHIUOCRINUS DACTYLOIDES (T. & T. Austin 1847) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 65.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1847. pp. 85-86, pl. xi, fig. 1a.
 Described as POTERIOCRINUS DACTYLOIDES.
 Wright, J. 1950. pp. 20-22, pl. VI, fig. 1.
- PHACELOCRINUS ROSTRATUS (T. & T. Austin 1846) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 68.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1846. pp. 75-77, pl. ix, fig. 2f.
 Described as POTERIOCRINUS ROSTRATUS.
 There is no mention of this specimen by Wright, 1951.
- PHACELOCRINUS ROSTRATUS (T. & T. Austin 1846) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 69.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1846. pp. 75-77, pl. ix, figs. 2d, 2e.
 Described as POTERIOCRINUS ROSTRATUS.
 Wright, J. 1951. pp. 29-31, pl. x, fig. 4.
 States "may or may not belong to the species".
- DINOTOCRINUS ? PERGRACILIS (Austin MS) Wright 1951 Holotype
 Carboniferous Limestone, Carboniferous.
 Clitheroe, Lancs.
 Austin Collection number 72.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin MS (at B.M., N.H.) figured as POTERIOCRINUS PERGRACILIS. PL. "2".
 Wright, J. 1935. p. 194.
 Cited as POTERIOCRINUS GRACILIS Austin.
 Wright, J. 1951. p. 72, pl. XXX, fig. 8.
 Described as Holotype of DINOTOCRINUS ? PERGRACILIS sp. nov.
- POTERIOCRINUS ROBUSTUS (Austin MS) Wright 1950 Holotype
 Carboniferous Limestone, Carboniferous.
 Clitheroe, Lancs.
 Austin Collection number 73.
 Wright, J. 1950. pp. 10-11, pl. V, fig. 3.
 Described as Holotype of POTERIOCRINUS ROBUSTUS sp. nov.

RHODOCRINITES ? GRANULATUS (Austin MS) Wright 1958 Holotype
 Tournaisian, Carboniferous.
 Hook Head, Co. Wexford, Eire.
 Austin Collection number 90.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1958. p. 313, pl. LXXVI, fig. 11.
 Described as Holotype of RHODOCRINITES ? GRANULATUS sp. nov.

AMPHORACRINUS GIGAS (Austin MS) Wright 1955 Paratype
 Carboniferous Limestone, Carboniferous.
 Ballynaleek (Balnaleck), Enniskillen, Co. Fermanagh, Eire.
 Austin Collection number 91a.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 202-203, pl. XLVIII, fig. 7.

AMPHORACRINUS GIGAS (Austin MS) Wright 1955 Holotype
 Carboniferous Limestone, Carboniferous.
 Ballynaleek (Balnaleck), Enniskillen, Co. Fermanagh, Eire.
 Austin Collection number 91b.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 202-203, pl. XLVIII, figs. 6, 15 and Text-fig. 110,
 figs. 1-4
 Described as Holotype of AMPHORACRINUS GIGAS sp. nov.

AMPHORACRINUS CRASSUS (T. & T. Austin 1843) Lectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 95.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. p. 199, pl. LI, fig. 38, text-fig. 110, fig. 5.

AMPHORACRINUS GRANULATUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 96.
 Acquired by purchase from Major Thomas Austin, 18th April, 1886.
 Wright, J. 1955. pp. 198-199, pl. LXXX, fig. 16.

AMPHORACRINUS GRANULATUS (T. & T. Austin 1843) Lectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 96a.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1843. p. 201.
 Described as ACTINOCRINITES GRANULATUS Austin.
 Wright, J. 1955. pp. 198-199, pl. LII, fig. 11, text-fig. 110,
 figs. 9, 9a, 9b.

AMPHORACRINUS GRANULATUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 97.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 198-199, pl. LXXX, fig. 16.

DIALUTOCRINUS ACULEATUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 104a.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 247-248, pl. LXI, fig. 9.

DIALUTOCRINUS ELEPHANTINUS (T. & T. Austin 1843) Lectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 137.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1943. pp. 232-233, pl. VIII, fig. 1.
 Describes and reproduces part of a circular, which figures this
 specimen, distributed by T. and T. Austin to advertise their
 Monograph (Austin, T. and T. 1843-7).
 Wright, J. 1955. pp. 250-251, pl. LXI, fig. 1.

DIALUTOCRINUS LONGISPINOSUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 138.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. p. 254.

DIALUTOCRINUS ELEPHANTINUS (T. & T. Austin 1843) Paralectotypes
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection numbers 142 and 148.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. p. 251.

DIALUTOCRINUS LAEVISSIMUS (T. & T. Austin 1843) Lectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 152.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 252-254, pl. LXI, figs. 5, 6, text-fig. 124, figs. 1, 1a.

DIALUTOCRINUS LONGISPINOSUS (T. & T. Austin 1843) Lectotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 160.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1955. pp. 254-255, pl. LXI, fig. 3.

DIALUTOCRINUS CATAPHRACTUS (T. & T. Austin 1843) Lectotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 172.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1955. pp. 248-250, pl. LXI, fig. 2.

DICHOCRINUS FUSIFORMIS (T. & T. Austin 1844) Holotype

Tournaisian, Carboniferous.

Black Rock, Avonside, Bristol.

Austin Collection number 265.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Austin, T. and T. 1844. p. 47, p. v, fig. 6b.

Wright, J. 1956. p. 305, pl. LXXV, fig. 11.

DICHOCRINUS FUSIFORMIS (T. & T. Austin 1844) Paratype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 286.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Wright, J. 1956. p. 305, pl. LXXV, fig. 4.

Cited in the text as Austin Collection number 268.

PLATYCRINITES LAEVIS Miller 1821 Figured

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 288.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Austin, T. and T. 1843. p. 8, pl. i, fig. 1a.

Wright, J. 1955. pp. 266-267, pl. LXVI, fig. 6.

PLANTYCRINITES TRIGINTIDACTYLUS (T. & T. Austin 1843) Paralectotype

Tournaisian, Carboniferous.

Hook Point, Co. Wexford, Eire.

Austin Collection number 297.

Acquired by purchase from Major Thomas Austin, 18th April 1886.

Austin, T. and T. 1843. p. 30, pl. iii, fig. 1c.

Wright, J. 1955. pp. 267-269, pl. LXVII, fig. 9.

- PLACTYCRINITES TRIGINTIDACTYLUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 299.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Wright, J. 1955. pp. 267-269, pl. LXVII, fig. 5.
- PLATYCRINITES SPINOSUS (T. & T. Austin 1843) Paralectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 317.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1843. p. 19, pl. i, fig. 20.
 Wright, J. 1955. pp. 269-270, pl. LXVII, fig. 10.
- PLATYCRINITES SPINOSUS (T. & T. Austin 1843) Lectotype
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 319.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Austin, T. and T. 1843. p. 19, pl. i, fig. 2k.
 Wright, J. 1955. pp. 269-270, pls. LXVII, fig. 3, LXIX, fig. 29.
- OROPHOCHRINUS PENTANGULARIS (G. B. Sowerby 1834) Figured
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 348.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Macurda, D.B. jr. 1965. p. 1092, pl. 122, figs. 32, 33, 34.
- OROPHOCHRINUS PENTANGULARIS (G. B. Sowerby 1834) Figured
 Tournaisian, Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 349.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Macurda, D.B. jr. 1965. pl. 122, fig. 39.
- OROPHOCHRINUS sp. Figured
 Tournaisian Carboniferous.
 Hook Point, Co. Wexford, Eire.
 Austin Collection number 350.
 Acquired by purchase from Major Thomas Austin, 18th April 1886.
 Macurda, D.B. jr. 1965. p. 1088, pl. 123, figs. 32-34.

