

DELIGHTS FOR THE EYES AND THE MIND

A brief survey of conchological books by S. Peter Dance

Many years ago virtually every English town of any size supported at least one or two second-hand bookshops. It was still possible to find wonderful things lying neglected on their dusty shelves or on their even dustier floors. Such shops had an irresistible allure for the impecunious youth with a liking for natural history books that I was then. How well I remember the day when I wandered around one of these magical caves and carried off, for the princely sum of two shillings and sixpence, my first shell book, a copy of Jacques Philippe Raymond Draparnaud's *Histoire Naturelle des Mollusques terrestres et fluviatiles de la France*. Published in 1805 but still in pristine condition, written by a pioneer of European conchology, containing engraved plates of shells, it had been delicately annotated in pencil by a former owner, Sylvanus Hanley. The most exotic purchase I had ever made, I sensed then that it was an almost perfect acquisition for the dedicated collector of such things, for it was old and in fine condition, was illustrated (albeit not in colour), contained interesting annotations by a former owner who had himself acquired a degree of fame in the conchological world, and was a bargain at the price. Half a century later I know that it will be very difficult to repeat so satisfying a transaction for so small an outlay but interesting items will still come onto the market to tempt discerning purchasers. Comprehensive, well-illustrated catalogues and technological facilities, such as the Internet, will be there to help anyone wanting to amass a conchological library and learn interesting facts about its contents. Indeed, in the conservation-conscious world of the future, it may become easier to collect old shell books than fresh shells!

Publications dealing with molluscs and their shells are legion as the Mollusca is the second largest phylum in the animal kingdom and includes many of the most beautiful objects in nature, shells and their animal occupants alike. Shells have been collected and admired since time immemorial, their myriad shapes and colours appealing especially to the artist in us, and we are immediately attracted to pictures of them in publications, sometimes to the exclusion of the text they illustrate. By contrast, some unillustrated publications are appreciated by those keen to own works of scientific importance, especially those proposing novel systematic arrangements of the Mollusca or describing new species. Others are happy to acquire old catalogues of collections sold at auction or even old lists intended for the labelling of specimens. The acquisition of original manuscripts and drawings is the goal of those wishing to own something unique. The subject of all this literature, conchology, has fascinated us since the beginnings of civilisation and the earliest writings about it are almost as old as written history.

As far as we know Aristotle was the first to make a serious contribution to conchology by writing about the living molluscs and their shells he observed (principally around the Greek island of Lesbos) during the fourth century BC. His influence on later commentators was immense and, paradoxically, inhibiting, for his writings were considered almost sacrosanct. So the sciences, in Europe anyway, stagnated for two thousand years. It was the German encyclopaedist, Conrad Gessner, who effectively threw off the Aristotelian yoke with the publication of his wonderful *Historia animalium*, a treatise on the animal world in several volumes embodying the accumulated knowledge of ancient and contemporary writers. The fourth book, published in 1558 and entitled *De piscium et animalium animantium natura*, included much information about molluscs, illustrating with woodcuts many shells from the Mediterranean and the Indo-Pacific region for the first time. It cannot be regarded primarily as a conchological treatise but it deserves an honoured place among books that advanced the study of the Mollusca. Another encyclopaedist, Ulisse Aldrovandi, compiled a similar multi-volume treatise on animals. His *De reliquis animalibus*, published posthumously in 1606, discusses and illustrates many different molluscs (but he frequently defers to Aristotle and his woodcuts are inferior to Gessner's).

Mention should be made here of three publications ostensibly about fishes: Pierre Belon's *De aquatilibus* (1553), Guillaume Rondelet's *Universae aquatilium historiae* (1554-55), and Ippolyto Salviani's *Aquatilium animalium historiae* (1554-57). Gessner lifted information about molluscs from each of these books. Belon's treatise contains figures of several molluscs which are among the earliest to be published (the very first being of a crawling snail reproduced in Conrad von Megenberg's *Puoch der Natur*, published in 1475). In 1616 Fabio Colonna published two treatises about molluscs, *Purpura* and *Aquatilium et terrestrium aliquot animalium*. Though limited in scope they are both full of accurate observations, the first

dealing with molluscs which produce purple dye, the second a more general account of molluscs and other creatures. Each is beautifully illustrated, the *Aquatilium* containing the first published figures of several West African marine shells. Collectively these works provide a sketchy background to the work of later commentators three of whom, in very different ways, helped to establish conchology as a separate and distinct branch of natural science, as we shall now see.

Filippo Buonanni, an Italian Jesuit firmly wedded to the past and the writings of the ancients, more interested in trying to solve occult questions than making personal observations, was the unlikely author of the first manual of conchology, the *Ricreatione dell'Occhio e della Mente*. Published in 1681, it discourses on the appearances of shells and the supposed habits of their living occupants and provides a series of 450 woodcuts of shells (the second, enlarged, edition of 1684 is in Latin and has 100 extra figures). For the first time since Gutenberg devised his printing press someone had published a substantial book devoted to the study of molluscs and their shells. Whatever may be said against the quality of its text at least it has a text - which is more than can be said for the *Historia conchyliorum* of Martin Lister, his English contemporary and rival for the title 'Founding father of conchology'. The *Historia*, first published between 1685 and 1692, is essentially a picture book of shells arranged in a systematic order, the plates having more than a thousand excellent copper engravings of them (mostly by his daughters Susanna and Anne), such text as there is being engraved on the plates with the figures of the shells. Lister was an observant man of science as well as a skilled physician and these qualities inform his book which is an invaluable record of what shells were known in the late seventeenth century. The virtues of both Buonanni's and Lister's books are manifest in their illustrations and in this respect the *Historia*, among the favourite books of Carl von Linné, is vastly superior. A mere four years separates the first published appearance of each, enough to make Buonanni the legitimate 'Founding father' and his book an essential feature of every conchological library, but few will deny that they would prefer to give shelf space to a copy of Lister's impressive *Historia conchyliorum*.

