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Biology Curators Group Newsletter

Title: The Mollusca Collections of the Royal Scottish Museum

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Source: Heppell, D. (1978). The Mollusca Collections of the Royal Scottish Museum. *Biology Curators Group Newsletter*, Vol 2 No 1, 32 - 36.

URL: <http://www.natsca.org/article/1661>

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THE MOLLUSCA COLLECTIONS OF THE ROYAL SCOTTISH MUSEUM

The Mollusca collections of the Royal Scottish Museum are, after those of the B.M. (N.H.), the most extensive in Britain, being estimated at well over half a million lots. They, like the other zoological collections in the Museum, had their origins in the seventeenth-century Repository of Natural Curiosities in the University of Edinburgh. This was established as the Museum of Natural History in 1812, under the supervision of Robert Jameson, Professor of Natural History from 1804 to 1854, and Regius Keeper of the Museum. After his death the collections were transferred to the Crown, under whose control they have since remained. The foundation stone of the Museum of Science and Art (later to become the Royal Scottish Museum) was laid in 1861, on the south side of Chambers Street next door to the old University buildings. The shell collections (apart from some specimens retained for teaching purposes) were moved into the Department of Natural History after the first phase of building of the new museum was completed, and were displayed on the gallery from which the skeleton of the Blue Whale, probably the only specimen in the museum still in its original position, is suspended.

Unfortunately, not much of this early material is recognisable as such, not having been accompanied with sufficient data to tie it to the corresponding register entries. The earliest collection which remains recognisable is that of Louis Dufresne, acquired in 1819 and containing about 4000 shells. Among the most important of the historical collections dating from before the opening of the Museum of Science and Art are the William Traill collection (1854) of shells from the East Indian Archipelago (550 species), the Edward Chitty collection (1855) of Jamaican terrestrial shells (400 specimens, including material associated with C. B. Adams), and a series of dredged British marine molluscs which, with a collection of Mediterranean and Lusitanian non-marine shells, was the first (1854) of many extensive donations from Robert McAndrew. In 1856 the museum acquired a large amount of material from the collection of Edward Forbes who, aged only 39, had died within a year of succeeding Jameson as Professor of Natural History. The Forbes collection includes types from the HMS 'Rattlesnake' expedition to Australia and from his Aegean investigations.

During the next hundred years the collections continued to grow sporadically with the acquisition of numerous specimens of local and exotic molluscs of which only a selection of the most important can be listed here. The collection of R. K. Greville, author of the 'Flora Edinensis', acquired in 1866, contained 4600 species of exotic non-marine shells, many of which were received from the authors of the species. It is thus a source of possible syntypic material and types of one of Forbes' species have already been identified. The Greville collection also contains about 400 lots of British shells, including marine specimens received from Bean and Laskey. Until a

few years ago these specimens, mounted in glass-topped boxes of uniform height, formed the basis of the Mollusca exhibit in the old British Animal Hall. With the recent modernization of this hall the shells have been returned to the study collections.

In 1870 and 1873 nearly 1000 lots of foreign shells were obtained from Robert McAndrew, including numerous specimens from the Gulf of Suez, and in 1872 the museum acquired a collection of about 600 species, both British and foreign, from H. E. Strickland, one of the pioneers of zoological nomenclature. A collection of 5000 species of exotic marine shells, presented in 1905 by General and Mrs. Blair, containing many attractive specimens but without much locality data, was extensively used for the systematic display of foreign shells. The following year the museum received 5627 specimens, chiefly British, from the collection of Richard Rimmer, author of 'Land and freshwater Shells of the British Isles', including many of the specimens figured in that work. The remainder of the extant Rimmer material which had been exhibited in the Burgh Museum, Dumfries, was obtained by the Royal Scottish Museum in 1959. Also in 1906 164 shells were purchased for the type (i. e. reference) collection from Messrs. Sowerby and Fulton. Several subsequent purchases were made from the same source in later years, and in the 1930s the public display of foreign shells was rearranged by that firm in accordance with contemporary classification, many of the specimens being reidentified at the same time. Probably from this period can be dated the loss of numerous original labels when the specimens were remounted on uniform wooden tablets, and the addition of printed labels giving the distribution of the species (usually according to one of the standard monographs such as the 'Conchologia Iconica' and not frequently incorrect) instead of the locality of the particular specimens. Fortunately the number of exhibited specimens 'improved' in this way is small compared with the total in the study collections. This display was eventually dismantled a few years ago.

