



Bulletin

Volume 2, Number 5

December 2006

News from the membership
New IBA members
"How I discovered Bryozoa..... (Part 3)
"World's Oldest Reef" in Lake Champlain
Nomenclator Zoologicus is online
Bryozoan Bookstall
A patent on asexual propagation
Where is that bryozoan collection?
Funding opportunity: PEET (USA)
Larwood Meeting 2007: 3rd announcement
Recent publications
Subject index to volumes 1 and 2
By-lined contributor index to volumes 1 and 2
Note regarding *Bulletin* issue numbers

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Further information at www.nhm.ac.uk/hosted_sites/iba/

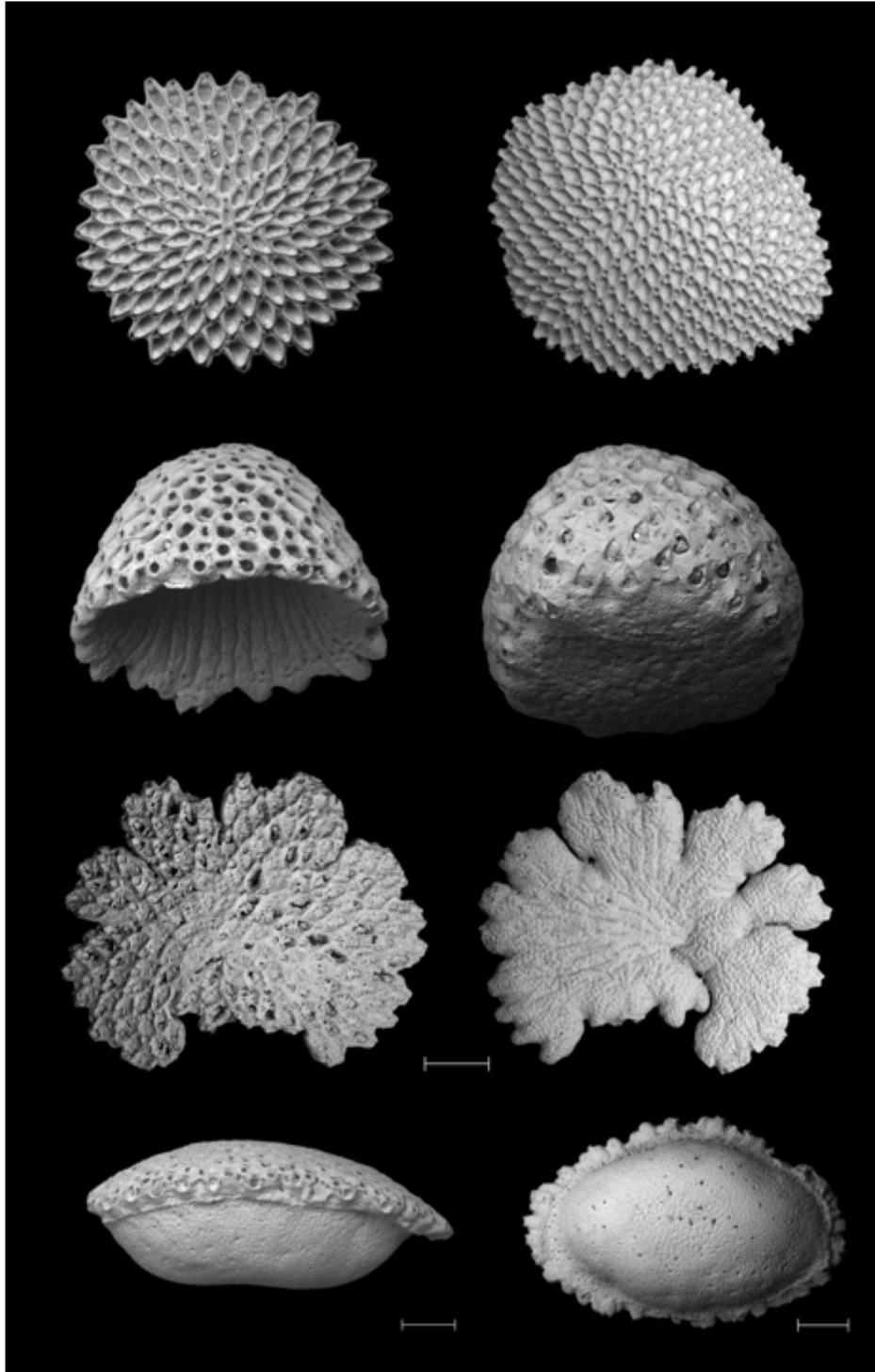
News from the Membership

Carla Chimenz writes that she is reviewing and reorganizing her collection of Mediterranean Bryozoa. She would like to exchange ideas, suggestions and specimens with other IBA members. Contact Carla at carla.chimenz@uniroma1.it

Andrej Ernst. A special exhibition at the Museum in Gera (Thuringia, Germany) für Naturkunde in Gera has started: "Die fossile Lebewelt der Geraer Zechsteinlagune vor 255 Millionen Jahren" [The fossil life of the Gera Zechstein Lagoon 255 Millions of years ago] The exhibition