Completing this disparate trio of pioneers was a German-born employee of the Dutch East India Company, Georg Eberhard Rumpf, who lived most of his life on the small island of Ambon (Amboina) where he observed, collected and drew natural objects of all kinds, including shells (he was also a fine botanist). Unfortunately blindness robbed him of the chance to complete and publish the results of his life's work, but some of his manuscripts concerning molluscs and other invertebrates survived and were published posthumously in Amsterdam in 1705, under the title *D'Amboinsche Rariteitkamer*. A work of great originality, it was marred by ill-advised editing. There are illustrations of shells from Indonesian waters and elsewhere but they were not based on Rumpf's original drawings because a great fire on his island had destroyed these in 1687. Nevertheless, the book is still considered a masterpiece, his descriptions of shells showing a remarkable gift for picking out the features which distinguish one species from another, his notes on molluscan ecology showing him to be a pioneer in this field. *D'Amboinsche Rariteitkamer* stands apart from those other eighteenth-century publications which may be considered among the gems of conchological literature, for it is based upon the work of a near-genius who, like Aristotle, observed the fascinating creatures living in the waters around a small island and made a valuable contribution to the literature of biology in general and of conchology in particular.

Collectors were forming private museums containing shells and other 'natural curiosities' long before these three men were born. Among the earliest of these was the museum of Ferrante and Francesco Imperato, described in Ferrante Imperato's *Historia naturale*, published in 1599. The illustrations include easily identified figures of shells some of them shown reversed because they were not engraved in mirror image. The presence of reversed images of gastropod shells in books illustrated with engravings persisted until well into the nineteenth century. Shells were prominent in most collections of curiosities formed during the seventeenth century, such as that of Ole Worm, a Danish professor of medicine, who published a description of his *Museum Wormianum* in 1655. They also feature in Nehemiah Grew's *Musaeum Regalis Societatis* of 1681, in which he catalogues and partially illustrates the shells belonging to the collection of the Royal Society in London.

During the following century many shells from private collections were featured in publications several of which were unashamedly luxurious and intended for wealthy purchasers. The shells illustrated in Rumpf's *D'Amboinsche Rariteitkamer*, for instance, had been supplied to the engraver by various private collectors.

Many of those illustrated in 1742 by the Italian physician Niccoló Gualtieri in his *Index testarum conchyliorum*, some of which may have come from Rumpf, are shown upside down and look as though they are spinning off the page. Incidentally, a French conchologist may not regard them as being upside down because, for one reason or another, shells have often been shown apex downwards in early - and not-so-early - French publications. Curiously enough shells are portrayed in the conventional manner in the *Conchyliologie* of Antoine Joseph Dezallier d'Argenville, also published in 1742. Intended to be an identification guide, it was popular with collectors who would have appreciated its excellent illustrations more than its mostly unhelpful text. The *Conchyliologie* was the work of a connoisseur of the fine arts who had little or no personal knowledge of molluscs as living creatures. It contrasts strangely with a book published in 1757, which shows a wide-ranging knowledge about them. Written by another Frenchman, Michel Adanson, the *Histoire naturelle du Senegal*, despite its title, is almost entirely about molluscs. A landmark in the history of conchology, it is a systematic treatise on the molluscs Adanson observed in Senegal including observations on their anatomy and habits. The illustrative engravings are excellent - and upside down. Buonanni was the first to bring out a book devoted entirely to a study of molluscs and their shells, but it was uncritical and formless. Adanson's book, based on first-hand observations and systematically arranged, was an original pioneering work that helped make conchology a science. As such it should be in every conchological library.

In no way, however, do the illustrations in any of the books discussed so far bear comparison with those adorning the *Choix de coquillages et de crustacés* of the German painter and engraver Franz Michael Regenfuss. Published in 1758, the year Carl von Linné brought out the definitive tenth edition of his *Systema Naturae*, this outsized book - a tea service would sit comfortably on it - was written by Christian Gottlieb Kratzenstein but illustrated with engravings based on original drawings by Regenfuss. Its twelve plates display exotic shells decoratively arranged and exquisitely coloured, the artist's wife being responsible for most of the colouring. Appropriately the Danish royal family and the nobility helped to defray the production costs of this aristocrat among shell books. Truly the *Choix de coquillages* is a delight for the eyes if not for the mind. Eye catching in a different way is the publication known generally as Seba's *Thesaurus*, a remarkable illustrated inventory of the natural objects in the collection of the Amsterdam apothecary Albertus Seba. The third of its four massive volumes, also published in 1758, deals mostly with Seba's extensive collection of shells. Many plates in this volume display the shells as they were arranged in the drawers of his cabinets, the arrangements being imaginative and sometimes bizarre. Strings and loops alternate with circles and festoons, intricate borders with rosettes, a multi-horned head with a hand-engraved *Nautilus*, all fashioned from shells. The impact of these designs is increased noticeably by the bold hand colouring which embellishes them in a few copies of the *Thesaurus*. As Seba died in 1736 he never had an opportunity to enjoy the book which so uniquely reflected his passion for shells unnaturally displayed. We are more fortunate.

A year before these hefty volumes came onto the market a Nuremberg artist, Georg Wolfgang Knorr, published the first part of a more manageable book about shells, written in the German language. Better known under the title of the nearly contemporary French edition, *Les délices des yeux et de l'esprit*, it is truly a deluxe production which eventually portrayed nearly a thousand shells on 190 plates. The engravings, accurately drawn, meticulously hand-coloured and attractively arranged, are among the most aesthetically satisfying of all published figures of shells. The text, describing the appearance of the shells and little else, was made superfluous by the excellence of the figures, but this did not prevent the book appealing to a wide circle. Indeed, it was so popular that, although Knorr died in 1761, five more parts were added by 1772 and a Dutch edition was also produced. Once again various private collectors made this book possible, their names being elegantly engraved on the plates below the figures of their shells.

