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From Rondelet to Stockholm: four centuries of bryozoological research

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1. Introduction
2. Chronology of bryozoological research 1555-1965

1. Introduction

This listing, which is largely a personal choice, is presented in an attempt to demonstrate the range of bryozoological research carried out in the 411 years from 1855 to 1965. It commences with the work of Rondelet who first observed bryozoans, and we have taken 1965 as a convenient year to conclude our survey as it marks the foundation of the International Bryozoology Association. This organisation is now the prime agency for the promotion of scientific and social interaction between bryozoologists who meet every three years during its international conference. 1965 is also a useful year in that it allows us to discuss the work of deceased bryozoologists and others, without venturing too far into the dangerous realm of the more recent - living scientists who might be upset or bewildered at the inclusion or exclusion of themselves or others from this listing. In a small number of cases we have strayed from this necrological course to include some living scientists, as it would be ridiculous to exclude giants of bryozoology such as Ehrhard Voigt simply because they been blessed with longevity - of life and more importantly in this context - of research on bryozoans.

We have compiled our list from an examination of primary literature where possible. We have also drawn extensively on published accounts of the development of bryozoan studies (Bassler 1953, Ryland 1970, Boardman *et al.* 1983),¹ and from Nickles and Bassler's invaluable bibliography published in 1900,² as that on the Order Trepostomata by McKinney (1973).³ Additional information has been gleaned from the contributions to the International Bryozoology Association - Society for the History of Natural History meeting in Dublin in July 2001 published herein.⁴ W.A.S. Sarjeant's monumental 10 volume bibliography of geologists has proved invaluable,⁵ as has Hans G. Hansson's

Biographical Etymology of Marine Organism Names (BEMON).⁶ We gratefully acknowledge the contributions of the compilers of these works, which have eased the compilation of this listing of highlights of bryozoological research.

References to further papers or books of interest pertaining to individual entries are given in the notes immediately following the list. We have not attempted to follow up on every entry in this way, but point out some otherwise obscure references.

2. Chronology of bryozoological research 1555-1965

1555 Guillaume Rondelet 1507-1566, a French physician and naturalist who described the first known bryozoan.⁷

1599 Ferrante Imperato 1550-1625, a naturalist and apothecary of Naples (Figure 1). In his *Historia Naturale* he published the first use of familiar bryozoan generic names *Retepora* and *Fron dipora*. He also discussed the animal nature of these zoophytes.



Figure 1. Ferrante Imperato's private museum in Naples.

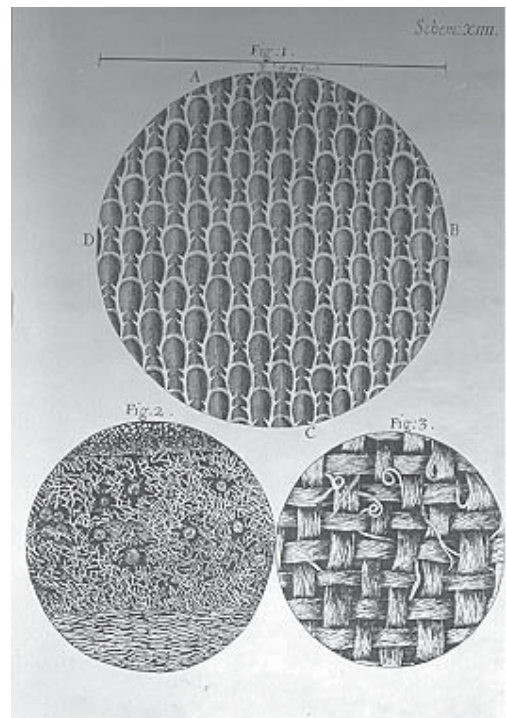


Figure 2. Title page of Hooke's *Micrographia* published in 1665 (left) and plate showing structure of *Flustra* (right).

- 1665 Robert Hooke** 1635-1703, was a noted inventor and architect, as well as being interested in natural history. He invented the iris diaphragm in cameras. He illustrated the structure of *Flustra* in his *Micrographia: or, Some physical descriptions of minute bodies made by magnifying glasses, with observations and enquiries thereupon*, published by Jo Martyn and Jo Allestry in London (Figure 2).
- 1699 Edward Lhwyd** 1670-1709 was born in Wales, and later was keeper of the Ashmolean Museum in Oxford. He is largely remembered for his work on the natural history of Britain and his books on Irish placenames. In the former volume he published the first illustration of a British fossil bryozoan - "*Alcyonium*" from the Greensand (Cretaceous) of Farington.
- 1727 Jean-André Peyssonnel** 1694-1759, a French naturalist, who discussed the animal affinities of zoophytes in a paper delivered to the Academy of Sciences in Paris. However, his paper was communicated by Réaumur (*q.v.*) who concealed the name of the author (he may have been attempting to save Peyssonnel from ridicule). In fact Réaumur at the same meeting delivered a paper which opposed the views of his younger colleague. Peyssonnel's paper was never published but its contents can be deduced from a reading of Réaumur's.⁸