began September 1, 2006 and will run through March 31, 2007. I provided some photographic material about bryozoans which were nicely mounted by Frank Hrouda, Leiptig (see below). For more information see the website at <http://www.leitfossil.de/Hinweise.htm#Gera>.

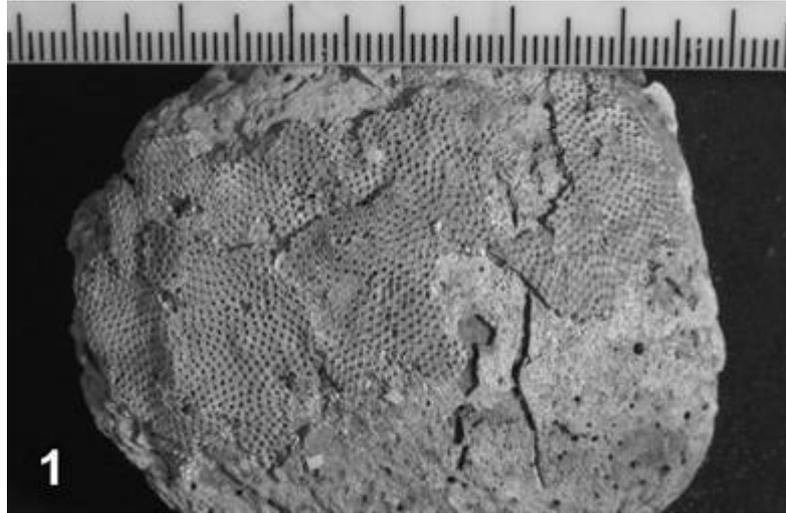


Aaron O'Dea is continuing his work on the life history evolution of cupuladriid bryozoans in Panama. Here he presents (below) a few SEM's showing a small selection of the different morphologies used by fossil and Recent Tropical American cupuladriids to either promote or discourage clonality. Top row; a sexual (aclonal) and an asexual (clonal) colony. 2nd row; small squat colonies of a *Cupuladria* with open base and a *Discoporella* with filled-in base to prevent fragmentation. 3rd row; *Discoporella* in the process of budding new colony clones. 4th row; new fossil *Discoporella* species with extreme colony morphology to get the best of clonal and aclonal propagation - heavily thickened base prevents fragmentation and allows gametes to be produced, while peripheral growth is weakly calcified and fragments very easily creating clones. SEM's taken by Paul Taylor.