By now several drawers of shells and other natural objects - which could cost as much as fine paintings and other objets d'art - added distinction to a curiosity cabinet and, by inference, to its owner. A Peruvian dilettante, Don Pedro Davila, lived in Paris surrounded by his collections until circumstances compelled him to sell them by auction in 1767. He published a three-volume catalogue and his shells are the subjects of the first, in which some are well illustrated. Maria Theresa was in a position to outdo Davila for publicity. Like the members of some other ruling families in Europe who had amassed a large and varied shell collection she had probably been impressed by the splendour of the *Choix de coquillages* of Regenfuss, virtually a royal publishing enterprise. As Empress of Austria she, too, could have her conchological treasures described and illustrated in a luxury publication. She employed the mineralogist

Baron Ignaz von Born to carry out her wishes and he produced a bulky folio for her in 1780, too late for her to really enjoy it because she died in that year. The eighteen plates of the *Testacea Musei Caesarei Vindobonensis* display a varied assortment of shells expertly engraved, tastefully arranged and carefully coloured by hand. The text, as was usual then, is not very informative, but because it includes valid scientific names for the species represented it has an importance denied to the books already discussed.

Throughout the eighteenth century Great Britain had merely watched while its European neighbours issued ever more sophisticated publications dealing with shells. Nothing substantial about conchology had been published there since Lister had brought out his *Historia conchyliorum*. In 1771, however, there had been an attempt to change this. Emanuel Mendes da Costa, who was for a time Clerk to the Royal Society, and George Humphrey, a shell dealer, initiated a publication illustrated with excellent hand-coloured engravings of exotic shells. The *Conchology, or natural history of shells* did not get beyond a few pages and plates, however, partly or mainly because da Costa had misappropriated the Royal Society's funds and had to work on the book while in prison. This also helps to explain why this is one of the rarest of all shell books. It may have nose-dived but at least it had helped remove Great Britain from the conchological sidelines.

Two years earlier, in 1769, a Hamburg physician, Friedrich Heinrich Wilhelm Martini, had begun to publish his *Neues systematisches Conchylien-Cabinet*, an attempt to describe all known molluscan species and to illustrate them with hand-coloured engravings. He published three volumes before his death in 1778 but the work was continued by a Danish clergyman, Johann Hieronymus Chemnitz, who added eight more volumes between 1779 and 1795 (G. H. Schubert added a twelfth in 1829). The magnitude of this ambitious venture was such that it was bound to fail in its stated aim but it did succeed in supplying the public – a very patient public in view of the time scale – with descriptions and illustrations of hundreds of different species and varieties. It remained a useful reference source until early in the nineteenth century and many of its plates were re-issued well into the nineteenth century to illustrate various monographs of the second, much enlarged edition. The tardy progress of Knorr's *Délices* had shown that serial publications could be slow in the making. The first edition of the *Conchylien Cabinet* showed that customers may have to wait a lifetime for the last volume to materialise (and the second edition was to show that one lifetime was nowhere near long enough).

Johann Samuel Schroter was deacon of a parish in Weimar, a curator of natural objects and art treasures, a naturalist who liked bees, and a prolific author of books about shells, minerals and fossils. In 1779, for instance, he published his *Geschichte der Flussconchylien*, a study of river shells, the first book of its kind, illustrated with eleven hand-coloured plates. A very different book of his, about the structure and form of shells, appeared in 1783 and demonstrated his versatility. In 1782, however, he was involved with a book that took a step back in time, *Musei Gottwaldiani testaceorum, stellarum marinarum et coralliorum*. This had started out as a collection of plates, showing shells and other marine objects, that had been engraved almost a century earlier from original drawings prepared by Christophorus Gottwald, a German physician who died in 1700. Schroter contributed a brief text and had the satisfaction of seeing his name on the title page of a book that may otherwise never have been published – which would have been a loss for the plates are very fine.

Meanwhile, our knowledge of the world, particularly of the Pacific Ocean, was expanding greatly. Louis Antoine de Bougainville discovered and explored various island groups there between 1766 and 1769; and the three epic voyages of Captain Cook, which transformed our knowledge of the great ocean and the lands lapped by its waters, took place while Martini was working on the first three volumes of the *Conchylien-Cabinet*. Closet naturalists and collectors were introduced to many shells that had never been seen previously by western European eyes, thanks to collections made by officers and crews of the exploratory vessels. Chemnitz illustrated several of them in his continuation of the *Conchylien-Cabinet*, but the publication which did most to publicise these novelties was the *Universal conchologist* of Thomas Martyn, a London shell dealer who had bought and borrowed many shells procured during the Cook voyages. Unusually for a dealer Martyn seems to have had a philanthropic streak for he employed young persons 'born of good but humble parents' to make drawings of the shells, the best of which were used as a basis for hand coloured, stipple-engraved plates, each plate displaying two views of one shell. A complete copy of the *Universal concho/agist* comprises 160 plates in four folio volumes, the first 80 plates portraying shells brought back from the 'South Seas' in vessels associated with the Cook voyages. It was published between

1784 and 1787, but only after 70 copies of those first 80 plates had been rejected and new ones substituted. Still dissatisfied, Martyn brought out a second edition in 1789, slightly reducing the format and adding a few pages of text. Posterity should be grateful to him for taking so much trouble over his *Universal conchologist*, a publication unrivalled for the beauty of its shell illustrations and redolent of the fascinating personalities and stirring events of an adventurous era.