1742 René Antoine Ferchault de Réaumur 1683-1757, a French naturalist and physicist. He was the first to observe the lophophore in marine bryozoans, and also described statoblasts. On his death his collection of natural history was donated to the Académie des Sciences in Paris.⁹

1744 Abraham Trembley 1710-1784, a Swiss-born naturalist and tutor. In his *Mémoires, pour servir à l'histoire d'un genre de polypes d'eau douce à bras en forme de cornes* published in Leiden in 1744, Trembley gave a description of freshwater bryozoans discovered by him three years earlier.¹⁰

1754-1755 John Ellis 1710-1776, an Irish merchant who worked out of London. His book *Essay towards a natural history of the Corallines* published in London (Figure 3) was the first English text to note the animal affinities of zoophytes. A joint work *The natural history of many curious and uncommon Zoophytes* with Daniel Carlsson Solander (1733-1782) was published posthumously in London in 1786. The genus *Ellisina* Norman, 1903 was named for him.¹¹

1758 Carl Linnaeus (von Linné) 1707-1778, erected the Order Zoophyta into which he placed corals and bryozoans. In the 10th edition of his *Systema Naturae* he also applied binomial nomenclature to John Ellis' species.

1759 The British Museum opened in Montagu House, Bloomsbury, London. The familiar South Kensington building was opened to the public in 1881 and was known as the British Museum (Natural History) until the 1980s when it was restyled the less cumbersome The Natural History Museum. Major bryozoans collections are housed in the Departments of Palaeontology and Zoology; these include material from the *Challenger* (q.v.) and *Discovery* expeditions of the 1800s. The museum also holds an important bryozoan research library, which included the papers of George Busk (q.v.), S.F. Harmer (q.v.) and others.

1810 Jean Vincent Félix Lamouroux 1776–1825 (Figure 4), a French marine biologist, who published a paper on the classification of marine polypide corals (bryozoans). His principal contribution to natural history however, was his recognition and division of marine algae into green, red and brown.¹²



Figure 4. Jean Vincent Félix Lamouroux 1776–1825.

- 1824 Jean René Constant Quoy** 1790-1869 and **Joseph Paul Gaimard** 1796–1858, undertook several expeditions, including that of the *Astrolabe* (1826 -1829) that collected bryozoans from the Pacific Ocean.
- 1827 Robert Edmond Grant** 1793-1874, a Scottish comparative anatomist, published one of the first papers to deal with the microstructure and physiology of Bryozoa. Grant described the structure of *Flustra*, and observed movement of tentacular cilia. This paper was first published in English in two parts in the *Edinburgh New Philosophical Journal*, and subsequently that year in German and in French a year later.
- 1828 Samuel George Morton** 1799-1851, was a Philadelphia-born medical doctor who produced the first description of fossil bryozoans (*Eschara*, *Flustra* and *Retepora*) from North America. These were from Big Timber Creek, New Jersey. This report was published first in 1828 in a volume authored by Lardner Vanuxem (1792-1848) and Morton on the Mesozoic, Tertiary and Recent geology and fossils of the Atlantic coast of the USA, and then again the following year in the *Journal of the Academy of Natural Sciences of Philadelphia*. Morton was also interested in the origins of Native Americans, and suggested that they were of a separate origin to Europeans. It was later demonstrated that he falsified his measurements on skulls to suggest that Europeans had a large cranial capacity which he thought suggested they were intellectually superior.
- 1829 Karl Eduard von Eichwald** 1794–1876, published the first of his many contributions on Palaeozoic bryozoans from Russia.
- 1830 John Vaughan Thompson** 1779–1847, was an army surgeon, who when based in Cork in Ireland, published his celebrated monograph in which he coined the name “Polyzoa” (Figure 5). In 1834 he moved to Sydney, Australia where he served as a director of a prison hospital. He also became involved in an unsavoury libel action.¹³
- 1831 Christian Gottfried Ehrenberg** 1795-1876 (Figure 6), published the term “Bryozoa”. For many year debate raged between zoologists and palaeontologists as to which of the two similar names “Polyzoa” and “Bryozoa” was correct to use. The latter was globally accepted. Ehrenberg is now principally remembered for his work on diatoms and other microscopic organisms. He was the subject of a number of papers brought together in a recent special issue of *The Linnean*.¹⁴
- 1839 William Lonsdale** 1794-1871, described bryozoans in Sir Roderick Impey Murchison’s *Silurian System*. A specimen of *Dianulites* in thin section, now in The Natural History Museum, London, probably represents the earliest example of a