- OROPHOCRINUS PENTANGULARIS (G. B. Sowerby 1834) Figured
Tournaisian, Carboniferous.
Hook Point, Co. Wexford, Eire.
Austin Collection number 351.
Acquired by purchase from Major Thomas Austin, 18th April 1886.
Macurda, D.B. jr. 1965. p. 1086, pl. 122, figs. 29-31.
- SYCOCRINITES ANAPEPTAMENUS (T. & T. Austin 1843) Lectotype
Tournaisian, Carboniferous.
Hook Point, Co. Wexford, Eire.
Austin Collection number 369.
Acquired by purchase from Major Thomas Austin, 18th April 1886.
Austin, T. 1848. p. 293.
Bather, F.A. 1914. pp. 250-254, pl. X, figs. 1-1d.
Designated Lectotype.
Wright, J. 1952. pp. 133-134.
- PHOLIDOCIDARIS ANCEPS (T. & T. Austin 1843) Holotype
Tournaisian, Carboniferous.
Hook Point, Co. Wexford, Eire.
Austin Collection number 401.
Acquired by purchase from Major Thomas Austin, 18th April 1886.
Austin, T. and T. 1843. p. 207.
Described as ECHINOCRINUS ANCEPS Austin.
Austin, T. 1860. pp. 446-447, text-fig. on p. 446.
Described as PROTOECHINUS ANCEPS Austin.
Bather, F.A. 1918. pp. 40-48. pl. II.
Described as PHOLIDOCIDARIS ANCEPS (Austin 1843).

The locality at Hook Point, also known as Hook Head has been described by Smyth (1930).

Palaeontological material currently being investigated includes the following Lower Carboniferous fossils ; Trilobites (Dr. R.-M. Owens, Nat. Mus. of Wales), Goniatites (Dr. W. H. C. Ramsbottom, I.G.S., Leeds) and Blastoids (Dr. D. B. Macurda Jr. Museum of Paleontology, Univ. of Michigan).

The following type and figured specimens appear to be missing from the collections, presumably as a result of the war-time fire of 1941. This list is by no means complete and we would be grateful for any further information about type, figured or cited specimens thought to have been at Liverpool but not listed above.

Higgins, H.H. 1871a. Pl. 1, figs. 4, 5, 12, 14, 15, 16, 18, 19.

Higgins, H.H. 1871b. Pl. 1.

Marrat, F.P. in Higgins, H.H., 1872. pl. 2, fig. 1; pl. 3, figs. 1, 3;
pl. 4, figs. 2, 6; pl. 5, fig. 4; pl. 7, figs. 2a, 2b; pl. 9, figs. 2a, 2b;
pl. 11, figs. 2a, 2b, 2c; pl. 12, fig. 6.

Kidston, R. 1889. pl. II, fig. 4.

Portlock J.E. 1843. pl. iB, figs. 1, 2.

AMPYX AUSTINI see note p.20

Whittard, W.F., 1940. pl. V, fig. 4.

Whittard 1955-57.

Lake, P., 1906-46. pl. XV, fig. 9.

SOLENOPLEURA VIOLA.

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Philip W. Phillips,
Assistant Keeper of Geology,
Merseyside County Museums.

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TWO HORROR STORIES OF THE EIGHTEENTH CENTURY

1. WITH A HAPPY ENDING.

BRITISH MUSEUM - ITS DEFECTS IN 1784

"The British Museum contains many valuable collections in natural history; but with the exception of some fishes in a small apartment, which are begun to be classed, nothing is in order, every thing is out of its place; and this assemblage is rather an immense magazine, in which things seem to have been thrown together at random, than a scientific collection, intended to instruct and honour a great nation.

It may be presumed, that as long as so repulsive a confusion is suffered to continue, no artist will ever be induced to go there, to acquire those branches of information which relate to the materials he uses, and the sources whence they are derived.

Never will the painter repair thither to see and to study animals according to nature, and to admire the different tones of colour, and the infinite variety of shades presented by the plumage of birds, the gay attire of butterflies, and the oriental splendour of shells.

Never will the physician, who devotes his nightly studies to the cure or alleviation of the diseases of his fellow-creatures, go to learn from that chaos the means of distinguishing with precision the beneficent productions, which in the various climates of the globe nature seems to offer to man, in order that he may mitigate or remove the many evils which everywhere accompany him.

The philosopher, who loves to behold nature on a great scale, and he who delights in studying the details of that immense chain which seems to connect together all created beings, and of which the last link appears to join on to the first, will find nothing that can interest him in the midst of such disorder."

Excerpt from: A journey through England and Scotland to the Hebrides in 1784,
by B. Faujas de Saint Fond, edited by A. Geikie 1907.

B. Faujas de Saint Fond is well-known as being one of the early demonstrators of the volcanic origin of basaltic rocks. He discovered Mesozoic rocks in Scotland.

2. A DISTINCTLY SAD ENDING.

In GCG No. 1, page 17 (1974) a note appeared seeking the fossil collections of John Walcott (c. 1755-1831). Walcott was a founder member of the Bath Philosophical Society in 1779 and earlier in the same year published his book 'Descriptions and Figures of Petrifications found in the Quarries, gravel pits etc. near Bath' which influenced William Smith (1769-1839) in his later work in the same area. Walcott's collections have proved completely elusive but it seems worth recording some additional information.

This provides also a disturbing story of how geological collections can be treated and the need for action to ensure such happenings can never be repeated.

The first clue about the existence of any geological collection which could be connected with the Walcott family came from reading an unfinished and never officially published book called the 'Christchurch Miscellany' by Herbert Druitt. This book, which deals at great and scholarly length with the history of Christchurch, Hampshire, appeared in instalments from 1919 to 1932. On page 607 (issued in September 1931) appears the statement "in the Council Chamber (of the Christchurch Town Hall) ... are the two glazed mahogany cases originally containing the collection of fossils, shells, etc. which came from Winkton Lodge. They were accepted by resolution of the Corporation, 12 December 1872". These were donated by Mrs. Agatha Liddell (1837-1884) and the Hon. Mrs. Constance Butler (1824- ?) who were the daughters of Admiral John Edward Walcott (1790-1868) and the granddaughters of Edmund Walcott (1754-1840), who took the additional surname of Sympson from 1819 to satisfy the requirements of an Irish cousin's will. Edmund lived at Winkton Lodge from about 1784 to his death and his son John Edward continued living there afterwards. The fossil etc. collection mentioned above could have been made by these members of the Walcott family any time between 1784 and 1872.

There is however another intriguing possibility because the above Edmund was John Walcott's younger brother and survived him; as well as being a beneficiary under John's will. Since there is no evidence that Edmund or his son had made a collection of any geological material apart from this record it seemed quite possible that this Winkton Lodge collection could have been John Walcott's historic collection lost since 1779, nearly two hundred years.

This fascinating possibility seemed worth following up and enquiries were made which showed that the Corporation minute books could add nothing although confirming the donation of the collection in 1872. But it was also clear that they did not survive in the Town Hall today nor was anything known

DESCRIPTIONS
AND
FIGURES
OF
PETRIFACTIONS,

Found in the
Quarries, Gravel-Pits, &c.
Near BATH.