Many contemporary collectors acquired shells originating from the voyages associated with Captain Cook and others. Among them was Friedrich Carls of Schwarz-burg Rudolstadt whose collection was described in a small, illustrated book by Christoph Ludwig Kammerer in 1786. No collector in those days, however, was more notorious than the Second Duchess of Portland whose reckless purchases of shells and other objects, natural and artificial, meant that almost everything she owned had to be auctioned in 1786, the year after she died. John Lightfoot prepared for the press what has become known as *The Portland catalogue*, a publication more famous for listing – and illustrating – the Portland Vase than for including many valid scientific names for molluscs. Charles Alexandre Calonne, Minister of Finance in France before the Revolution, who made a timely escape to England, also had a fine collection, including many shells from the Cook voyages, and these were listed in the *Museum Calonnianum*, published in 1797, the anonymous author being George Humphrey. The following year saw the publication of the *Museum Boltenianum*, a catalogue of the shells in the collection of Joachim Friedrich Bolten, a Hamburg physician. Edited by Peter Friedrich Roding, this little book achieved notoriety not because it mentioned shells brought from distant seas in exploring vessels but because the scientific names of the shells published in it ousted many of those proposed at a later date by the illustrious Lamarck. So few copies of this nomenclaturally important catalogue are known that a reprint was issued in 1906, the reprint itself being a rarity nowadays.

During the final decade of the eighteenth century one man's dedicated investigation of molluscs over a long period came to fruition in a most satisfying manner in a book entitled *Testacea utriusque Siciliae eorumque historia et anatome* (1791-95). A study of the molluscs of the two Sicilies (i.e. mainland Italy as then understood and the island of Sicily), its Naples-based author, Giuseppe Saverio Poli, was interested in natural phenomena, such as earthquakes, thunderstorms and magnetism, but was also fascinated by marine biology. With financial support he was able to spend twelve years studying Mediterranean marine life, especially molluscs. His two-volume book is a peerless example of accurate observation wedded to exquisite artistry. Unfortunately it is also a very rare book so its many fine qualities are not generally appreciated. Ahead of its time, particularly in its description and illustration of anatomical characteristics, it proposed using one set of names for molluscan shells and another set for the animal and shell together, a proposal universally and understandably ignored. In no other respect should Poli's remarkable book be ignored. Differing from it in almost every respect was a publication by one Joachim Johann Nepomuk Anton: *Prodromus in systema historicum testaceorum*. Published in Vienna in 1795, this folio production, which may be admired for its thirteen hand-coloured plates, if not for its rather limited text, brings the eighteenth century to a stylish close.

The nineteenth century witnessed an explosion of conchological literature in all its forms, but it started quietly. While Napoleon was on the warpath conchology and publications thereon had low priority. As a patriotic Englishman, however, Edward Donovan was not to be denied and between 1799 and 1804 he issued *The natural history of British shells*, illustrated with 180 hand-coloured plates. In 1802 a Frenchman, Denys de Montfort, contributed a delicately illustrated, four-volume *Histoire naturelle... des mollusques* to the series initiated by the great Buffon. His two-volume *Conchyliologie systematique*, illustrated with rather dull engravings in the text, appeared between 1808 and 1810. A folio volume published in London the following year was anything but dull. George Perry's *Conchology*, first issued in 1811 (and re-issued several times up to about 1825 but always dated 1811) contains 61 plates with hand-coloured figures of shells unequalled in conchological literature for audacity and garishness. These rare examples of shell plates produced by the aquatint process have an almost surreal quality that appeals to modern interior designers with fashionable walls to decorate.

In 1819 Andre Etienne, Baron de Férussac, began issuing his *Histoire naturelle des mollusques terrestres et fluviatiles*, an imposing work which was not completed until 1851, fifteen years after the Baron's demise, by Gerard Paul Deshayes. Artists trained in the miniaturist tradition characteristic of

France ensured that non-marine molluscs have never been more beautifully portrayed. The hand-coloured engravings in Carl Pfeiffer's otherwise admirable *Naturgeschichte deutscher Land- und Süßwasser-Mollusken* of 1821-28, for instance, are not in the same class. In 1827 a book describing the freshwater molluscs of Brazil and written by another German, Johann Baptist von Spix, was published posthumously in Nuremberg. The illustrations in Spix's *Testacea fluviatilia* did not challenge the supremacy of those published by Férussac but they were more than adequate and certainly far less costly to produce. They were hand-coloured lithographs of shells, lithography being a relatively cheap process that, in the right hands, could give excellent results.

Before considering the work of one of the finest exponents of lithography, however, let us make a preliminary sortie into the work of the Sowerby family, a dynasty of artists and naturalists that had a major impact on the conchological scene throughout the nineteenth century. The patriarch of the dynasty was James Sowerby. Already well known for his extensive works on botany and mineralogy, James published the first part of his *Genera of recent and fossil shells* in 1820. He died in 1822 and publication was continued until 1834, when it was still unfinished, by his son, George Brettingham. With shells portrayed in colour on its 267 plates it was, like most Sowerby publications, appreciated more for its illustrations than its text. In 1824 George Brettingham Sowerby (the first of three members of the dynasty to bear the same name) bought the valuable shell collection of Charles Bennet, fourth Earl of Tankerville. Soon afterwards, having paid too high a price for it, he had to prepare for its sale by auction and issued a catalogue the following year. Illustrated with a few engravings and lithographs, the *Tankerville catalogue*, as it is generally known, has scientific value because of the new scientific names introduced therein. George Brettingham Sowerby (second of the name) became a prolific author of books and articles about shells, described hundreds of species new to science and was closely involved with two extensive shell iconographies, as we shall see presently. Here we shall just mention *The conchological illustrations* (1832-41), in which many new species were illustrated, a majority of them having been collected by Hugh Cuming. The most successful shell collector the world has seen, Cuming's huge collection provided conchologists on both sides of the Atlantic with hundreds of specimens that they described and illustrated in their monographs and iconographies.