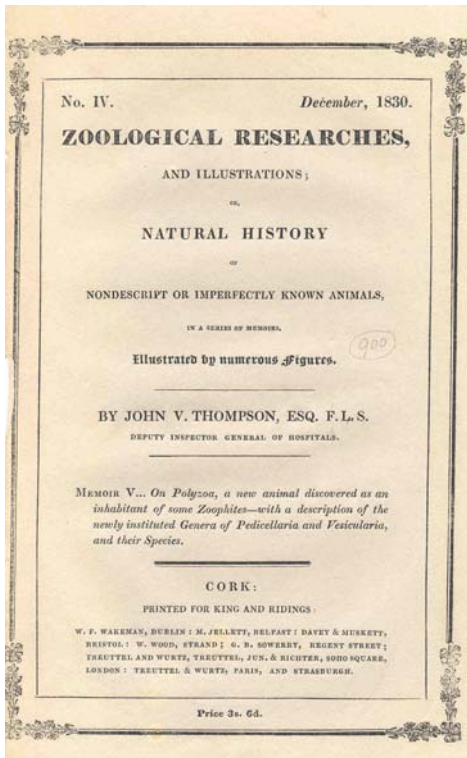


Figure 5. Cover of J.V. Thompson's monograph on Polyzoa.



Figure 6. Christian Gottfried Ehrenberg, author of the term "Bryozoa".

bryozoan thin section. Lonsdale later reported on material from Russia, New Jersey, and Sussex, England.

1846 Smithsonian Institution established. It contains the National Museum of Natural History (1857) which is a constituent part of the Smithsonian Institution in Washington, D.C. The museum has become one of the major repositories for fossil and Recent bryozoan collections, and contains most of the major collections made in North America. Staff who specialised in the study of bryozoans included E.O. Ulrich, R.S. Bassler, and more recently, R.S. Boardman and A.H. Cheetham.¹⁵

1847 James Hall 1811-1898, was perhaps the most influential palaeontologist of his generation in North America. In this year he published his celebrated *Palaeontology of New York* - it contained descriptions of many Lower Palaeozoic bryozoans. It was the first of many works and papers to contain information on bryozoans.¹⁶

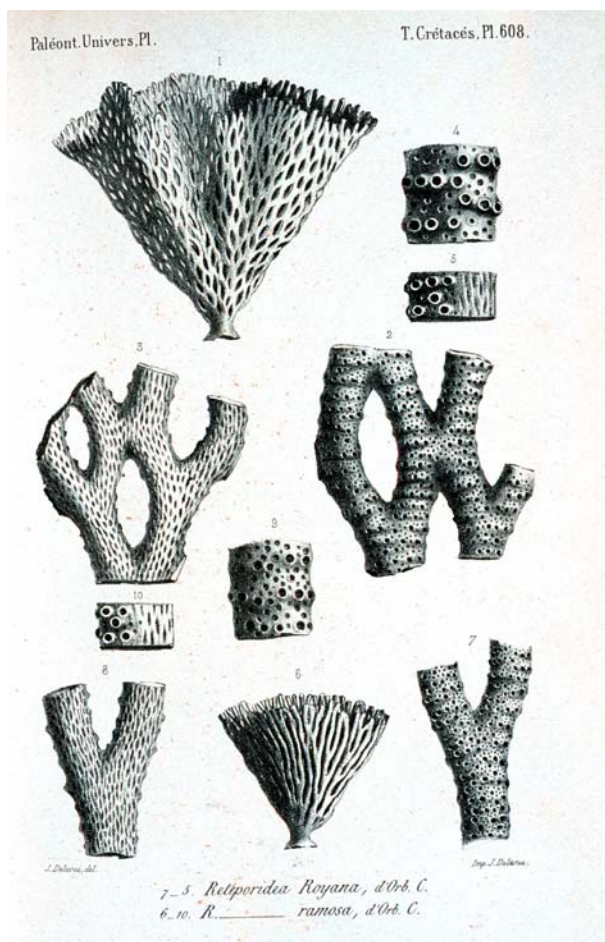


Figure 7. Plate from d'Orbigny's *Paléontologie française* showing two bryozoan species from the Cretaceous.

1849 George James Allman 1812-1898, was born in Cork and became Professor of Botany at Trinity College, Dublin, and later Professor of Natural History at Edinburgh. He was President of the Linnean Society of London 1874-1880, and received the Linnean Medal in 1896. Allman carried out extensive studies on freshwater bryozoans between 1843 and 1880, including many on the physiology, breeding, and larval state of the group. His celebrated paper on their nervous system was published by the British Association for the Advancement of Science.