COLLECTED and DRAWN
By JOHN WALCOTT, Esq.



Nor are those innumerable *petrifications*, so various in species, and structure, to be looked upon as vain curiosities. We find in our mountains, and even in the middle of stones, as it were embalmed, *animals, shells, corals*, which are not to be found alive in any part of Europe. These alone, were there no other reason, might put us upon looking back into antiquity, and considering the primitive form of the earth, its increase, and metamorphosis.

Of the Use of Curiosity. By Christopher Gedner.
Stillingfleet's Miscellaneous Tracts. p. 175. Ed. 2d.

Printed for the AUTHOR,

By S. HAZARD, BATH:

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CAMBRIDGE; S. HAZARD, BATH; and all the Book-
sellers in Great Britain and Ireland.

1779.

John Walcott

John Walcott was only 24 or 25 when he wrote this book. The engraved portrait was produced later and has been found very rarely tipped into copies of his natural history book which were family or presentation copies as this.

of them in the Red House Museum, Christchurch which has large collections of local Tertiary fossils.

At this stage the help of the local newspaper the 'Christchurch Times' was enlisted and an appeal for information appeared in the issue for February 13 1976. As a result of this a Mrs. R. W. Bishop wrote to me and further information was uncovered by a Christchurch Times journalist called Stuart Parker. Stuart's and my subsequent enquiries allowed the full and horrifying story of the fate of the collection to be revealed.

A former borough engineer was able to confirm that the collection had been in the Council Chamber until c. 1948 when a new Council Chamber was built and the old cleared out. The fossils were put at the back of the Town Hall temporarily but were soon moved to an old stable in the gardens of Priory House, Christchurch, but their fate thereafter was unknown (Christchurch Times for Feb. 27 has a report). Mr. and Mrs. Bishop of Christchurch were able to elucidate this. They told me that Priory House Stables and Coachhouse were indeed used as a store by the Corporation (in the Second World War for lamp posts and Anderson shelters!). In the mid 1950s Mr. Bishop needed a fishing store near the river and rented the stables and Coachhouse from the Corporation. At one end where the roof had collapsed years of rain and silt had to be cleared to put a fuel tank in. It was while hosing this down that he discovered the remains of a large collection of fossils, shells, minerals and other geological specimens - their containers having long since rotted away, with any labels if any had been present.

Mr. Bishop collected up three fish boxes full of this material and left them in his back yard whence they were given away, stolen or laid out in flower beds. He had kindly collected together all that little material still surviving for my recent visit. Sadly of the seven surviving geological specimens none could in any way be ascribed to John Walcott being merely non-descript specimens of crystalline quartz, stalactite, tufa, silicified wood, a Carboniferous Lithostrotion and recent coral. Mr. Bishop remembers also ammonites up to 6 inches in diameter and Coal Measure plants in the fish boxes, now lost.

Thus it is sadly impossible to shed any certain light on the fate of the Walcott fossil collection. All we can say is that a Walcott collection survived until after the second World War in Christchurch and that two surviving fossils (specimens which could have come from anywhere) are all that remains of what might have been one of the most historic fossil collections in the British Isles, and one destroyed in the last twenty years.

H. S. Torrens,
Department of Geology,
University of Keele.

REPORT OF MEETING ON PALAEOLOGICAL CURATING, OSLO, JUNE 4th 1975

Similar aims to those of the G.C.G. are being actively pursued in a number of other countries. While passing through Oslo in June 1975, I was able to attend a meeting at the Paleontologisk Museum concerned with the curating of palaeontological material, and gave a short talk on related work by the G.C.G. One of the organisers of that meeting, David Worsley, has kindly prepared the following report since it touches on problems so similar to those in which this Group is involved.

A full report of all the contributions to the Oslo meeting has been published as No. 14 of Fossil-Nytt (1975), which is a palaeontological newsletter produced by the Paleontologisk Museum.

Michael G. Bassett,
Department of Geology,
National Museum of Wales.

* * * * *

PALAEOLOGICAL TYPE COLLECTIONS IN NORWAY

Palaeontology has always been a small field in Norway - fossiliferous rocks are sparse on the mainland and the relative inaccessibility of the Spitsbergen archipelago has restricted work there. Palaeontological research has traditionally been concentrated in Oslo, and the Paleontologisk Museum in Oslo is both a research institute and a storage centre for Norwegian type collections. Other institutions with interests in palaeontology have close relations with the Museum, for example the Museum is responsible for the curation and storage both of type specimens and other material collected by the Norwegian Polar Institute on Spitsbergen.

Of course, some type material is stored in other Norwegian universities - but these have themselves grown up around museums in which natural history plays a dominant role, and are staffed accordingly. Thus, the British problems of having some type collections stored in small and poorly-staffed museums, and in private collections, do not exist in Norway. In addition, palaeontologists are a small group with no serious problems arising from lack of co-operation or mutual information.

There are signs that this situation could easily deteriorate as a result of oil exploration on the continental shelf - we face a massive expansion in

palaeontological research as material from the shelf becomes available for investigation. We have already seen a greatly increased interest in micro-palaeontology and palynology - fields which have been under-represented in our collections and which demand new curating techniques. The proliferation of institutions involved in palaeontological research can easily lead to duplication of effort and irresponsible storage of type material.

Luckily, the Norwegian oil directorate will act as a "clearing-house" for much of the research activity connected with shelf exploration. Oil companies are required to give material to the oil directorate, and this material will normally be released by the directorate after a certain period of time - usually 5 years. The directorate will attempt to co-ordinate research to avoid duplication; they have also agreed in principle that the Palaeontologisk Museum is the natural institution to assume responsibility for the resulting type collections. However, the situation is somewhat complicated by the direct release of material to institutions by oil companies without reference to the oil directorate; thus a sensible "national policy" on the curation and storage of collections - especially type collections - cannot be dictated by the oil directorate, but must come from the grass roots

After discussions on these developments among the museum's staff, we decided that a more conscious effort should be made to accentuate the importance of type collections and to attempt to co-ordinate Norwegian curation and storage techniques. To this end we organized a one-day working meeting in June 1975 with the title "Storage and care of palaeontological collections - especially type collections". An awesome title, but even so we had 40 participants from several institutions! Although the meeting was essentially for home consumption, we had several foreign guests 'passing through' at the time, and three of these contributed to the meeting, viz. Ellis Yochelson of the US Geological Survey and Michael Bassett and Richard Fortey from Britain.

The first part of the meeting was devoted to technical aspects of curation, storage, and conservation; discussions were followed by a series of exhibits on the problems and techniques involved. The "philosophy" behind type collections was then outlined masterfully, if provocatively, by Ellis Yochelson; after lively discussion the palynologists explained their approach in theory and practice to type collections. In this part of the meeting other problems were also touched on - most important being the often conflicting demands placed on collections by the Museums' different functions - research, teaching and exhibitions.

Finally, tentative ideas were floated on co-operation, standardisation of techniques, and channels for mutual information. An important point here was that much research on shelf material will be carried out by students whose theses may not be published: the resultant collections ought to be curated as carefully as type collections and information on the collections distributed to all institutions involved in similar work.

No definite conclusions were made - and neither was this intended. A summary of the meeting has now been sent out to all relevant institutions and individuals and we intend now to build further upon this initial effort, hopefully by establishing a working group which can take up the problems on which we have now managed to focus attention.

David Worsley,
Palaeontologisk Museum,
Oslo.