William Swainson was a prolific writer on various aspects of natural history but it was his natural artistic ability and his skill as a lithographer that secured for him a lasting reputation. He published two series of *Zoological illustrations*, the first series published 1820-23, the second 1829-33, the illustrations being autolithographs tastefully hand coloured. Shells were his forte, their asymmetrical formation presenting no difficulty when he came to draw them. The many shells illustrated in each series were portrayed with such fidelity, delicacy and confidence that they rivalled and occasionally excelled those in the finest French publications. But Swainson could do better than this. A series of lithographed plates with minimal text was issued 1821-22 in a larger format to accommodate figures of shells too large for the *Zoological illustrations*, each plate showing two views of a single shell, artfully posed. This was his *Exotic conchology*, one of the rarest and most artistically satisfying of all conchological publications. It set a standard of shell portraiture against which later publications could be judged, a standard few equalled. Because lithography was cost effective and relatively simple to master it was used extensively to illustrate shells and other natural objects throughout the nineteenth century. None mastered it more effectively than Swainson.

One of the problems confronting a student of molluscs early in the nineteenth century concerned their systematic arrangement. For many years collections were arranged according to the system proposed by Linnaeus in his *Systema naturae*. Then along came Jean Baptiste Pierre Antoine de Monet, Comte de Lamarck, who introduced many new genera – but neglected to illustrate most of them in his writings. Samuel Brookes tried to make Lamarck's genera intelligible in *An introduction to the study of conchology* (1815); J. and G. B. Sowerby's *Genera of recent and fossil shells* provided a valuable series of illustrations; John George Children published *Lamarck's genera of shells translated from the French* (1823); and Edmund A. Crouch provided some more figures in his *Illustrated introduction to Lamarck's conchology* (1826). John Mawe did not approve of the Lamarckian genera and ignored them in his *Linnaean system of conchology* (1823). Others joined in the controversy but it petered out a few years later leaving a trail of attractively illustrated books in its wake. William Wood, a reluctant adherent to the new ideas about genera emanating from a recently belligerent France, had the bright idea of producing a small book containing many figures of

shells that would serve as a modestly priced substitute for a small library of prohibitively expensive books. His *Index testaceologicus*, in the third edition of 1828, contains no less than 2,300 miniaturised figures carefully coloured by hand. It was very popular and sold well - the handsome, revised edition of 1856 is still popular with collectors – and may have given employment to a small army of colourists.

Captain Thomas Brown was a prolific author of natural history books and a fine artist, the first edition of his *Illustrations of the conchology of Great Britain and Ireland* (1827) being noteworthy for the high quality of its hand-coloured engravings. Among his lesser productions was a pocket-sized, elementary guide, *The conchologist's text-book*, first published in 1833. It would have been deservedly forgotten now but for some publicity it received in 1839 from an unexpected quarter. Its contents re-surfaced in that year, virtually unaltered, in *The conchologist's first book*, published in Philadelphia as a work 'By Edgar A. Poe', whose only contributions to it were a Preface and an Introduction (more than enough, though, to make the book a target for collectors of that illustrious writer's work). Even the pictorial front cover of this blatant piece of plagiarism is a reduced version of the front cover found on some copies of Edmund Crouch's book about Lamarck's genera.

There was a more honourable motive behind the production of Thomas Say's *American conchology*. Forsaking the world of learning, to which he had contributed significantly, Say adopted a simple lifestyle on the banks of the Wabash in Indiana. He threw in his lot with a small band of idealistic settlers who had gathered there to work together and live in peace, their little township being optimistically named New Harmony. He became business manager to the community and set up a hand printing press. Between 1830 and 1834, when he died, he produced the seven parts comprising his *American conchology*, his wife Lucy helping to produce the illustrations and supervising their colouring. The paper it was printed on was of poor quality and the illustrations lacked the Swainson touch, but Say's book laid the foundation of our knowledge of American molluscs. Considering its author worked in a wilderness with primitive equipment it is a minor miracle that the book was issued at all. It was otherwise with Say's compatriot, Isaac Lea, who used his wealth to study the different branches of natural history and to enjoy the delights of civilised living. He spent most of a long life studying his beloved freshwater bivalves and began publishing a monumental work upon them in 1834 at the age of 42. He published the final part of his *Observations on the genus Unio*, which covers a much wider field than the title suggests, forty years later - and enjoyed a dozen active years after that!

The middle years of the nineteenth century saw a remarkable increase in the number, extent and quality of conchological publications. In the same year as Say's backwoods printing venture ended so a Frenchman began issuing the parts of what became one of the classics of conchological iconography, the *Spécies générale et iconographie des coquilles vivantes*. Louis Charles Kiener, who was curator of Prince Massena's shell collection, which included that of Lamarck, took 36 years to complete ten volumes of this work, exquisitely illustrated in the best French tradition. Paul Fischer, doyen of a family of French conchologists, added an eleventh and final volume in 1879. Kiener remained in charge of the Massena collection when it was bought by Baron Jules Paul Benjamin Delessert in 1840, but he was soon replaced by Jean Charles Chenu, a man with a greater sense of urgency. Chenu speedily prepared a book illustrating the Lamarckian genera of shells, which was published in 1841. Delessert must have been delighted with the *Recueil de coquilles décrites par Lamarck*, a large, beautifully illustrated iconography, especially as it bears his own name as author. Between 1843 and 1853 Chenu went on to produce an even more grandiose work, in four volumes, containing 482 magnificent hand-coloured plates. Presumably the Baron was satisfied with what he saw of Chenu's *Illustrations conchyliologiques* although he did not live long enough to see it all.