1850-1852 Alcide Dessalines d'Orbigny 1802-1857, is widely regarded as one of the greatest micropalaeontologists of the nineteenth century. He travelled extensively in the two Americas in the 1830s, and described bryozoans from South American waters. Later he produced a useful account of systematic palaeontology. But he is

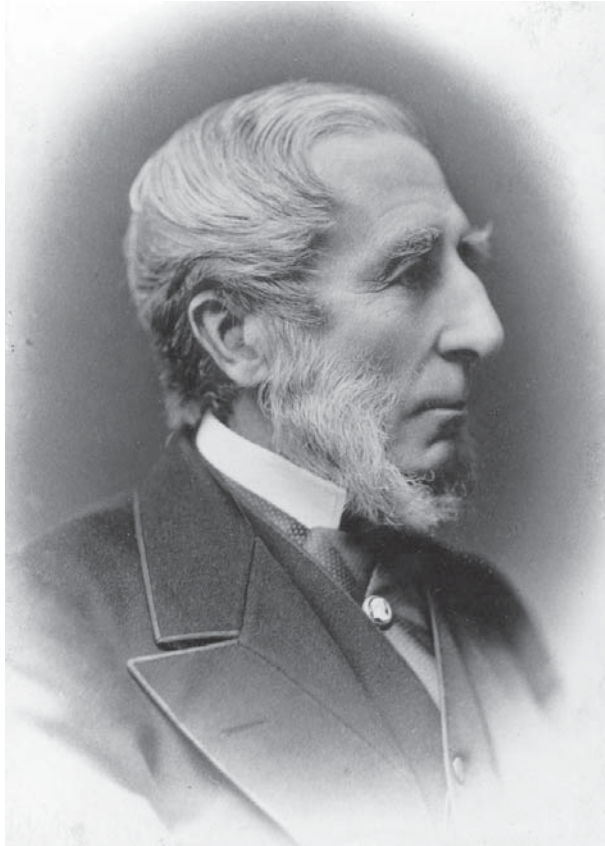


Figure 8. George Busk (1807-1886)
author of the Orders Ctenostomata, Cyclostomata and Cheilostomata.

largely remembered for his *Paléontologie française* of 1850-1852 which ran to 1192 pages and included descriptions and fine illustrations (Figure 7) of many Cretaceous bryozoans.

1852 George Busk 1807-1886 (Figure 8), wrote on bryozoans between 1849 and 1886, and became one of the greatest authorities on the group. The Orders Ctenostomata, Cyclostomata, Cheilostomata were erected by Busk in a paper that described the bryozoans collected during the expedition of H.M.S. *Rattlesnake* to Australia. He also made contributions to the debate on hominid evolution, and was Secretary and Vice-President of the Linnean Society of London. He received the Royal Society of London's Royal Medal in 1871.

1856 George James Allman (see also 1849) erected the Classes Gymnolaemata and Phylactolaemata. These were published in a monograph of the Ray Society of London which documented all freshwater bryozoans known at that time.



Figure 9. H.M.S. Challenger.

- 1859 George Busk** (see also 1852 and 1884-1886), his *Fossil Polyzoa of the Crag* was published by the Palaeontographical Society. It remains the only monograph on bryozoans published by this organisation established to report on British fossil species.
- 1859 Paul Howard MacGillivray** 1834-1895, described new Recent bryozoans from Australia. MacGillivray's publication record spanned five decades from 1859 until 1895. He was responsible for the reports on bryozoans published in Frederick M'Coy's *Prodromus of the zoology of Victoria*, published in Melbourne between 1879 and 1890. He was the brother of John MacGillivray (1821-1867) who wrote on Recent bryozoans from Aberdeen in 1842.
- 1861 Thomas Hincks** 1818-1899, was born in Exeter, England. He was a Unitarian minister who served in Cork, Dublin and latterly in England. In a paper to the British Association for the Advancement of Science he reported on ovicells in bryozoans.
- 1866 Fredrik Adam Smitt** 1839-1904, worked from 1871 in the Natural History Museum in Stockholm. In a valuable paper of 1866 he noted polymorphism in bryozoans.

1873-1876 H.M.S. *Challenger* (Figure 9), the ship in which an important series of scientific voyages in the Atlantic Ocean and elsewhere were undertaken under the direction of Charles Wyville Thomson. These resulted in a huge volume of new biological material becoming available for scientific study.

1872 Ferdinand Stoliczka 1838-1874, was employed as a palaeontologist with the Geological Survey of India. He produced a number of publications on Cretaceous bryozoans from the sub-Continent.