3/11/1975

COLLECTIONS AND INFORMATION LOST AND FOUND

(Compiled by Dr. H. S. Torrens of the Geology Department, Keele University, to whom correspondence relating to this section should be addressed.)

A. COLLECTIONS AND INFORMATION CURRENTLY SOUGHT

11. Rev. James Dignes LA TOUCHE (1824-1899)

The Rev. J. D. La Touche, Vicar of Stokesay near Ludlow, Salop for 44 years, was one of the best-known amateur geologists in Britain in the nineteenth century. (Obit. in Geol. Mag. 1899, 235-7) In 1884 he described and illustrated all the then-known fossil species from Shropshire in his book entitled A hand-book of the geology of Shropshire. Many of the figured specimens are now in the British Museum (Natural History), but a good number cannot be found, including some of the graptolites, and particularly those Silurian species described for the first time by La Touche using manuscript names employed earlier as nomina nuda by J. D. Hopkinson. Attempts to trace the missing La Touche material have been made by checking collections in the B.M. (N.H.), I.G.S. London, Sedgwick Museum, Birmingham University Geology Department, Ludlow Museum, Shrewsbury Museum, National Museum of Wales, and St. Albans Museum, but so far without success. Will any curators who believe that their museums contain graptolites collected either by J. D. La Touche or J. D. Hopkinson please contact:

Dr. M. G. Bassett,
Department of Geology,
National Museum of Wales,
CARDIFF CF1 3NP.

12. James ECCLES (? - 1915)

In the period 1860-1870 Eccles collected Carboniferous brachiopods and in particular specimens of Productus humerosus from Cauldon Low, Staffs. which he described in Trans. Manchester Geol. Soc. vol. 9 part 3, pp. 1-2, 1870. Thomas Davidson in his 1880 Monograph of the British Fossil Brachiopoda Pal. Soc. vol. 4, page 306 records his study of this same material loaned by Eccles and figures one of Eccles specimens on Supp. pl. 36 (fig. 2). Dr. Howard Brunton of the Dept. of Palaeontology, British Museum (Nat. Hist.) London S.W.7 5BD is anxious to locate this brachiopod material.

Little seems known of James Eccles. He was F.G.S. from 1867 to his death in June 1915 and Geological Society records note his address as Springwall House, BLACKBURN. He was a keen mountaineer whose name is now given to a col on the Brenva face of Mt. Blanc. In this way he became friends with Prof. T. G. Bonney (1833-1923), Professor of Geology at University College, London who contributed to Eccles' obituary notice in the Alpine Jl. vol. 30.

It seems possible from the date of Eccles death that he was the same man as the James Eccles whose death on 6 June 1915 is noted in the 'Times' of the following day. He then lived at 15 Durham Villas, Kensington, W. London and in his will published in August 1915 left £163,334. Study of this will (if the same man) might yield some clue about the fate of his fossil collection.

13 - 17

Names in CAPITALS in the lists below refer to TYPE specimens.

Dr. Robin Cocks is engaged in preparing a synoptic supplement of the "Silurian" i.e. Lower Palaeozoic portions of Thomas Davidson's Monograph of British Fossil Brachiopoda mentioned above. As users of other synoptic supplements to classic Pal. Soc. monographs will know they are immensely useful. In connection with this revision Dr. Cocks seeks information about the whereabouts of the following collections (13 to 17) containing specimens figured by Davidson.

13. David Christopher DAVIES (1827-1885)

of Ebna1 Lodge, GOBOWEN, near Oswestry.

Davies was a professional mining engineer who published several books. For information about him see:

- i) Quart. J. Geol. Soc. 42, Proc. p. 43, 1886.
- ii) Dictionary of National Biography.
- iii) Athenaeum, 26 Sept. 1885.
- iv) Times, 24 Sept. 1885.

The following specimens (no types) were figured by Davidson from his collection from the Ordovician of N. Wales:

1	<u>Lingula tenuigranulata</u>	Plate 2	figs 12, 13
2	<u>Lingula longissima?</u>	3	28
3	<u>Orthis elegantula</u> var?	27	14
4	<u>Orthis vespertilio</u>	30	19
5	<u>Orthis porcata</u>	31	14
6	<u>Strophomena ungula</u>	42	20
7	<u>Leptaena tenuicincta</u>	47	18

A note by C. D. Sherborn in "Where is the ——— Collection" suggests his may be at the National Museum of Wales.

14. Charles CALLAWAY (1838-1915)

Born in Bristol, he is recorded as "Curator of the Bradford Museum of the Philosophical Society" (? U.S.A.) and later Curator of Sheffield Museum. At the time he was corresponding with Davidson (1872-1884) he was at Wellington, Shropshire. He died at Cheltenham where he had been president of the Cotteswold Naturalists Field Club.

for obituary notices see:

- i) Geol. Mag. 1915 525-528 (by L. Richardson)
- ii) Science, 42, 826, 1915.
- iii) Quart. J. Geol. Soc. 72, lvii, 1916.

The following Callaway collection were figured by Davidson in his 1883-1885 supplement from the Ordovician and Silurian of the Welsh Borders.

1	<u>Triplesia insularis</u>	Plate 8	figs. 17, 19
2	<u>RHYNCHONELLA CALLAWAYANA</u>	10	18
3	<u>Strophomena grandis</u>	11	22
4	<u>STROPHOMENA CALLAWAYIANA</u>	16	6, 7
5	<u>Strophomena ? bipartita</u>	16	10, 11
6	<u>Lingulella nicholsoni</u>	17	31, 32

15. Charles CROFT (fl. 1870-1900)

Lived when young in Shropshire and this must be when he collected Ordovician brachiopods from North Wales figured by Davidson who refers to him as of Manchester in c.1884. He became editor of the Keighley News and according to A. S. Woodward (1904, History of the Collections in the Nat. Hist. Depts. of the British Museum, Geology p. 280) moved to Plymouth in 1873.

Davidson figured in his 1883-1885 supplement the following from the Ordovician of N. Wales

1	<u>ORTHIS CROFTI</u>	Plate 13	figs. 18, 19
2	<u>Strophomena ? bipartita</u>	16	10, 11
3	<u>CRANIA CROFTI</u>	17	54-56

16. Robert PHILIP fl. in 1880's

of Minsterley, Shropshire who collected from the Silurian of West Shropshire the following figured by Davidson in the 1883-1885 Supplement:

1	<u>Rhynchonella cuneata?</u>	Plate 10	fig. 10
2	<u>Rhynchonella llandoveriana</u>	10	32-37
3	<u>Orthis plicata</u>	13	27
4	<u>LINGULA PHILIPPI</u>	17	5
5	<u>Lingula attenuata</u>	17	18, 19

17. M. R. HUGHES fl. c. 1870

nothing known but he provided the following Ordovician brachiopod from the Coniston Limestone made type of

ORTHIS LEWISII var. HUGHESI Plate 38, fig. 26 by Davidson in 1871.

Any information on any of these collections to both H.S.Torrens for future issues of G.C.G. and to Dr. L. R. M. Cocks, Dept. of Palaeontology, British Museum (Nat. Hist.), London SW7 5BD.

18. William Henry PAULL (1843-1936)

His granddaughter Mrs. S. J. R. Bridges of 106 Carsington Crescent, Allestree, Derby DE3 2QX, is very anxious to trace his mineral collection.