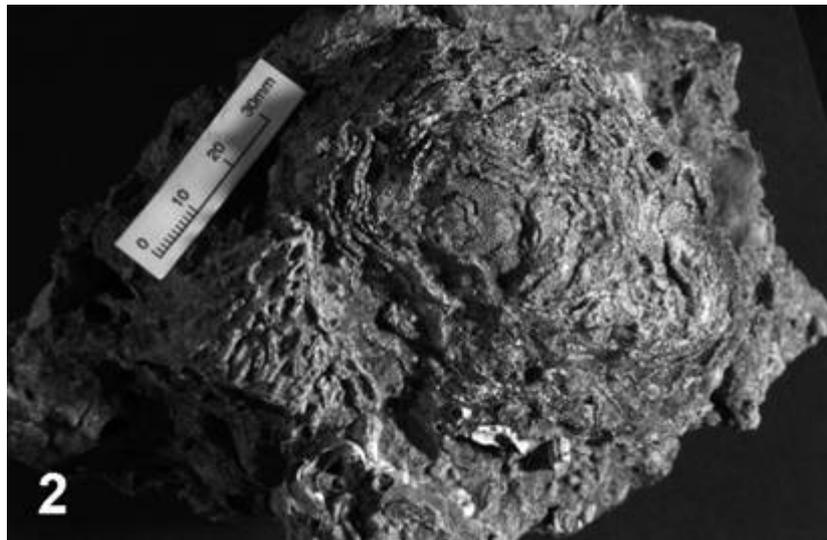


Seabourne Rust (University of Auckland, Auckland, New Zealand): My PhD studies continue on the fossil bryozoans of the Wanganui Basin, here in the North Island of NZ. I've now amassed a huge amount of data on the occurrence of some 100 taxa through the Pliocene-Pleistocene, and am attempting to correlate with sequence stratigraphy. Luckily I have some fine help from advisors D. Gordon, K. Tilbrook and J. Grant-Mackie. I have looked at bryozoan abundance patterns, colony growth forms, distributions on particular bivalve shells and also some details of the interaction/competition between colonies. As always I'm very keen to make contact with other bryozoologists and paleontologists to discuss ecological matters and other aspects of my work!! E-mail: s.rust@auckland.ac.nz

Here are a couple of pictures of *Steginoporella magnifica* colonies from Wanganui :



...encrusting a the surface of a previously bio-eroded oyster valve (early Pleistocene, Castlecliff, Wanganui) (Figure1),



...and exhibiting circumrotatory self-overgrowth to form a large cabbage-like lump, beside a branching colony of *Galeopsis* sp. (Pliocene, Nukumar, Wanganui) (Figure 2).

Joachim Scholz. I am now staying on the research vessel *Meteor* south of Crete, together with twenty other scientists from Germany, Croatia, and Greece. We left on Dec 26. Main target is the investigation of the diversity of the deep sea benthic fauna of the eastern Mediterranean and its correlation with biotic and abiotic parameters. My job will be to look at samples from the deep sea dredge, searching for bryozoans in the box-corer, epibenthic sledge and beam trawl samples if there are any.

Norbert Vávra announces the continuation of extensive studies of Recent and fossil bryozoans with a project funded by the "Fonds zur Förderung der wissenschaftlichen Forschung" (Vienna) during the years 2007 - 2009. The project is entitled, "Global change, biodiversity and Paratethyan faunal interchanges: a case study using bryozoans with different larval strategies and brooding patterns." Studies will be performed at Vienna by Andrei Ostrovsky (larvae and brooding patterns, taxonomy of Recent taxa) and Norbert Vavra (taxonomy of Neogene faunas, esp. Early Miocene of Austria) in co-operation with Kamil Zágóršek (Narodni Muzeum, Praha), Slavomir Nehyba (sedimentology, Masaryk University, Brno, Czech Republic), and Katarina Holcova (studies of foraminifera and nannofossils, biostratigraphy and paleoecology, Charles University, Praha). Goals of these investigations include:

- To relate reproductive ecology with faunal migrations, biogeography and strategies of speciation
- To evaluate of possibilities of migration for different taxa of cheilostomate bryozoa
- To address the origin and evolution of bryozoan faunas in the Paratethys, especially during Early and Middle Miocene.