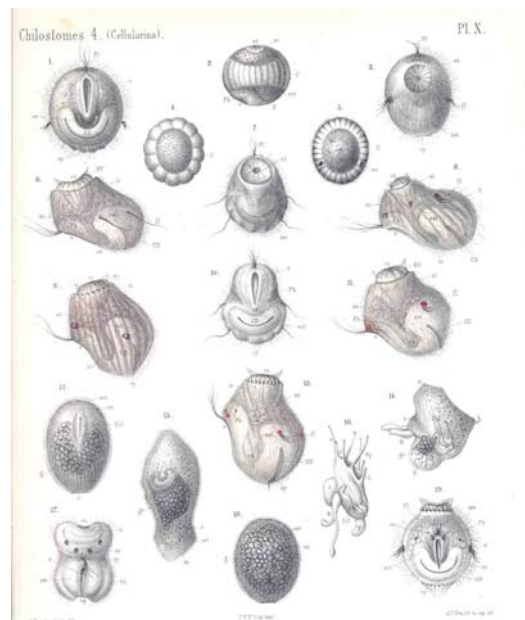
1873 Frederick Wollaston Hutton 1836-1905, emigrated to New Zealand in 1866 where he became provincial geologist of Otago before taking up an appointment as Professor of Natural Science and Curator of the University Museum at the University of Otago in 1876. He resigned four years later. He also served as Director of the Canterbury Museum from 1887 until 1905. He was President of the New Zealand Institute in 1904 and 1905. Hutton wrote a large number of papers on New Zealand Recent molluscs, fish and bryozoans. Some of his research papers remain at Canterbury. He is commemorated by the Hutton Medal awarded biennially by the Royal Society of New Zealand.¹⁷

1874 Henry Alleyne Nicholson 1844-1899, a Scottish palaeontologist who worked on North American, British and Australian bryozoans. He pioneered the use of thin sections. He authored two important book on monticuliporids and corals, and his material is now in the Royal Scottish Museum, Edinburgh and in the University of Aberdeen, where he was Professor of Natural History from 1882 to his death.¹⁸

1877 Jules Barrois born 1852, wrote several papers on bryozoan embryology between 1875 and 1886, of which his monumental memoir published by the l'Institut de Zoologie in Lille is perhaps the most important (Figure 10).

1878 Fredrik Adam Smitt (see also 1866) described Arctic bryozoans.

Figure 10. Plate from Jules Barrois' memoir on bryozoan embryology published by the l'Institut de Zoologie in 1877.



- 1880 Thomas Hincks** (see also 1861) published his authoritative book *A history of British marine Polyzoa* in two volumes.
- 1882 Edward Oscar Ulrich** 1857-1944, was raised near Cincinnati, and from a young age became involved in the Cincinnati Society of Natural History. He became a dealer in fossils from the area, and was a mentor to R.S. Bassler (*q.v.*). Ulrich was later employed by the U.S. Geological Survey from 1897 until 1932, and saw out his days at the American Museum of Natural History. In a paper to the *Journal of the Cincinnati Society of Natural History* he erected the sub-Order Trepostomata (it was later elevated to full ordinal status).¹⁹
- 1883 James Hall** (see also 1847) produced a paper on the growth of *Fenestella*.
- 1884-1886 George Busk** (see also 1852 and 1859) authored the reports on the bryozoans collected during the voyages of H.M.S. *Challenger* (*q.v.*).
- 1884 George Robert Vine** 1825-1893, erected the Order Cryptostomata. Vine was an amateur, who made his livelihood as a corset-maker. He was responsible for a series of papers on the fossil bryozoans of Great Britain, published by the British Association for the Advancement of Science.²⁰
- 1890 Edward Oscar Ulrich** (see also 1882), published his monumental monograph on the Palaeozoic bryozoans of Illinois, published by the Geological Survey of Illinois. The fifty lithographs, which are particularly beautiful as bryozoan illustrations go, were drawn on stone by Ulrich himself and by Charles Schuchert.
- 1893 Alphonse Peron** 1834-1908, was a French soldier who described Cretaceous bryozoans from Tunisia in north Africa in a paper published in 1893. His material is in the Sorbonne and the Museum of Natural History, Paris.
- 1893 Grenville Arthur James Cole** 1859-1924, was an English-born petrologist who worked in Dublin, and applied microscopical techniques to demonstrate that the unusual superstructure associated with the Carboniferous taxon *Hemitrypa hibernica* was an integral part of the colony zoarium, and not an overgrowth.²¹
- 1900 John Milton Nickles** 1859-1945 and **Ray Smith Bassler** 1878-1961, published their indispensable *Synopsis of North American Fossil Bryozoa*. Nickles is particularly remembered for his valuable contribution to geological research as the compiler of the *Bibliography of North American Geology* series which were published as *Bulletins of the U.S. Geological Survey*.²²
- 1904-1912 Edgar Roscoe Cumings** 1874-1967, was Professor of Geology at Indiana

