

# THE EVOLUTION OF A NATIONAL COLLECTION

by H. W. BALL

ABSTRACT. The history of the British Museum (Natural History) can be summarized as two hundred years of relative stability and twenty years of profound change. During this time, the growth of its collections, its *raison d'être*, has been shaped by many interacting and changing forces; while the collections have, in turn, influenced the other activities of the Museum. This is exemplified by the history of the palaeontological collections, which is outlined and considered in the context of contemporary scientific and social climates. An account is also given of the diverse services provided by the (now) Department of Palaeontology, and why, despite the title of this paper, the Museum is now international rather than national in its outlook.

LIKE many other similar enterprises, the British Museum originated through the foresight and enthusiasm of one man, Hans Sloane, who was born in County Down (Ireland) of Scots ancestry on 16 April 1660. Sloane became one of the greatest physicians of his time, being elected President of the Royal College of Physicians and numbering Queen Anne among his patients. However, he shared with many of his contemporary practitioners a great interest in natural history, especially botany, which transcended a mere concern with *materia medica* of which plant extracts formed an important element.

Sloane spent a fortune, variously estimated at between £50 000 and £100 000 (to be multiplied by approximately 33 to equate with current purchasing power) in amassing a large collection of plants, animals, rocks, minerals, fossils, antiquities, scientific instruments, and, not least, a superb library. He sustained a wide correspondence with the greatest contemporary savants and other scholars, to whom he made his collections and library freely available; and his own reputation was such that he was elected Secretary and later President of the Royal Society.

Before his death on 11 January 1753, Sloane willed his collections and library to the King or Parliament for the sum of £20 000, which was to be vested in maintaining them and making them available '... for satisfying the Desires of the Curious and for the Improvement of knowledge'. With remarkable celerity, though not before much debate and disputation, they were accepted on 7 June of the same year, the purchase sum being raised by public lottery. Sloane's bequest, plus the Cottonian Library and the Harleyian Collection of Manuscripts, were transferred to Montagu House in London and together constituted the British Museum.

The first decades of the new museum were marked by profound changes in the social, political, and intellectual climate, coinciding with the Industrial Revolution and the birth of modern science; but there is little evidence of this tumult being paralleled in the Museum. Admission to the collections was from 9 a.m.-3 p.m. on weekdays, and in summer 4-8 p.m. on Mondays and Fridays, and was limited to fifteen persons who were conducted and allowed two hours' viewing time (Boyle *in*

Rymsdyk and Rymsdyk 1791, p. iv). It is difficult to assess to what extent the collections were used for research.

Additions to the fossil collections were few until the first major purchase in 1816 of William Smith's collection illustrated in his *Strata identified by Organized Fossils*. From this time the accession of fossils began to accelerate, reflecting an increasing interest in the developing science of palaeontology in scientific circles and especially among wealthy, leisured amateurs, as well as revealing the predilection for fossils of Charles König, Keeper of the 'Department of Natural History and Modern Curiosities'. As is evident from the account of the fossil collections given in volume 2 of the *History of the Collections contained in the Natural History Departments of the British Museum* (1904), until about 1840 accessions were largely by donation, but from that time purchases became increasingly numerous and important up to the time of the First World War. However, it is evident that the collections were held in high regard in that donations were made to them by distinguished scientists, including Cuvier and Mantell. With regard to the former, it is interesting to note that as early as 1822 the value of plaster casts as a medium for research had been recognized since replicas of mammals collected by Cuvier in the Paris area were presented in that year to the Museum. Similarly, plaster casts of *Megatherium* were presented by the Royal College of Surgeons in 1834; while casts of trilobites from North America monographed by Jacob Green were donated by him in the same year.

By the mid 1830s the natural history collections had grown to such a degree that it was found expedient to subdivide the Natural History Department into a 'Botany Branch', a 'Zoology Branch', and a 'Mineralogical and Geological Branch'. The acquisition of fossils by purchase, donation, and bequest continued to accelerate with the evident objective of making the collections as comprehensive as possible, both stratigraphically and geographically. Thus, by the middle of the nineteenth century notable collections by Pomel and Tesson (France), Barrande (Bohemia), and Häberlein (Germany, including *Archaeopteryx*) were purchased, as well as numerous collections from elsewhere in Europe and the Americas. In addition, acquisitions of fossils increased from the expanding Empire, many becoming type and figured specimens. The international scope of the collections was emphasized by the transfer of the collection of 50 000 foreign specimens from the Museum of Practical Geology (of the Geological Survey of Great Britain and Ireland) in 1880. Nevertheless, much effort was put into acquiring British material, especially type and figured specimens.