Serial publications, as we have seen repeatedly, could be in progress for years, especially if they were heavily illustrated. Even the industrious Chenu took ten years over his magnum opus. This is as nothing to the time taken by some of the more extensive iconographies. A second, revised edition of the *Conchylien-Cabinet* of Martini and Chemnitz was begun by Heinrich Carl Kuster in 1837 who could not have imagined that it would see off several generations of contributors before limping to a halt in 1920. No doubt the occasional war and the need to produce and colour more than 4000 different plates slowed progress. Surprisingly this work does not hold the record for the time taken to publish a serial conchological work (scientific journals being taken out of the reckoning). That is held by another German publication of more

modest dimensions, the *Iconographie der Land und Süßwasser Mollusken* of Emil Adolf Rossmässler. He began publishing this study of European non-marine shells in 1835. After his death in 1867 it plodded its recondite way through the nineteenth century until it, too, was brought to a merciful end in 1920. Its 30 volumes containing 850 plates show thousands of European non-marine snails, favourite subjects of German conchologists then as now. Ludwig Pfeiffer's eight-volume *Monographia heliceorum viventium* (1848-77) is another example of the German fondness for land snails but as it was not illustrated only the most dedicated student of them could make head or tail of it. In 1842 Rudolf Amandus Philippi started issuing his *Abbildungen und Beschreibungen neuer oder wenig gekannter Conchylien*, a book describing and illustrating new or little-known species. It must have been a relief to subscribers when he called a halt a mere ten years later after completing three volumes. At least they were not left wondering if they would live long enough to see the final volume.

With long-running sagas in mind, it is time to renew our acquaintance with the ubiquitous Sowerbys and the multifarious publications to which they contributed. When Hugh Cuming returned from his long sojourn in the Philippines in 1840 his London house became an emporium of shells unmatched for variety anywhere in the world. His collection teemed with undescribed and little-known species and he made them available to specialists willing to publish articles and books about them. In particular he made the early acquaintance of G. B. Sowerby (II) who spent a lifetime writing and illustrating books about shells and fossils of various kinds. I have already said that he illustrated the *Conchological illustrations* mostly from Cuming's shells. He continued to draw on Cuming's material in a far more ambitious publication, the *Thesaurus conchyliorum*. G. B. Sowerby (I) brought out the first instalment in 1842 and G. B. Sowerby (III) contributed the two parts that brought it to a close in 1887, but G. B. Sowerby (II) was responsible for almost everything else. Thus, for almost half a century, father, son and grandson were involved in the execution of this prestigious work. Except for a few lithographed plates in the last two parts the plates are steel engraved. All the figures, even those of diminutive shells, are accurately hand coloured.

Cuming also became very friendly with Lovell Augustus Reeve, a part-time conchologist and a full-time publisher. Cuming's seemingly inexhaustible stores encouraged in Reeve an ambition to produce a serial publication describing and illustrating all known molluscan shells. Having chosen to illustrate them with lithographs rather than steel engravings, a choice that worked well with shells above a certain size but failed dismally with small or tiny ones, he published the first part of his *Conchologia iconica* in 1843. This was a mammoth undertaking, for in addition to writing and researching the separate monographs, the figures, according to the title page of the first volume, were to be 'drawn by him upon stone from original pencil sketches by G. B. Sowerby, Jun.' Reeve chased his impossible dream throughout the rest of his working life, regularly producing monograph after monograph, while overseeing the publications of many other naturalists. He died in 1865, as did Cuming, having completed the first fifteen volumes. G. B. Sowerby (II) added five more volumes before ending the project in 1878. He had been involved with Reeve's iconography for 35 years during which time he had to produce and promote his own *Thesaurus*. Together these two substantial iconographies described and illustrated thousands of species, many of them new to science. Some figures in Kiener's *Iconographie* and in the second edition of the *Conchylien-Cabinet* are clearly copies of those in the two British iconographies but are not always acknowledged as such.

Although works on molluscs of particular countries or regions had been published in the eighteenth century - the works of Adanson and Poli come to mind - they did not become commonplace until the nineteenth. The Sowerbys illustrated some of the weightier ones in Britain, such as *A history of British Mollusca and their shells* by Edward Forbes and Sylvanus Hanley (1848-53), *British conchology* by John Gwynn Jeffreys (1862-69) and *Conchologia Indica* by Hanley and William Theobald (1876), the last named being a thick volume of lithographic illustrations portraying the non-marine shells of the former British India. The Sowerbys had almost a monopoly in Britain for illustrating shells in books and articles, but they were not automatic choices for illustrating shell-less molluscs such as sea slugs. When Joshua Alder and Albany Hancock were producing their definitive *Monograph of the British nudibranchiate Mollusca* (1845-55) it was Hancock who provided the detailed drawings of these gorgeous little creatures for reproduction by Hullmandel's Patent Lithotint process.