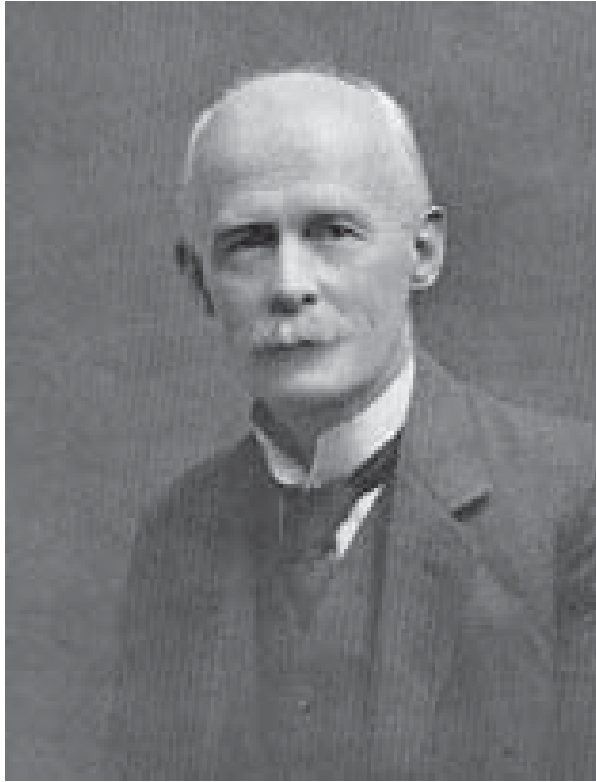


Figure 11. S.F. Harmer.

University from 1905 until his retirement in 1944 as Emeritus Professor. He produced a series of valuable papers on stenolaemate astogeny, wall-structure of Ordovician bryozoans and their affinities. As has been pointed out elsewhere in this volume his 1912 paper was: “especially significant because it settled the long-standing controversy in favour of the “stony” or “monticuliporoid” trepostomes being bryozoans rather than corals.”²³

1913 Edgar Roscoe Cumings (see 1904-1912) and **Jesse James Galloway** 1882-1962, authored a fine paper on the morphology and histology of trepostomes and laid the foundations for present-day ultrastructure studies. Galloway was a student of Cumings who went on to have a distinguished academic career at Indiana University (1913-1916; 1931-1955) which was divided by a period spent at Columbia University (1916-1931)

1915-1957 Sidney Frederic Harmer 1862-1950 (Figure 11), who was born at Heigham near Norwich, England, produced a large body of work on Recent bryozoans between 1893 and 1957, including reporting on those collected during the Dutch *Siboga* Expedition. This monumental piece of work appeared in four volumes

between 1915 and 1957 - the final volume was published posthumously and completed by A.B. Hastings (*q.v.* 1943). Harmer was educated at University College, London (1878-1881) and Cambridge (1881-1884). He was Superintendent of Cambridge University Museum of Zoology from 1892, and was appointed Keeper of Zoology at the British Museum (Natural History) in London in 1907. He rose to become Director in 1919, and was knighted the following year. He was President of the Linnean Society of London 1927-1930 (he received the Linnean Medal in 1934). He established the journal *Natural History Magazine* in 1927, and retired soon afterwards to Cambridge.

1917-1933 Ferdinand Canu 1863-1932 and **Ray Smith Bassler** (see also 1900, 1935 and 1953) collaborated on a number of important monographs, that reported on a diverse range of bryozoans: North American Early Tertiary bryozoans (1917 and 1920), North American later Tertiary and Quaternary bryozoans (1923), fossil and Recent bryozoa of Mexico (1928), the bryozoans of the Galapagos Islands (1929) and finally the bryozoans of the Vincentown limesand of New Jersey (1933). All were published by the United States National Museum, of which Bassler was Head Curator in the Department of Geology.²⁴

1923-date Ehrhard Voigt born 1905, of the University of Hamburg, has produced nearly 150 papers on Cretaceous and other bryozoans published over nine decades. He is currently working on several projects including an examination of growth form and ovicells of actinoporid genera (Cyclostomata) from the Upper Cretaceous, and studies on European Upper Cretaceous - Danian species of *Hoplitaechmella* (Cheilostomata).

1926 Folke Arvidsson Borg 1892-1950. A Swedish zoologist, he gained his Ph.D. from Uppsala in 1926, and in that year erected the Class Stenolaemata. He wrote extensively on Recent cyclostome bryozoans

1926-date Vasilii Petrovich Nekhoroshev 1893-1977, **Aleksandra Ivanovna Nikoforova** 1894-1939 and **Lyudmila V. Nekhorosheva** - a family of father, mother and daughter who have collectively contributed many papers and monographs that advanced the understanding of the systematics and distribution of Palaeozoic bryozoans of Russia and the former Soviet Union.