Owing to the large accessions of material, the natural history collections had so outgrown the others by 1856 that it was decided to appoint a 'Superintendent' to be responsible for them, Professor (later Sir) Richard Owen being selected to fill the post. Simultaneously, the natural history 'Branches' were designated as 'Departments', and in the following year separate 'Mineralogical' and 'Geological' Departments were formed. A further consequence of the expansion of the natural history collections was the great pressure put upon the storage accommodation in the Bloomsbury building, to which the Museum had been transferred in 1845. Thus, it was decided that the Museum should be divided and that the natural history collections should be housed in a separate building to be constructed in South Kensington. At the time of its opening in 1881 as the British Museum (Natural History), the scientific staff of the Geological Department comprised the Keeper, and four Assistants, three

of whom worked on invertebrates and two on vertebrates. Though much concerned with curatorial duties and exhibition, they additionally found time for research on the collections.

They were also diligent in acquiring material for the National Collections, now in direct competition with the proliferating regional and local museums, themselves the outcome of burgeoning civic pride. Such museums were often linked with Literary, Philosophical, and Natural History Societies and Institutes, whose members made full use of the unprecedented improvement in public transport in making natural history collections. Moreover, the newly constructed railways provided a new source of localities for the fossil collector; while the great expansion in the winning of stone, clay, and cement for the construction industry resulted in a significant increase in important fossil discoveries in the hand-worked pits and quarries. Though some of this material was acquired for the national collections, much of it was absorbed into private collections and, ultimately, into local museums.

A further consequence of the increase in the number of geologists, both professional and amateur, and the competition for material, was that members of the Department of Geology began more and more to make their own collections. Allied to this new policy, research became less adventitious and dependent wholly on the collections, and more directional in pursuing original projects. At the turn of the century the staff comprised the Keeper, six Assistant Keepers, and fourteen Attendants, the increased numbers allowing the senior staff to specialize more intensively than hitherto. They still had a heavy curatorial commitment; but by this time there was a considerable disparity in the state of curation of the several groups, arising from their very different sizes and, not least, the varying predilections of the heads of section. Also originating from this time, the degree of control of growth of individual sections began to diverge since a selective acquisition policy is feasible only in a well-curved section.

In the first decades of the present century there was a profound slump of public interest in geology and particularly palaeontology; private collections became fewer and the acquisition of material by the staff through personal contact became increasingly important, although this was not helped by the Museum's restrictive loans policy which prevented the loan of type and figured specimens even to their donors. As the collections of the (then) Geological Survey increased in size and significance, so competition for material between the two institutions became more overt and relationships more equivocal. Thus, there was an increase in emphasis on foreign material, the Department undertaking the determinations of material from overseas surveys and other organizations in return for specimens; in addition, although funds were limited, it also participated in or sponsored collecting expeditions.

Until the First World War there was little preparation of material for scientific purposes, but this situation altered in the inter-war years with the introduction of compact and effective mechanical tools. An even more profound change in this field occurred after the Second World War with the introduction of plastic technology and of acid preparation techniques, now used world-wide, which were developed and perfected in the Department's Preparation Laboratory.

During the inter-war period problems centred on limitations of staff and space. The former had an impact on the state of curation, though despite it some sections managed to introduce the compilation of systematic, stratigraphical, geographical,

and bibliographical card indexes. By the mid thirties the storage accommodation had become so congested that a new wing for the geological collections was proposed, but plans were halted by the outbreak of war in 1939. If the task of packing the collections for evacuation was unenviable, that of re-instating them in a war-damaged building at the end of hostilities was even more daunting.