He was born in Goginan, near Aberystwyth, son of a local mining captain there, who is presumed to have trained him as a mining engineer in the North Cardiganshire Field. After this he worked in Ireland, the Isle of Man and in Columbia (S. America). In the 1890s he became manager of the Leadhills mines in Scotland, moving in the next decade to Wanlockhead.

His mineral collection is known to have been of modest size but carefully labelled and of good quality. It passed first to his eldest son Wallace PAULL circa 1926 and it is possible he passed it to a museum or university, perhaps in the Midlands.

19. Ammonites Sought

Mr. M. Ashton (Department of Geology, University of Newcastle upon Tyne, NE1 7RU) would appreciate any information/notification of any ammonites from the Lincolnshire Limestone (Inferior Oolite) held in any museum collection.

B. COLLECTIONS AND INFORMATION FOUND

No new information about any of the collections previously sought seems to have come to light, except in connection with collection no. 2 that of John Walcott advertised for in our first issue, the horrific story of which can be found on pages 291-3.

If information has come to light please send it in for publication in the newsletter to help future enquiries.

* * * * *

TYPE AND FIGURED FOSSILS IN GLASGOW MUSEUM

Although not applicable to this section, it is our pleasure to report that Ewan Campbell, Assistant Keeper of Natural History at the Glasgow Museum Kelvingrove, Glasgow G3 8AG has produced an impressive, if as yet preliminary, catalogue of the type and figured fossils preserved in the important collections at Glasgow Museum. Copies of what is a strictly limited issue are available (pp. 59) at:-

Hunterian Museum, Glasgow
 Royal Scottish Museum, Edinburgh
 I.G.S. Edinburgh, Leeds, London
 National Museum of Wales, Cardiff
 B.M. (N.H.) Palaeontology Dept.
 Manchester Museum
 Leicester Museum
 Geol. Soc. Lond. Library
 Sedgwick Museum, Cambridge
 Univ. of Keele (Geology Dept.)

and Ewan would appreciate any comments or corrections or enquiries about these collections for incorporation to a future definitive printed version.

* * * * *

TECHNICAL

COMPUTER-BASED COLLECTION DOCUMENTATION USING INFOL 2

This article describes a pilot project into computer-based collection documentation undertaken for the Fossil Mollusc Section of the British Museum (Natural History). The information was gathered from a small collection of South African Cretaceous Molluscs, donated to the museum in 1971.

I was able to use the generalised information processing package, INFOL 2, to construct a computer file of the data, and then generate a catalogue, indexes, and special reports from it.

The project utilised only basic computer hardware - punch card input and line-printer output - but nevertheless, I was able to achieve a level of documentation far superior to that possible using manual techniques.

Infol - 2

Infol 2 is a generalised information processing package written in standard Fortran IV, and operates using a vocabulary of English instructions through three main phases: Establishment, Update and Interrogation. The user can use free or fixed-format input, define the record structure he wants, update records and groups of records, interrogate the file and either automatically output information, or control the output format himself.

The package proved fairly easy to use, and is designed especially for non-programmers. Further details of the program are available from Dr. F. Leveque, Dept. of Computing and Control, Imperial College, Exhibition Road, London SW7.

The Project

The computer processing was undertaken from a remote terminal at Bedford College (London University), linked to the CDC 7600/6600 at the University of London Computer Centre. Only batch card input and line-printer output were available at that time, and I was able to see what could be achieved even though facilities, manpower and experience were restricted.

The material under study consisted of various species of fossils collected from different field locations in Natal, South Africa, and formed part of the collection of the Fossil Mollusc Section. No previous work had been done on the material, and it was stored in the order in which it had been uncrated in 1971, roughly by field-location.

After discussion with the section staff, the contents of the computer record were defined. Each record contained information about one species of fossil at each location, and about 3,000 individuals were studied over a period of 8 weeks, to form 280 records.

Recording was initially by the use of standard forms, one to record data about a species, the other to record data that applied to a number of records. (Often Store Location, Stratigraphic Age, Sediment, etc.) However, the species information was later recorded on normal lined paper, since input was free-format (Not related to specific columns of the punch card).

Each record was divided into 23 Items of information, some of which were further divided into Sub-Items. The data was recorded by preceding the information by the Item Number between stars, separating sub-Items with a star, and ending each record with an extra star. Aside from these, no other rules governed the input of data to the package.

Contents of the Computer Record

Item No.	Description	Sub-Items
1.	Record Number	
2.	Country Number	
3.	Country Name	
4.	Published Location	
5.	Field Location	
6.	Institution Housing Material	
7.	Stratigraphic Age: - - - - -	Era System Stage Section Bed
8.	Store Location: - - - - -	Room Cabinet Drawer
9.	Sediment: 12 Numerical Parameters	
10.	Sediment Description	
11.	Taxonomy: - - - - -	Phylum Class Sub-Class Order Superfamily Family Genera Species

12. No. of Open Pairs of Valves
13. No. of Closed Pairs of Valves
14. No. of Single Valves or Individuals
15. No. of Bored Valves
16. % of the Fauna
17. Fossilisation Condition
18. Biotic Inference
19. Comments
20. Catalogue Number
21. Eco-morphy
22. Collection Details
23. Cataloguer

Processing the Information

The data was punched onto cards and fed into the computer to form the data file. The second set of forms was then used as a basis for updating this file before the final phase of processing. Any errors detected at this stage were also corrected.

I then was able to generate the output listed below:

A. Record Catalogue:

All the information for each record, in sequential order of Record Number (Fig. 1).

B. Indexes:

Indexes to the catalogue, ordered on different important items of information:

Field Location
Published Location
% of the Fauna
Abundance
Record Number
Taxonomy (Genera & Species) (Fig. 2)
Stratigraphic Age
Store Location (Room, Cabinet, Drawer)

C. Special Output:

Material in a special format or medium, or satisfying particular criteria:

Catalogue - Cards
 Microfilm Index of Taxonomy
 Automatic Count of the Genera (Fig. 3)
 Lists of 'In situ' fossils
 Lists of fossils with bored shells

Some Comments:

Although this report may be of interest to readers, I realise that it merely serves to reinforce the already proven fact that computer techniques can be applied to collection documentation and management. Readers may well make the comment 'That's all very well, but how do I go about acquiring computer facilities, a processing package, and the knowledge of computers needed to undertake similar work?' From my own discussions with museum workers, it would appear that many members of the profession feel that they lack the basic knowledge and experience of computers to adequately analyse and evaluate the factors involved in their use.

This has prompted me to begin the writing of a text of medium length, aimed to cover the topics involved in the applications of computers to museum work. It will cover computers and their operation, programs and packages, information processing and choosing a package, some actual examples of the use of computers in museum work, how to acquire computer facilities, and guidelines on the factors involved in planning a museum information system.

I hope that this text will be available later in the year, when details, or the text itself will be published in one of the museum periodicals.

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 Gate, SW7 2B7, London.

David Gittins,
 Department of Museum Studies,
 Leicester University.

TEXTS FOR FIGS. 1-3

- FIG. 1 - RECORD CATALOGUE - All the information for each record in the computer file, listed in sequential order of record number.
- FIG. 2 - INDEX - This index is in order of Genera and Species, each line containing the most important Items of information in a particular record. One can cross-reference to the Record catalogue by using the record number.
- FIG. 3 - SPECIAL OUTPUT (A Count of the Genera) The computer package can be directed to count on a particular item, that is, list all the values or texts found, how often they occur, and in which records.