1926-1966 Madeleine Alberta Fritz 1896-1990 - authored many papers on Palaeozoic bryozoans of Canada.

1935 Ray Smith Bassler (see also 1900, 1917-1933 and 1953), authored the *Fossilium Catalogus* (Part 67, Bryozoa).

- 1936 Leo W. Stach** in a now classic paper published in the *Journal of Geology*, discussed the correlation of colony form with habitat, and laid the foundations of bryozoan palaeoecological studies.²⁵ This was Stach's only paper in bryozoology; he worked all his life in the mineral and petroleum industry, often in remote parts of the world, and frequently advised the United Nations and government agencies. He endowed a studentship in geology at the University of Melbourne in 1995. His life story was told in the book *In Search of Recognition* by Kerry Collison, published in 1999.²⁶
- 1938 Lars Silén** 1910-1999, was born Luleå, Sweden. In a 1938 paper he described in detail the structure and functions of avicularia. He became Professor of Zoology at the University of Lund in 1956, but that year moved as Professor of Zoology at Stockholm University where he remained until his retirement in 1975.
- 1941-1957 Joan M. Crockford**, produced a series of monographs on Australian Carboniferous and Permian bryozoans, in which she erected the genera *Minilya* (1944) and *Stenodiscus* (1945).
- 1943 Anna Birchall Hastings**, 1902-1977, was educated at Cambridge and was appointed an Assistant in the Department of Zoology of the British Museum (Natural History) in 1927. She resigned in 1942 on her marriage to Henry Dighton Thomas of the Department of Palaeontology in the same institution. They had one son. A person of strong opinions, Hastings remained at South Kensington in an unpaid research capacity for many years. She reported on the bryozoans from the Antarctic collected during the voyage of H.M.S. *Discovery*.
- 1950-1952 Raymond Carroll Osburn** 1872-1955, after a lengthy career with the Ohio State University as Chairman of Zoology and Entomology, Osburn embarked on a late second career as a Research Associate in the Allan Hancock Foundation of the University of Southern California. There he wrote three major and important monographs on the bryozoa of the Pacific coast of America. The genus *Osburnostylus* Bassler, 1952 was named for him.²⁷
- 1950-1965 King-chin Yang**, published a series of papers detailing the Palaeozoic bryozoans of China
- 1952 David Alexander Brown**, his monograph on New Zealand Tertiary cheilostome bryozoans was published by the British Museum (Natural History).
- 1953 Ray Smith Bassler** (see also 1900, 1917-1933 and 1935) - authored the volume on Bryozoa of the *Treatise on Invertebrate Paleontology* (Figure 12). This series, instigated by Raymond C. Moore in the 1950s, and published by the Geological Society of America and the University of Kansas, now comprises over fifty

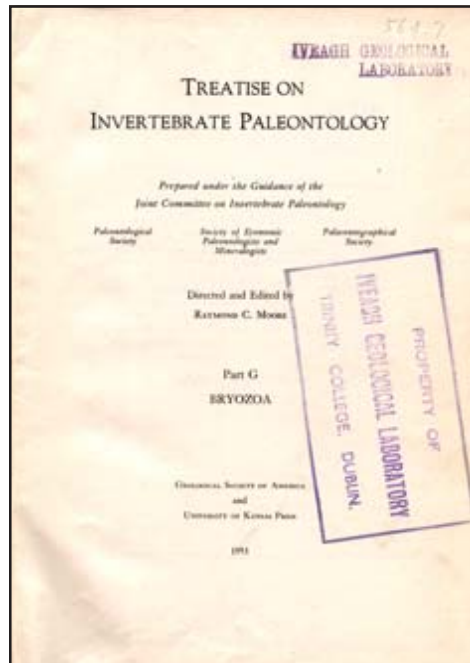


Figure 12. Bryozoan volume in the series *Treatise on Invertebrate paleontology* published by the Geological Society of America and the University of Kansas in 1953.

volumes and further volumes are planned. Bassler's volume was the first to be published, and although now seen to be limited in terms of quality of the generic descriptions and illustrations given, was an ambitious attempt to document all fossil genera.

1954-date Richard Stanton Boardman, spent his scientific career at the Smithsonian Institution. He has written many papers on fossil and recent bryozoans, especially on the trepostomes. He was the coordinating editor and an author (with others) of the revised volume on bryozoans of the *Treatise on Invertebrate Paleontology* series published in 1983.