The most scientifically important collection of molluscs, from the number of types it contains, is the W. S. Bruce collection of Antarctic Mollusca, registered in 1921, comprising more than 250 species from the Scottish National Antarctic Expedition 1902-1904, described by Melvill & Standen in the 'Scotia' Reports, 1907 and 1912. In the same year were received the Bruce Arctic collection (103 species) which includes the material from the Jackson-Harmsworth Expedition to Franz-Josef Land 1896-1897, reported by Melvill and Standen in 1900.

For a long time the shell collections remained fairly static with much of the Department's resources being put into birds and insects, despite the interest of two Keepers, James Ritchie and subsequently A. C. Stephen, in Scottish cephalopods (234 lots of which were registered in 1958, from the Scottish Fisheries Board). In 1959, however, a

number of large collections were received, including those of Waterston, Fleming, Nicol and Bell-Pettigrew. The collection of A. R. Waterston, who succeeded Stephen as Keeper of Natural History, contains over 36,000 specimens of non-marine molluscs, chiefly Scottish, mostly in good series with precise locality data. Although comprising 14,500 specimens, the collection of Prof. John Fleming, author of the 'History of British Animals' obtained from the Arbroath Museum, is disappointing as much of the material is either in poor condition or poorly localized, and none of the specimens referred to in the 'History' seems to be present. The William Nicol collection of some 4000 specimens is still largely unexplored; it does contain, apart from the type of *Conus nicolii* Wilson, 1831, a few specimens from Parry's second (1820) expedition in search of the NW Passage, and specimens figured by Capt. Thomas Brown in his 'Illustrations of British Conchology'. The Bell-Pettigrew collection is the name by which the collection formerly in the Zoology Department of the University of St. Andrews is known; its nucleus was the cabinet of Dr. William Traill, added to by Thomas Bell-Pettigrew and latterly substantially augmented by the efforts of Prof. Sir D'Arcy Thompson. It is a comprehensive world-wide collection of land, freshwater and marine shells totalling about 66,000 specimens. It was presented to the Royal Scottish Museum when it was no longer required by the University for teaching purposes. Other important material registered in 1959 were samples of the Scottish marine bivalve populations studied for many consecutive years by Stephen and reported on by him in 1931 and 1933; molluscs from a Petersen Grab survey of Scottish and northern waters, published by Stephen in 1933; and molluscs from Alister Hardy's investigation of the food of cod and haddock, published by Brown & Cheng in 1946.

Until 1959 the Mollusca in the Royal Scottish Museum were of small enough compass to be housed in a series of cabinets under the wall desk cases on the Insect Gallery, those on public display having been left relatively unchanged since their arrangement by Sowerby & Fulton, although a fine series of wax models by Guy Wilkins, purchased in the 1950s, had been incorporated, and a number of casts of large squid had been made for the British Animal Hall. The Waterston collection was kept in spare drawers in the Insect Study Room, but the Bell-Pettigrew collection had to remain in the series of miscellaneous cabinets in which it had arrived, in a poorly lit cellar.

The crunch finally came in 1961 with the acquisition of the A. E. Salisbury collection, the largest shell collection in private ownership in Britain. Conservatively estimated in the registers as containing 341,800 specimens, it was more than five times the size of the Bell-Pettigrew collection and probably more than twice the size of the entire museum shell collections up to that time. Not only was it extensive, but also comprehensive, Salisbury having been more interested in the number of species represented than in the rarity or condition of the material. It was a collection built up by exchange and by purchase of

other collections at auctions, and thus contains original (though in most cases not type) material from British and foreign authors too numerous to mention here. It is particularly rich in exotic non-marine species, partly due to Salisbury having purchased the remaining stock of H. C. Fulton, the surviving member of the Sowerby & Fulton partnership, after his death in 1942. Fortunately the RSM was also able to acquire the superb library of malacological books, periodicals and separates accumulated by Salisbury over more than 50 years, without which the proper study and curation of his collection would have been impossible.