FIGURE 2

LOCATION FIELD/PUB.	BORED OPEN/CLOSED	PAIRS- OPEN/CLOSED	FAUNA	0/00F	SINGLE RECORD NUMBER	SPECIES NAME	STRATIGRAPHIC AGE	ROOM/CAB./DRAW(S)
1	2	1	1	1.00	29	MODIOLA * KAFFARIA	SANTONIAN	23 61 5
40	14	1	1	9.50	184	MODIOLA (G.) *	SANTONIAN	23 61 15
2	3	0	0	0.00	114	MYTILUS * EDULIS	SANTONIAN	22 61 6+7+8
3	1	0	0	1.00	49	MYTILUS * EDULIS	CONIACIAN (3) TO CAMPANIAN (5)	23 61 9 + 10
4/4.	13	0	0	2.10	76	MYTILUS * SP.	CONIACIAN (2-3)	23 61 12+15+17
2	3	0	0	6.00	118	NATICA * (Q) MULTISTRIATA	SANTONIAN	22 61 6+7+8
3	1	0	0	2.50	52	NATICA * SP.	CONIACIAN (3) TO CAMPANIAN (5)	23 61 9 + 10
3	1	0	0	1.00	60	NATICA (Q) * SP.	CONIACIAN (3) TO CAMPANIAN (5)	23 61 9 + 10
190	60	0	0	1.00	1	NAUTILOID * -	CONIACIAN	23 55 1
13/12	51	0	0	1.00	243	NEITHEA * SP.	ALBIA (4-5)	23 55 8
4/4.	13	0	0	1.00	222	NEMODON * NATALENSIS	CONIACIAN (2-3)	23 61 12+15+17
4/3/A	10	0	0	1.00	71	NEMODON * NATALENSIS	CONIACIAN (2)	23 61 16
2	3	0	0	0.00	209	NEMODON * NATALENSIS	SANTONIAN	22 61 6+7+8
x	2	0	0	4.00	102	NEMODON * NATALENSIS	SANTONIAN	23 61 4
1	2	0	0	1.70	3	NEMODON * NATALENSIS	SANTONIAN	23 61 5
1	2	0	0	5.00	13	NEMODON * NATALENSIS	SANTONIAN	23 61 5
1	2	0	0	29.20	31	NEMODON * NATALENSIS	SANTONIAN	23 55 6
13/12	51	0	0	0.50	224	NEMODON * SP.	ALBIA (4-5)	23 61 18
5	22	0	0	7.00	4	NEOGASTROPOD *	CONIACIAN (4)	22 61 6+7+8
2	3	0	0	0.00	121	NEOGASTROPOD *	SANTONIAN	22 61 6+7+8
2	3	0	0	0.00	126	NEOGASTROPOD *	SANTONIAN	22 61 6+7+8
2	3	0	0	0.00	127	NEOGASTROPOD *	SANTONIAN	22 61 6+7+8
2	3	0	0	0.00	128	NEOGASTROPOD *	SANTONIAN	22 61 6+7+8
4/1	14	0	0	5.00	203	NERITA * SP.	SANTONIAN	23 61 16
48	14	0	0	4.60	171	NUCULA * SP.	SANTONIAN	23 61 11
48	14	0	0	4.60	2	NUCULA * SP.	SANTONIAN	23 61 11
4/2	11	0	0	5.80	176	OPISTHOBANCH *	CONIACIAN	23 61 13
4/2	11	0	0	0.90	149	OPISTHOBANCH *	CONIACIAN	23 61 13
13/12	51	0	0	8.50	215	OSTREA * SP.	ALBIA (4-5)	23 55 8
13/12	51	4	4	4.00	220	PANOEPA * SP.	ALBIA (4-5)	23 55 8
5	22	2	2	10.70	91	PANOEPA * SP.	CONIACIAN (4)	23 61 18
1	3	0	0	1.00	31	PECTEN	SANTONIAN	23 61 5
2	3	0	0	10.00	134	PECTEN * KOSMATI	SANTONIAN	22 61 6+7+8
3	1	0	0	0.40	1	PECTEN * KOSMATI	CONIACIAN (3) TO CAMPANIAN (5)	23 61 9 + 10
1	2	0	0	1.00	32	PECTEN * KOSMATI (0.)	SANTONIAN	23 61 5
4	14	0	0	4.90	195	PECTEN * QUINQUECOSTATUS	SANTONIAN (2) TO CAMPANIAN (1)	23 61 14
4/3/A	10	0	0	0.00	208	PECTEN * QUINQUECOSTATUS	CONIACIAN (2)	23 61 16
4/4.	13	0	0	0.30	1	PECTEN * QUINQUECOSTATUS	CONIACIAN (2-3)	23 61 12+15+17
5	22	0	0	14.00	93	PECTEN * QUINQUECOSTATUS	CONIACIAN (4)	23 61 18
40	14	0	0	6.20	154	PECTEN * QUINQUECOSTATUS	SANTONIAN	23 61 11
48	14	0	0	6.90	166	PECTEN * QUINQUECOSTATUS	SANTONIAN	23 61 11
48	14	0	0	2.30	181	PECTEN * SP.	SANTONIAN	23 61 11
5	22	0	0	3.50	88	PECTEN * SP.	CONIACIAN (4)	23 61 18
2	3	0	0	1.00	109	PECTEN * SP.	SANTONIAN	22 61 6+7+8
3	1	0	0	0.40	1	PECTEN * SP.	CONIACIAN (3) TO CAMPANIAN (5)	23 61 9 + 10
4	14	0	0	1.90	198	PECTEN (0.) * CAPENSIS	SANTONIAN (2) TO CAMPANIAN (1)	23 61 14
2	3	1	1	2.00	113	PHOLADOMYA * SP.	SANTONIAN	22 61 6+7+8
48	14	0	0	0.00	177	PLANTS * -	SANTONIAN	23 61 11
250	64	37	37	39.00	254	PLEUROMYA * SP.	ALBIA (5)	23 55 16
220/1	61	7	7	23.00	246	PLEUROMYA * SP.	CENOMANIAN (1)	23 55 9
40	14	1	1	6.20	162	PLEUROMYA * SP.	SANTONIAN	23 61 11
40	14	0	0	0.20	160	POROMYA * CORRUGATA	SANTONIAN	23 61 11
1	2	0	0	2.00	15	POROMYA * SP.	SANTONIAN	23 61 5
48	14	0	0	6.90	165	POROMYA * SP.	SANTONIAN	23 61 11
40	14	2	2	47.00	183	PROTOCARDIA * HILLANA	SANTONIAN	23 61 15
4	14	0	0	28.00	190	PROTOCARDIA * HILLANA	SANTONIAN (2) TO CAMPANIAN (1)	23 61 14
4.	14	2	2	65.00	233	PROTOCARDIA * HILLANA	SANTONIAN	23 61 14