I have already mentioned Draparnaud's *Histoire*, one of many nineteenth-century works published by French workers about their own, mostly non-marine, molluscan fauna. Among the more substantial of these were Dominique Dupuy's two-volume *Histoire naturelle des mollusques terrestres et d'eau douce qui vivent en France* (1847-52) and Christian Horace Benedict Alfred Moquin-Tandon's three-volume *Histoire naturelle des mollusques terrestres et fluviatiles de France* (1855), both precisely and delicately illustrated. Jules Rene Bourguignat, vilified by contemporary conchologists for differentiating hundreds of so-called new species on the basis of slight differences in their shells, published dozens of books in small editions, most of them unillustrated. When he did provide illustrations, however, he did so with style, enlisting no fewer than five talented artists and engravers to illustrate his *Malacologie de l'Algérie* (1863-64), showing once again how book illustration in France benefited from the long-established and exacting tradition informing it. The virtues of that tradition are well displayed in the publications of a Frenchman whose achievements earn him a paragraph all to himself. It is virtually impossible to enumerate, let alone discuss in a short space, the contributions made to conchological literature by Alcide Dessalines d'Orbigny who accomplished the work of ten men during his relatively short lifetime. Of paramount interest is the report on *Mollusques* (1835-47) issued as part of his magnificent *Voyage dans l'Amerique meridionale*. The voluminous text, full of information about his observations of South American molluscs, is exemplary, the 85 plates superb. Interesting in a different way is the illustrated report on *Mollusques* (1839-42) he provided for Ramon de la Sagra's *Histoire physique, politique et naturelle de l'île de Cuba*, this being the first report on that island's uniquely interesting mollusc fauna. A large collection of shells collected in the Canary Islands provided him with the material for yet another illustrated report on *Mollusques*, published in 1839 as part of the *Histoire naturelle des îles Canaries* edited by Philip Barker Webb and Sabin Berthelot. There is more, much more than this to say about the phenomenon that was d'Orbigny, but enough has been said to show that his early death at the age of 55 may have robbed us of some exceptional additions to conchological literature.

A number of German conchologists wrote books significantly enlarging our knowledge of molluscs occurring in specific parts of the world. In 1848 Christian Ferdinand Friedrich Krauss brought out *Die Sudafrikanischen Mollusken*, the first substantial account of South African marine molluscs, its half-dozen lithographed plates – especially when hand coloured – redeeming a book that usually has a badly foxed text. West African shells were described and illustrated in a slim publication by Wilhelm Bernard Rudolf Hadrian Dunker, *Index molluscorum, quae in itinere ad Guineam inferiorem collegit Georgius Tams* (1853). Later, however, he devoted much more time to the study of Japanese shells, his well-illustrated *Index molluscorum maris Japonici* (1882) being an important contribution to our knowledge of the Japanese fauna. It followed a substantial work on the same subject by Carl Emil Lischke, *Japanische Meeres-Conchylien* (1869-74). These works by Dunker and Lischke appeared as part of the *Novitates conchologicae* (1854-79), a series of monographs by various authors, illustrated with superlative hand-coloured lithographs. Carl Eduard von Martens was the most outstanding German conchologist of the second half of the nineteenth century and had a profound knowledge of land shells so it was no surprise when he was chosen to write a report on the non-marine molluscs of Central America. His massive report on *Terrestrial and fluviatile Mollusca* appeared between 1890 and 1901 as a contribution to the privately funded *Biologia Centrali-Americana* series. He died in 1904 so it is fitting that his illustrious career ended on a high note.

Several conchologists enlarged our knowledge of the Mediterranean mollusc fauna during the century. Long ago Aristotle called attention to certain molluscs living around a small Greek island and, many centuries later, Poli described and illustrated those found in the waters around the two Sicilies. Later publications about the molluscs of this most civilised of seas have been many and varied, German conchologists making notable contributions. Philippi wrote an illustrated account of the molluscs of Sicily, *Enumeratio molluscorum Siciliae* (1836-44), and this was followed by Heinrich Conrad Weinkauff's unillustrated *Die Conchylien des Mittelmeeres* (1867-68). It was a German, too, who was responsible for the first really comprehensive, illustrated account of the shelled molluscs of European seas. In 1883 Wilhelm Kobelt published the first part of his *Iconographie der schalentragenden europäischen Meeresconchylien*. A remarkable solo production which eventually extended to four volumes, the book is illustrated throughout with the author's own lithographed drawings, many of them showing how the shells of certain species varied. Kobelt published the final part a quarter of a century later, in 1908.

Printing and illustrating full-length books about molluscs and their shells was usually an expensive business and only rarely were sponsors forthcoming with financial backing. Many works appeared serially in scientific journals – even Lea published his magnum opus in this way – the parts of a work being collected up sometimes and re-issued as a book. Arturo Issel was one of several Italian conchologists who published most of their writings as articles in scientific journals, his *Malacologia del Mar Rosso*, a fundamental record of molluscs occurring in the Red Sea, appearing as a book in 1869. Publishing scientific works in this way could be a long-drawn-out process, as we have seen, and it contributed to the present-day rarity of many. The conchological writings of Joaquin Gonzalez Hidalgo, the foremost Spanish conchologist of his day, often appeared intermittently in journals over an extended period, which is why some of his books seldom occur in a complete state. This is true of his *Moluscos marinas de Espana, Portugal y las Baleares* which appeared over a twenty-year period between 1870 and 1890, the twenty parts confusingly paginated, the 101 plates only rarely all hand coloured. To complicate matters several of his publications issued in parts were never finished.

Throughout the nineteenth century wealthier nations organised exploratory voyages to investigate distant parts of the globe. Frequently the published reports of these voyages incorporate observations in natural history and pay particular attention to molluscs and their shells. Being usually government sponsored the reports are often illustrated in a superior manner by the best artists and engravers. Conchological literature has been greatly enriched by them but as they are usually buried in voluminous and costly publications covering many subjects they are seldom seen or offered for sale, so they deserve special, if limited, attention here. The French were key players and, as usual, their publications were impressively presented. The British also figured prominently, their published reports being less picturesque but more informative.