1955-date Iraida Pavlovna Morozova has authored numerous papers and monographs on Palaeozoic bryozoans of Russia and the former Soviet Union. Her most recent monograph was a systematic account of fenestrate genera.²⁸

1957 George Evert Condra 1869-1958 and **Maxim Kondra Elias** 1889-1982,²⁹ established the Order Fenestrata in their paper: '*Fenestella* from the Permian of West Texas', published as *Memoir 70* of the Geological Society of America. Condra was Director of the Nebraska Geological Survey and a faculty member of

the University of Nebraska.

1957 Helen Margaret Duncan 1910-1971, of the United States Geological Survey authored a valuable synthesis on bryozoan palaeoecology, published by the Geological Society of America. She also wrote on Devonian trepostomes.³⁰ The genus *Helenopora* Ross, 1987 was named for her.³¹

1960-date Sumio Sakagami, has produced a large body of work on Upper Palaeozoic bryozoans of Japan and south-east Asia.

1962 Gilbert Powell Larwood 1939-1997, his monograph on Cretaceous cribrimorph bryozoans was published in 1962 in the *Bulletin of the British Museum (Natural History) geology* 6, 1-285. For many years he lectured in palaeontology at the University of Durham. Gilbert was a founding member of the International Bryozoology Association (*q.v.* 1965), and was responsible for hosting two of the International Bryozoology Association conferences in 1971 and 1980, and he edited, or co-edited, four of the conference proceedings.³²

1964 Galina Grigorevna Astrova 1906-1973 - erected the Order Cystoporata. She was also the author of an indispensable monograph on trepostome bryozoans, published in Moscow in 1978.

1965 The International Bryozoology Association (IBA) was established at a meeting in Stockholm, Sweden in 1965.³³ The Association convened for its first international conference in Milan in 1968 and has since met regularly every three years. It produces an annual newsletter. The published proceedings of the 12 international conferences constitute an invaluable source of literature for bryozoologists, and document the major advances made in the knowledge of fossil and Recent bryozoans over the last 34 years.³⁴

Notes

- 1 R.S. Bassler, 'Part G. Bryozoa', in *Treatise on Invertebrate Paleontology*, edited by R.C. Moore. Geological Society of America and University of Kansas Press (1953), 253 pp; J.S. Ryland, *Bryozoans*. Hutchinson University Library, London, (1970); R.S. Boardman, A.H. Cheetham, D.B. Blake, J.E. Utgaard, O.L. Karlkins, P.L. Cook, P.A. Sandberg, G. Lutaud and T.S. Wood, 'Bryozoa, Part G, revised, volume 1: Introduction, Order Cystoporata, Order Cryptostomata', in *Treatise on Invertebrate Paleontology*, edited by R.A. Robison. Geological Society of America and University of Kansas Press (1983), 625 pp.
- 2 J.M. Nickles and R.S. Bassler 'A synopsis of American fossil Bryozoa including bibliography and synonymy', *Bulletin of the United States Geological Survey*, 173 (1900), 1-663.
- 3 F.K. McKinney 'Bibliography and catalogue (1900-1969) of the Trepostomata (Phylum Ectoprocta). *Southeastern Geology Special Publication*, 4 (1974 [dated 1973]), 1-147.

- 4 P.N. Wyse Jackson and M.E. Spencer Jones, *Abstracts International Bryozoology Association and Society for the History of Natural History meeting - From John Ellis to bryostatins: the history of study of fossil and living bryozoans*. Trinity College, Dublin, Ireland, 21st July 2001.
- 5 W.A.S. Sarjeant, *Geologists and the History of Geology*. Macmillan Reference Books, London and Basingstoke (Volumes 1-5 (1980)); Robert E. Krieger Publishing Company, Malabar (Supplement 1, Volumes 1-3 (1987)); (Supplement 2, Volumes 1-2 (1996)).
- 6 This is available on the web: www.tmbi.gu.se/libdb/taxon/personetymol/index.htm
- 7 d'Hondt, this volume.
- 8 An account of Peyssonnel and Reaumur's entanglements is given by George Johnston, *A history of the British Zoophytes*. 2nd edition. Volume 1. John Van Voorst, London, (1847), pp. 409-411.
- 9 d'Hondt, note 7.
- 10 Cadée, this volume.
- 11 For more information on Ellis and his work see P.F.S. Cornelius and J.W. Wells, 'Ellis & Solander's 'Zoophytes', 1786, six unpublished plates and other aspects', *Bulletin of the British Museum (Natural History) historical series*, 16 (1) (1988), 17-87, and J. Groner and P.F.S. Cornelius, *John Ellis*. Pacific Grove, The Boxwood Press (1996), 315 pp.
- 12 d'Hondt, note 7.
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