FIGURE 2

LOCATION		BORED		PAIRS-		0/00F		SINGLE RECORD		SPECIES NAME		STRATIGRAPHIC AGE		ROOM/CAB./DRAM(S)	
FIELD/PUB.		OPEN	CLOSED	FAUNA	NUMBER										
1	2	1	1	1.00	2	29				MODIOLA * KAFFRARIA		SANTONIAN		23 61 5	
40	14	1	1	9.50	0	184				MODIOLA (G.) *		SANTONIAN		23 61 15	
2	3	0	0	0.00	0	114				MYTILUS * EDULIS		SANTONIAN		22 61 6+7+8	
3	1	0	0	1.00	1	49				MYTILUS * EDULIS		CONIACIAN (3) TO CAMPANIAN (5)		23 61 9 + 10	
4/4.	13	0	0	2.10	7	76				MYTILUS * SP.		CONIACIAN (2-3)		23 61 12+15+17	
2	3	0	0	6.00	5	118				NATICA * (G) MULTISTRIATA		SANTONIAN		22 61 6+7+8	
3	1	0	0	2.50	6	52				NATICA * SP.		CONIACIAN (3) TO CAMPANIAN (5)		23 61 9 + 10	
3	1	0	0	1.00	1	60				NATICA (Q) * SP.		CONIACIAN (3) TO CAMPANIAN (5)		23 61 9 + 10	
190	60	0	0	1.00	1	243				NAUTILOID *		CONIACIAN		23 55 1	
13/12	51	0	0	1.00	2	222				NEITHEA * SP.		ALBIA (4-5)		23 55 8	
4/4.	13	0	0	1.00	6	71				NEMODON * NATALENSIS		CONIACIAN (2-3)		23 61 12+15+17	
4/3/A	10	0	0	0.00	0	209				NEMODON * NATALENSIS		CONIACIAN (2)		23 61 16	
2	3	0	0	4.00	10	102				NEMODON * NATALENSIS		SANTONIAN		22 61 6+7+8	
X	2	0	0	1.70	2	3				NEMODON * NATALENSIS		SANTONIAN		23 61 4	
1	2	0	0	5.00	6	13				NEMODON * NATALENSIS		SANTONIAN		23 61 5	
1	2	1	1	29.20	31	28				NEMODON * NATALENSIS		SANTONIAN		23 61 5	
13/12	51	0	0	0.50	1	224				NEMODON * SP.		ALBIA (4-5)		23 55 8	
5	22	0	0	7.00	4	67				NEOGASTROPOD *		CONIACIAN (4)		23 61 18	
2	3	0	0	0.00	1	121				NEOGASTROPOD *		SANTONIAN		22 61 6+7+8	
2	3	0	0	0.00	2	126				NEOGASTROPOD *		SANTONIAN		22 61 6+7+8	
2	3	0	0	0.00	1	127				NEOGASTROPOD *		SANTONIAN		22 61 6+7+8	
2	3	0	0	0.00	1	128				NEOGASTROPOD *		SANTONIAN		22 61 6+7+8	
4/1	14	0	0	5.00	1	203				NEKITA * SP.		SANTONIAN		23 61 16	
48	14	0	0	4.60	2	171				NUCULA * SP.		SANTONIAN		23 61 11	
48	14	0	0	4.60	2	176				NUCULA * SP.		SANTONIAN		23 61 11	
4/2	11	0	0	5.80	6	148				OPISTHOBANCH *		CONIACIAN		23 61 13	
4/2	11	0	0	0.90	1	149				OPISTHOBANCH *		CONIACIAN		23 61 13	
13/12	51	0	0	8.50	15	215				OSTREA * SP.		ALBIA (4-5)		23 55 8	
13/12	51	0	0	4.00	0	220				PANOEPA * SP.		ALBIA (4-5)		23 55 8	
5	22	2	2	10.70	6	91				PANOEPA * SP.		CONIACIAN (4)		23 61 18	
1	2	0	0	1.00	1	31				PECTEN * KOSHATI		SANTONIAN		23 61 5	
2	3	0	0	10.00	18	134				PECTEN * KOSHATI		SANTONIAN		22 61 6+7+8	
3	1	0	0	0.40	1	43				PECTEN * KOSHATI		CONIACIAN (3) TO CAMPANIAN (5)		23 61 9 + 10	
1	2	0	0	1.00	1	32				PECTEN * KOSHATI (0.)		SANTONIAN		23 61 5	
4	14	0	0	4.90	3	195				PECTEN * QUINQUECOSTATUS		CONIACIAN (2) TO CAMPANIAN (1)		23 61 14	
4/3/A	10	0	0	0.00	0	208				PECTEN * QUINQUECOSTATUS		CONIACIAN (2)		23 61 10	
4/4.	13	0	0	0.30	1	80				PECTEN * QUINQUECOSTATUS		CONIACIAN (2-3)		23 61 12+15+17	
5	22	0	0	14.00	0	93				PECTEN * QUINQUECOSTATUS		CONIACIAN (4)		23 61 18	
40	14	0	0	6.20	1	154				PECTEN * QUINQUECOSTATUS		SANTONIAN		23 61 11	
48	14	0	0	6.90	3	166				PECTEN * QUINQUECOSTATUS		SANTONIAN		23 61 11	
48	14	0	0	2.30	1	181				PECTEN * SP.		SANTONIAN		23 61 11	
5	22	0	0	3.50	2	88				PECTEN * SP.		CONIACIAN (4)		23 61 18	
2	3	0	0	1.00	1	109				PECTEN * SP.		SANTONIAN		22 61 6+7+8	
3	1	0	0	0.40	1	44				PECTEN * SP.		CONIACIAN (3) TO CAMPANIAN (5)		23 61 9 + 10	
4	14	0	0	1.90	1	198				PECTEN (U.) * CAPENSIS		SANTONIAN (2) TO CAMPANIAN (1)		23 61 14	
2	3	1	1	2.00	0	113				PHOLADOMYA * SP.		SANTONIAN		22 61 6+7+8	
48	14	0	0	0.00	0	177				PLANTS *		SANTONIAN		23 61 11	
250	64	37	37	39.00	3	254				PLEUROMYA * SP.		ALBIA (5)		23 55 16	
220/1	61	7	7	23.00	2	246				PLEUROMYA * SP.		GENOMANIAN (1)		23 55 9	
40	14	1	1	6.20	0	162				PLEUROMYA * SP.		SANTONIAN		23 61 11	
40	14	0	0	0.20	1	160				POROMYA * CORRUGATA		SANTONIAN		23 61 11	
1	2	0	0	2.00	1	15				POROMYA * SP.		SANTONIAN		23 61 5	
48	14	0	0	6.90	3	165				PROTocardia * HILLANA		SANTONIAN		23 61 11	
40	14	2	2	47.00	6	183				PROTocardia * HILLANA		SANTONIAN		23 61 15	
4	14	0	0	28.00	10	190				PROTocardia * HILLANA		SANTONIAN (2) TO CAMPANIAN (1)		23 61 14	
4.	14	2	2	65.00	0	233				PROTocardia * HILLANA		SANTONIAN		23 61 14	

FIGURE 3

NO.	SPECIES NAME	RECORD NUMBERS
LINNEAN TAXONOMY		
1	(Q) TURBO	56
1	ACTAEON	152
1	ACTEONELLA	123
5	AMMONITES	65 158 159 189 212
2	ANISOMYON	53 82
6	APORRHAIIS	23 66 137 142 193 251
1	APORRHAIIS (Q)	59
1	ARCAN	89
2	ARCHITECTONICA	54 124
2	ASTARTE	98 100
1	ASTARTID	219
1	AVELLANA	225
1	BIVALVE	173
1	BUCCINUM	57
1	CAMPONECTES	186
1	CARDIUM	40
9	CARDIUM	4 16 21 22 96 97 139 172 205
1	CERCOMYA	73
1	CERITHIUM	120
1	CERITHIUM (Q.)	155
1	CHLAMYS	133
1	CORBULA	110
1	CRAB	232
4	CRASSATELLITES	7 27 46 109
4	ECHINOID	179 180 231 253
1	ELEGANS	106
1	EUTHYNEURID	125
1	FACIOLARIA	85
1	FASCIOLARIA	151
1	FISH	182
1	FOSSARID	230
1	FUSIMILIS	116
1	GASTROPOD	204
10	GLYCYMERIS	33 45 90 105 140 187 192 216 235 250
1	GONIOMYA	248
1	GRIESHACHI	69
5	GYRODES	25 119 150 196 252
1	HETERODONT	227
9	INOCERAMUS	34 47 72 167 191 201 211 217 249
1	LATERNULA (PERIPLOMYA)	228
1	LATERNULID	256
1	LIMA	112
2	LIOPISTHA	221 245
1	LONGICONCHA	241
1	LOPHA	111
1	LUCINA	115
5	MARGARITES	2 30 61 147 170
1	MELANIA	145
11	MERETRIX	1 26 38 67 99 136 178 200 206 214 237
2	MODIGLA	29 197
1	MUDIOLA (Q.)	184
3	MYTILUS	49 76 114