Although the British and the Russians preceded them into the Pacific in the nineteenth century it was the French, utilising the aptly named "Coquille", who produced the first published contribution to conchology based on discoveries by an exploring vessel. As ship's naturalist Rene Primevere Lesson observed and collected molluscs between 1822 and 1825, his illustrated account of them being published in the *Zoologie* report (1826-30). The voyage of the "Astrolabe" from 1826 to 1829, with the naturalists Jean Rene Constant Quoy and Joseph Paul Gaimard aboard, had much more significant results for conchology, molluscs being given star treatment in the *Mollusques* report (1832-35). The accompanying folio plates are justly renowned for their beauty and accuracy, the depictions of living molluscs being especially noteworthy. Other French voyages followed the "Astrolabe" but none resulted in a more glamorous addition to conchological literature.

The voyage of the "Beagle" could have resulted in a significant publication on molluscs but Charles Darwin, the naturalist on board, was not very interested in them and they do not figure in the published reports on the voyage. Fortunately they did interest Captain Edward Belcher, commander of the "Sulphur" during a global voyage from 1836 to 1842. With the ship's surgeon, Richard Brinsley Hinds, he collected many shells that were described in the illustrated report on *Mollusca* (1844-45) which Hinds contributed to the zoological results of the voyage. Belcher, chosen to command the "Samarang" during a subsequent voyage to Indonesia and other places, shared his collecting activities with another ship's surgeon, Arthur Adams, who with L. A. Reeve produced a report on *Mollusca* (1848-50) as part of the zoological results of that voyage. The discoveries resulting from these and other British voyages, however, were eclipsed by those made during deep-sea investigations undertaken by the "Challenger" around the world in the 1870s. The material collected was so extensive that the bivalves were dealt with separately by Edgar Albert Smith in his *Report on the Lamellibranchiata* (1885), Robert Boog Watson providing a much bulkier *Report on the Scaphopoda and Gasteropoda* (1886). These "Challenger" reports, intended for specialists and based mostly on deep-sea specimens mostly devoid of life and colour, record bare scientific facts, their sombre illustrations distancing them aesthetically from those which light up the "Astrolabe" report.

The United States Exploring Expedition, which was approved by the United States Government, lasted from 1838 to 1842. Six ships took part but only one conchologist, Joseph Pitty Couthouy. His collections and notes, though shamefully misused by others, eventually formed the basis for Augustus Addison Gould's expedition report, *Mollusca and shells* (1852- 56). The folio plates with their hand-coloured illustrations of shells were clearly more influenced by publications emanating from France than from Britain. An Austrian frigate, the "Novara", paid attention to aspects of natural history during a voyage

around the world between 1857 and 1859. One of the scientific reports was George Ritter von Frauenfeld's modestly illustrated *Mollusken* (1867). Towards the end of the century other voyages, especially those designed to explore the ocean depths, produced many conchological publications of scientific importance.

Introductory guides, or manuals, have always been popular with those wanting to pursue an interest, such as conchology. Henri Marie Ducrotay de Blainville provided many coloured illustrations to help put his didactic points across when he published his *Manuel de malacologie et de conchyliologie* (1825-27), the first of several substantial manuals that would be published before the century ended. This was followed, in 1829, by the much smaller *Manuel de l'histoire naturelle des mollusques et de leurs coquilles* of Paul Karel Sander Leonard Rang. In 1839 G. B. Sowerby (II) published *A conchological manual* illustrated with excellent hand-coloured plates that reached a fourth, enlarged, edition in 1852. Samuel Pickworth Woodward wrote one of the most original and most useful manuals. Modelled to some extent on Rang's book, *A manual of the Mollusca, or rudimentary treatise of recent and fossil shells* was issued in parts between 1851 and 1854. It has several plates with line illustrations and a description of the locations and characteristics of the world's zoological provinces, here introduced into a book for the first time. This, too, went to a fourth edition, the considerable enlargement of its contents putting an unreasonable strain on the binding of a book that should never have been issued as a duodecimo. No such complaint could be levelled against J. C. Chenu's two-volume *Manuel de conchyliologie et de paleontologie conchyliologique* (1859-62). Illustrated throughout with excellent engravings of shells, its first volume has a few of these accurately coloured by a special process that obviated the need to employ colourists (but their absence from the second volume suggests that the process had its problems). Paul Fischer took eight years to bring out his *Manuel de conchyliologie* (1880-87) which was based on Woodward's *Manual* and reproduced Woodward's plates. A massive tome, it is probably the best of all the manuals produced during the nineteenth century.

This brief survey of conchological literature may close fittingly with a reference to a major iconography that began optimistically during the last quarter of the nineteenth century and ended, a long way short of completion, during the second quarter of the twentieth. The brainchild of a wealthy American, George Washington Tryon, the first volume of the *Manual of conchology* appeared in 1879. The title was a misnomer because this was not a manual in the sense of the titles just discussed. It was a conchological iconography with similar objectives to the *Thesaurus conchyliorum*, the *Conchologia iconica* and Kuster's *Conchylien-Cabinet*, but presented more succinctly and in a smaller format. Tryon died in 1888 and Henry Augustus Pilsbry, a dominant figure in the conchological Pantheon, continued the over-ambitious project. Pilsbry was unable to fulfill Tryon's grand design, to describe and illustrate all known molluscan species in four series of volumes, although he completed seventeen volumes of the first series and 28 of the second before abandoning the project.

Finally, it may be worth asking if there are good reasons to collect and study old shell books. Are they nothing more than sound financial investments? Certainly there are individuals who see them in that way although there are probably wiser ways to invest money. When men and women involved in some manner with molluscs and their shells acquire and cherish such books, however, they may be satisfying a widespread human desire to collect and study things. Librarians working in learned institutions, for their part, may consider it a duty to try to acquire and preserve them for the benefit of posterity. Speaking personally, I am certain that acquiring and studying old shell books has brought me closer to the personalities of the writers and artists who made them. Yes, I agree with the early virtuosos who said that shells are delights for the eyes and the mind, but I am not the only one who would say the same about shell books!