At this time the Mollusca collections were in the charge of A. R. Waterston who, although having an extensive knowledge of non-marine molluscs, was primarily an entomologist. Nevertheless a start was made on the curation of the Bell-Pettigrew and Salisbury collections, and certain groups popular with collectors, such as cowries, cones and volutes, were transferred from the cellars to the Insect Study Room. Plans were put forward, however, for both a full-time Curator and a separate Study Room for the shell collections. The first of these aims was realised in 1966 with my appointment to the museum, initially in a temporary research capacity but from 1970 as a permanent member of the Department, with an assistant transferred from Entomology. The new Study Room took physical shape in 1972 with the completion of a Dexion mezzanine floor occupying the upper half of the former Beasts of Prey Hall. At first this supported two work rooms for the curator and assistant with a third room to house the malacological library, and a large open space in which the multifarious structures ranging from cardboard stationery cabinets to converted wardrobes, containing the Salisbury, Bell-Pettigrew and Waterston collections, were piled up in rows. Little rearrangement of the specimens was possible under these conditions, and a number of the cabinets were in a state of near collapse. New storage cabinets were planned and finally installed in 1976. These consist of rows of uniform, custom-built, wooden cupboards fitted with interchangeable fibre trays, each tray holding from 8 to 64 white cardboard modular boxes. These boxes, in four sizes from 5 x 7 cm up to 14 x 20 cm, allow easy arrangement of the contained specimens in systematic or alphabetical order. Between the rows of full height cupboards are rows of half height cupboards constructed on the same plan but fitted with bench tops, allowing curatorial work and documentation of the specimens to be carried out in close proximity to the storage cupboards. Also in 1976 new storage for alcohol preserved material was completed in the basement of the museum, the specimen jars being arranged on open adjustable shelving.

The British material is kept separate from the main collection in both the preserved and dry collections, partly to facilitate reference to it and partly because it is the most rapidly growing portion of the collection. In 1966 the amount of British material in the preserved collection was very small, consisting mostly of land slugs from the

Waterston collection, nudibranchs from W. McIntosh, and the Scottish cephalopods acquired by Ritchie and Stephen. Since then it has grown in size to surpass the exotic collection, mostly due to the efforts of Shelagh Smith in the Firth of Forth and the Outer Hebrides, and field work by museum staff not only in many parts of Scotland but also in the Isle of Man and the west of Ireland. No other museum is building up such a representative collection of British Mollusca and this material is, accordingly, an important reference for geographical variability within the species. To supplement it, specimens of 'British' species from elsewhere in NW Europe will be added, and to this end three weeks of field work were undertaken this autumn on the north coast of Spain. A series of 'Handbooks for the Identification of British Mollusca' is planned, based largely on the RSM collections, to illustrate this intraspecific variation, an important aspect of taxonomy not stressed in the available works where the descriptions and illustrations are frequently based on material from the south of England.

Most of the current research in the Mollusca Section is British or European oriented, with taxonomic studies in progress on Nuculidae, Acanthochitona and large squid, but the larger Indo-Pacific Melanellidae (= Eulimidae) are also being revised - a study precipitated by the discovery of the type of Melanella dufresnii in the Defresne collection. A catalogue is in preparation of the collections of Cephalopoda, in the same 'RSM Information Series' as the 'Key to British marine Gastropods' by Shelagh Smith, 1974, and the 'Catalogue of Type-specimens of Invertebrates (excluding Insects)' by Smalton, Heppell & Watt, 1976. These publications and others in the series are available on application to the Librarian.

Apart from the collections themselves, which are available for study to all serious enquirers, and publications relating to the specimens, the scientific output of the Section has included the organisation of highly successful symposia on Littorina and on sea-slugs and land-slugs. There are plans for a symposium on Cephalopoda to be held in 1980. A scanning electron microscope is planned for the Department in the near future which will enable taxonomically important details of radulae, larval shells and microsculpture to be studied. Much work remains to be done both on the existing collections (most of the pre-1959 material still awaits incorporation into the new storage) and in maintaining the input of new material, particularly from fieldwork. The full-time staff of the Section has recently been temporarily reduced to one, but despite this it is hoped that the pre-eminence of the RSM collections of British Mollusca can be maintained.

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