CORRESPONDENCEIRISH TYPE SPECIMENS AND DAVIDSON'S MONOGRAPH

Professor G. L. Davies (GCG December 1976, pp. 236-7) is wrong to be so gloomy over Irish type specimens. The Portlock collection from Londonderry has been in the Geological Survey Museum, London, since before 1870 (although a little material is still with the Irish Geological Survey). As for the types described from the Griffith Collection by M'Coy of Ordovician, Silurian and Carboniferous age, these were never removed to Kilmainham, and are still available at the National Museum of Ireland (although perhaps 20% are missing since they were given away by Griffith in the nineteenth century). The specimens are still on their original wooden tablets. For example, of the 32 Ordovician and Silurian brachiopod species erected by M'Coy and Salter in 1846, only two species are without syntype material in the National Museum, and many of the originals of the figures are recognisable. The Irish Geological Survey material is perhaps more difficult of access, but the type and figured specimens of all the brachiopod species erected in Davidson's "Silurian" monograph have now been found.

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London SW7 5BD.

Professor Davies closed his recent article (GCG Newsletter No. 5, pp. 236-7) on a despondent note which I am glad to be able to raise at least a tone or two.

Much of Portlock's collection was transferred to London sometime in the 1850's. The specimens are now held, well curated, in the collections of the Palaeontology Department of the Institute of Geological Sciences, and have, over the years, frequently been referred to and often figured or cited by workers. I am preparing a catalogue of Portlock's Lower Palaeozoic specimens. Most of the specimens figured in his Geol. Rept. etc., 1843, are present and many have Portlock's manuscript labels still attached. Many of his figured Upper Palaeozoic and Mesozoic specimens have also been identified. Certain specimens, however, are known to be missing.

It may be added that a small amount of Griffiths' material has reached the I.G.S. collections by virtue of its being part of the Geological Society Collection, the British part of which was presented to the then Geological Survey in 1911. Further, it is probable that some specimens collected by Oldham, Jukes and Hull are held in store by I.G.S. with other poorly localised and documented old Survey collections.

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Palaeontology Dept.,
Institute of Geological Sciences,
London.

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References:

- Davies, G.L. 1975, A National Collection Put Into Hospital, Newsletter of the Geological Curators Group, No. 5, pp. 236-7.
- Portlock, J.E. 1837, in Larcomb, Ordnance Survey of the County of Londonderry, Vol. 1, Notices (at rear of volume), pp. 3-6, plts. 1-3.
- 1843, Report on the Geology of the County of Londonderry etc. Dublin and London.

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Further information relating to the fund can be obtained, together with application forms, from John Robinson, Fund for the Preservation of Technological and Scientific Material, Science Museum, South Kensington, London SW7 2DD.

* * * * *

BOOK REVIEWTHE OLD METAL MINES OF MID-WALESPART 1. CARDIGANSHIRE - SOUTH OF DEVIL'S BRIDGEPART 2. CARDIGANSHIRE - THE RHEIDOL TO GOGINAN

by

DAVID E. BICK

"The Old Metal Mines of Mid-Wales" will consist of 5 parts, two of which are now published and the subject of the present review.

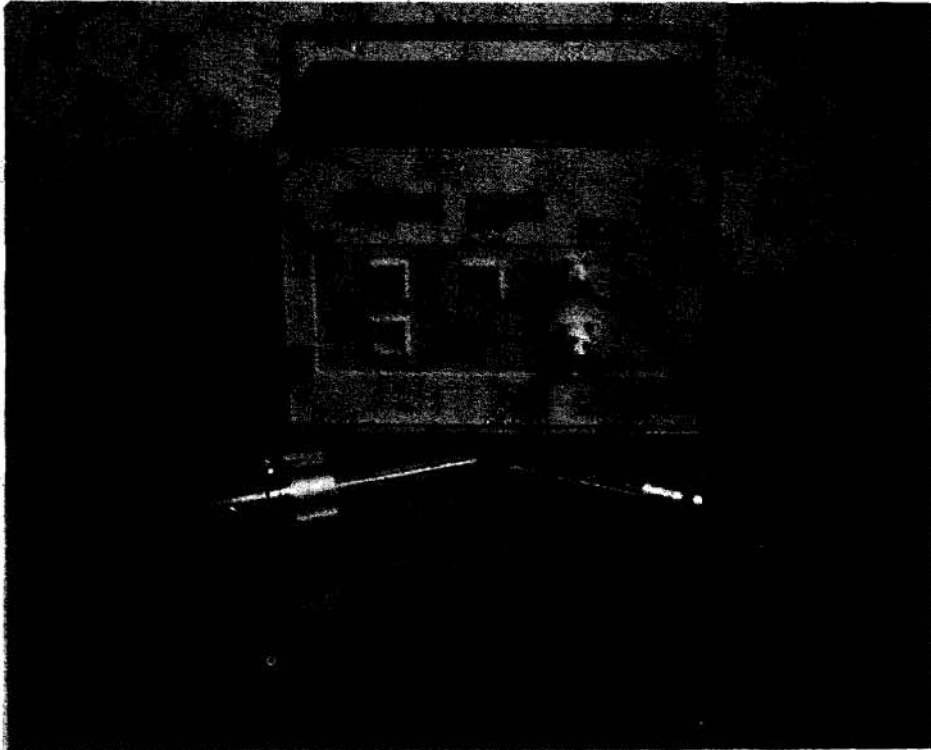
The books are essentially a description of many of the more important mines in Mid-Wales and a history, so far as can be discerned from old records, of the production of these mines. Wherever possible there are plans of individual mines included, both in plan and cross-section, and a most useful and interesting set of sketches and plans of the machinery used by the miners based on an enormous amount of accurate field work by the author.

There are one or two minor quibbles I can find in the presentation of these volumes. The first is the lack of any Geological information, particularly in what age rocks the mines and veins are found. This could have been added as one of the appendices and would have enhanced its usefulness. The second quibble is the lack of information about the types of ore or minerals present and also the gangue minerals. They are mentioned occasionally. Thirdly I find it irksome that I have to wait until the final volume before I can read the bibliography.

These criticisms should not detract from the usefulness and indeed importance of these small volumes. The author has gone to much trouble to inform his readers of the exact Grid Reference of each of the mines if they wish to visit. Mr. Bick also makes a plea for the conservation of much of the material, including machinery, buildings etc. which all concerned Natural Scientists would endorse. This plea is probably meant for the Local Authorities.

G. Rowbotham.

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