In common with other major museums, the attitude towards display of material in the public galleries had changed very little between 1881 and 1925. Exhibits consisted of large numbers of specimens, with little or no accompanying information or supporting illustration. Although the approach to display became slowly more didactic, the necessary resources to make any profound changes were very limited. This situation has changed only recently, and then by dint of a major reorganization and commitment of space, manpower and financial resources.

In the immediate post-war years, there was a steady accession of material but only a slow increase in the size of the staff, which by 1955 totalled thirty-three. In the following year the title of the Department was changed from Geology to Palaeontology, by direction of the Trustees. Fortunately the Museum was able to participate in the expansion which was taking place in Civil Science and the universities, and so to increase its staff which in the case of the Department of Palaeontology had doubled to sixty-two by 1965. Although in theory this should have eased the curatorial situation, to some degree it exacerbated it. Hitherto, appointees to the scientific staff had been non-specialist graduates; now, recruitment was of post-doctoral candidates of proven ability in specific fields.

Their advent coincided with profound changes in palaeontological research, with the traditional taxonomic, systematic, morphological, and stratigraphical studies being augmented by biostratigraphy, palaeoecology, palaeobiogeography, and the investigation of skeletal ultrastructures. Collecting techniques changed, with an increased emphasis on bulk collecting of natural and statistically significant assemblages. The necessity for making essential field observations combined with the need to provide much more detailed and accurate locality information than most of that appended to specimens already in the collections, imposed a much greater emphasis on the acquisition of new material than ever before (the collections being used to augment rather than be the subject of the research). These factors, combined with the tendency for the presence of specialists on the staff to attract material, resulted in a crisis for both staff and specimen accommodation.

Some respite was gained by closing public galleries and converting them to provide temporary storage and studies; but the net result was congested accommodation and sections with widely scattered collections and staff, precluding high curatorial standards.

By 1960 all Departments were experiencing great difficulties resulting from lack of space; and so it was decided to press for a new wing for the Department of Palaeontology, the space vacated in the main building being allocated principally to the Department of Mineralogy. The proposal was approved, the outline plans were agreed in 1966, construction began in 1970, and the building was formally opened in May 1977.

The new wing is designed on an 'open plan' basis to provide 10 000 square metres of floor area in seven floors, including a basement and sub-basement. Studies are

spaced around the periphery of each floor, allowing ready access to the collections stored in the 'core' area. Each study is supplied with a full range of services comprising electricity, gas, compressed air, vacuum, hot and cold water. In addition each floor is furnished with a small laboratory. There are also a number of specialist laboratories and a large Preparation Laboratory. The atmosphere in the building is filtered and controlled to maintain a temperature of 20 °C. and a relative humidity of 50%, providing a mean between the different requirements of pyritized material and specimens in clay matrices, skeletal collections, and the Departmental Library.

The building has been fitted with specially designed storage units providing the maximum degree of flexibility in the utilization of drawers of different heights, shelves, and pallets on rollers. There is in addition a large coldstore accommodating the Sub-Department of Anthropology's serological collection. The provision of this excellent accommodation has enabled a major reorganization of the collections, improving their distribution and accessibility. Not least, it has greatly improved the working conditions of the seventy members of staff and visiting scientists alike.

An historic event for the Museum took place in 1963 when by Parliamentary Act, the British Museum and the British Museum (Natural History) became independent of each other, each institution with its own re-constituted and much smaller Board of Trustees. This served to emphasize the status of the British Museum (Natural History) as a major research institute, responsible and responsive to national needs, whose scientific contribution henceforth must be seen to be effective. Moreover, the Department of Palaeontology had in 1956 formalized an international commitment by undertaking on a repayment basis to determine material from overseas areas submitted through the Overseas Geological Surveys. On these counts, the Department was for the first time actively subject to forces outside the walls of the Museum. Further, the Trustees have more recently implemented a proposal made to them by the Advisory Board for Research Councils that the Museum should invite visiting groups of scientists from both academic and applied fields to review and comment on the work of the Departments, which have benefited from a different perspective of their activities.

The last two decades have seen other profound changes that have altered the course that the Museum had followed for the previous two centuries. A major and, for what is essentially a comparative science, retrograde step is the restrictive legislation that is increasingly being enacted in countries throughout the world, limiting or wholly preventing the export of fossils, even temporarily for study. A further important factor has been the enormous increase in the number of museums and research institutes throughout the world, each wishing to build up its own collections. The size and structuring of the staff of the Museum have changed fundamentally, and the staff are now more highly qualified at all levels. Advances in preparation techniques and equipment, especially the Scanning Electron Microscope, have enabled palaeontological research to reach new dimensions: and there is still a major step to be taken, namely the utilization of Electronic Data Processing techniques in both curation and research, though a start has been made.

A major problem common to most historical collections is that of conservation, particularly of pyritized and sub-fossil material. Research is being undertaken by the Departmental Laboratory to determine the processes of deterioration, and

methods of countering it. Conservation imposes heavy demands on both staff time and facilities; moreover, as a component service expert casters are necessary to make replicas of specimens seriously at hazard. Casts have now become, for reasons outlined above, an important medium for research and exhibition, so much so that the Department is currently unable to meet either its own internal demands, or the needs of other institutions.

A further manifestation of the response of the Museum to new pressures and attitudes was the creation in 1976 of four new Departments, namely, Central Services, Public Services, Library Services, and Administrative Services, in addition to the five 'traditional' scientific Departments (Zoology, Entomology, Palaeontology, Mineralogy, Botany). The new Departments have assumed responsibility for a number of the activities previously undertaken by the scientific Departments. Thus, the Departmental libraries are now amalgamated with the General Library and together form the Department of Library Services. The Museum's libraries were formed *de novo* when it transferred to South Kensington in 1881, and the unified library is now one of the largest and most comprehensive in the world. The libraries, which are such an important adjunct to the collections, are the working tools of the staff; but they are also made available to visitors and other research workers.

In addition to acquiring literature, the Museum provides a service to both the scientific community and the general public by producing a variety of publications, ranging from monographs to popular handbooks. The first important scientific series produced by the Department appeared in 1887 and comprised the so-called 'Catalogues'. These were produced in two principal formats, but differed widely in content and layout, all transcending mere lists of specimens and many being, in effect, monographs; indeed, the larger format evolved into a Monograph Series in 1948. A new series of catalogues of type and figured specimens in the Department's collections was inaugurated in 1977 with a contribution on Mesozoic Ammonoidea (Phillips 1977).

Another important source of scientific contributions is the Geological Series of the *Bulletin of the British Museum (Natural History)*, inaugurated in 1949. Though primarily intended as a medium for the description of the Museum's collections, its contents are wide-ranging, embracing palaeontology, stratigraphy, and now mineralogy and petrology. However, it should be added that the great majority of the Department's scientific contributions have been published in the journals of learned societies and in other specialist publications.

Between the middle of the last century and the 1930s a series of popular guides to the galleries and special exhibits were produced. These were subsequently replaced by a series of handbooks with a broader coverage and more permanent appeal, which have been well received by universities, schools, and the general public, several having been translated into other languages. The Department has also been responsible for the production of popular educational material ranging from postcards to wall-charts, as well as collaborating in the production of casts of specimens. Responsibility for these activities has now been assumed by the Department of Central Services whose revitalized Publication Service is currently reviewing the range, methods, and marketing of publication and educational material, although the Department of Palaeontology continues to provide the appropriate scientific expertise; and a

new series of books of interest to a wide audience is now in the course of preparation.

Similarly, responsibility for the exhibition galleries and display work has passed from the scientific Departments to the Department of Public Services. The Palaeontology Department has a long history of service to students and the public in the field of exhibition. The 'heroic age of geology', broadly between 1830 and 1860, coincided with the 'age of education' when '... a large public turned to exhibitions to satisfy their desire for knowledge, and not merely to gratify their curiosity; and, later in the period, the philosophically minded were led to the exhibits by the Darwinian controversy. It was inevitable that exhibition work in the galleries should be the characteristic note of this period of the history of the Department' (*A Short History of the Collections* (1931), pp. 28–29). This commitment to exhibition work continued with the move to the new building in South Kensington in 1881 and up to the First World War. In the years 1930–1960, pressures of other duties resulted in less attention being given to exhibition, and during this time attitudes and expectations regarding display underwent a profound change, and it became a specialist subject. However, many members of the Department are still drawn to exhibition work and are collaborating in the Museum's new and comprehensive exhibition programme.

Also in the field of education, the Museum's Trustees have in recent years encouraged and fostered closer links with universities and other research institutions. Increasing numbers of research students are working on the collections under the joint supervision of university and departmental staff; while some members of the Department serve as visiting lecturers at universities and teaching hospitals, and others have spent protracted periods seconded to universities and research units overseas. The Department also offers facilities to visiting scientists, many working under the sponsorship of the British Council, and it has advised on the organization of specialist laboratories and provided training for scientific and technical staff from Britain and overseas. The Department is also collaborating with the Institute of Geological Sciences in joint research projects in Britain and abroad. It is also consulted by a wide variety of organizations ranging from oil companies to Forensic Science Laboratories. Not least the Department serves the general public in providing determinations of fossils and answering a wide variety of enquiries, many of which emanate from countries overseas. These activities are listed in the Museum's Triennial Reports, the most recent of which was published in September 1978.

In short, the history of the Department may be characterized as two hundred years of relative stability, and twenty years of profound change. This has inevitably resulted in a fundamental reappraisal of the Department's activities and responsibilities in a changed and changing world, particularly with regard to its *raison d'être*—the collections. These have grown from the few hundred specimens bequeathed by Sloane in 1753, to eight million today. However, it should be added that the latter figure is a very conservative estimate, since it is both unrealistic and impossible to determine the actual numbers of individual specimens.

The first duty of the Department remains what it has always been, the conservation and curation of the collections. It is in implementation of the second duty, the enhancement of the collections, that a fundamental reassessment has had to take place. The transfer of the collections to a new and commodious building has,

paradoxically, made us aware of the finite space limitations of the Museum's South Kensington site and of the necessity for husbanding its storage accommodation. For these and the other reasons listed above the Department can no longer aim to make its collections truly comprehensive, and with this in mind new outline working objectives regarding the acquisition of material have been formulated:

1. To enhance major collections of national or international importance, which are of continuing research interest; to augment the collections that are the subject of current research by Museum staff; and to collect material to initiate new research areas.

2. To accept the donation of type and figured specimens, and material of exceptional or historical importance.

3. In consultation with appropriate bodies, to collect from and record important geological sections threatened with destruction; and from temporary exposures in areas of especial geological interest.

It is to be expected that these objectives will be modified in the future as circumstances change, but we have endeavoured to ensure that, as set out, they meet our national and international obligations. Nevertheless, we are aware that we, and the many scientists from throughout the world who use the collections, are enjoying a legacy that has been accumulated over a period of 220 years, and that it is our responsibility to preserve it and to add to it for the benefit of our successors.

*Acknowledgements.* I am greatly indebted to my distinguished predecessor Dr. E. I. White F.R.S., last Keeper of Geology, first Keeper of Palaeontology, for permitting me to draw upon his wealth of knowledge of the Department, and especially for those piquant asides which I have not been able to include; and to Dr. C. G. Adams, Dr. M. G. Bassett, and Dr. A. J. Charig for comments on, and improvements to, the text.

#### REFERENCES

- BRITISH MUSEUM (NATURAL HISTORY). 1904. *The history of the collections contained in the Natural History Department of the British Museum*. Vol. 1, xvii+442 pp., London.
- 1931. *A short history of the collections*. xi+62 pp., London. (Special Guide No. 9.)
- PHILLIPS, D. 1977. *Catalogue of the type and figured specimens of Mesozoic Ammonoidea in the British Museum (Natural History)*. iv+220 pp., British Museum (Natural History), London.
- RYMSDYK, J. V. and RYMSDYCK, A. V. 1791. *Museum Britannicum; or, a display in thirty two plates, in Antiquities and Natural Curiosities, in that Noble and Magnificent Cabinet, the British Museum, After the Original Designs from Nature*. 2nd edn., revised and corrected by P. Boyle. 2+2+[5]+xvii+88, 30 pls., London.
- SMITH, W. 1816. *Strata identified by organised fossils containing prints on colored paper of the most characteristic specimens in each stratum*. 32 pp., 18 pls., London.

H. W. BALL

Department of Palaeontology  
British Museum (Natural History)  
Cromwell Road  
London SW7 5BD  
U.K.