Anna Wood. Dear IBA Members, I am studying the relationship between marine macroinvertebrate biodiversity and habitat complexity as created by frame-building bryozoans (both as live colonies and as Recent sediments), in modern seas. This is part of my PhD project at Otago University, NZ. For the purpose of this study, I have defined frame-builders as well-calcified (erect-rigid or erect-flexible) colonies that regularly obtain colony dimensions greater than 50mm in 3D. Some examples might be *Pentapora fascialis*, *Flustra foliacea* and *Cellaria* spp.

As part of my research, I am interested to learn where else (apart from NZ) habitats dominated by frame-building bryozoans occur, and also how bottom-fishing techniques (e.g. trawling and dredging) might have effected these habitats. If you have any information, such as personal recollections from field work, details accompanying museum specimens, published papers (I'm sure to have missed some!), conference proceedings, collected papers, unpublished data (e.g. grad students) or fisheries reports that mention such habitats in any way, I would be interested to hear about them and if you could email me with references, or send copies to me, I would be very grateful. I am interested in very basic information such as where these habitats occur, over what area, which bryozoan species occur at each site and if bottom-fishing occurs in the area. Thanks very much,
Anna Wood, Portobello Marine Laboratory, PO Box 8, Portobello, Dunedin, New Zealand, or woan929@student.otago.ac.nz

New IBA Members

Emily Jones. My interest in the bryozoans came about during my research for a Master of Science thesis at the University of Otago, New Zealand. I have recently completed my study, and in June, 2006 I submitted my thesis entitled, "Bryozoan thickets on Otago shelf, New Zealand: a quantitative assessment of the epibenthos using underwater photography." Currently I am employed as an environmental consultant and marine scientist for Golder Associates New Zealand Ltd. (formerly Kingett Mitchell Ltd.) and working, in particular, on marine pest species and other biosecurity-related projects.

Olga N. Kotenko. I graduated from the Faculty of Biology and Soil Science of Saint-Petersburg State University in 2005. As an undergraduate I conducted a research project on the comparative analysis of the larval structure in several marine bryozoans. Special attention was paid to muscular and nervous systems in this study, inasmuch as it is very convenient to recognize similarities and differences in these systems between various bryozoan larvae as well as other invertebrate larvae. Further I decided to pursue research on larval biology for my PhD Thesis. At present time I am first-year postgraduate student with the dissertation research focusing on embryonic development and metamorphosis in different gymnolaemate species. The main objective of my research is to determine the evolutionary trends in marine bryozoan larval structure within Gymnolaemata. I mainly focus on early life-history stages, early development (especially embryonic growth), larval morphology and nutrition modes, as well as modes of subsequent development (settlement and metamorphosis).

Ekaterina Yagunova. I graduated from the Mathematical-Mechanical Faculty of the St.-Petersburg State University in 1992 and from the Faculty of Biology & Soil Science in 2001. Finally I received my PhD this year (2006). As an undergraduate I worked on the reconstruction of morphogenesis in incrusting cheilostome colonies, and defended my Master Thesis on the structure and dynamics of macrofouling on *Laminaria saccharina*. My PhD Thesis was about the variability (geographical and biotopical) of the astogenesis using the cheilostome *Cribrilina annulata* as a model.

Thus, my scientific interests deal with coloniality, especially morphogenesis and its stability. There are some results of my studies on the connection between colony growth and environmental conditions that have been published in Russian. These results, first of all, concern zooids and colonies sizes. The shape of zooids and colonies is changeable too, but it's more difficult to describe. Because of my first mathematical education, I like mathematical methods in biology. My favorite interest now is to work with the shape of zooids and colonies: how to describe, to compare and to distinguish them.



“How I Discovered Bryozoans....” Part 3

*Editor’s note: How did IBA members discover bryozoology as a field of study and research? This latest response to the question comes from **Ken McKinney**. New contributions to this column are always welcome.*

When eight years old, in the third year of primary school in Birmingham, Alabama, I was transferred from an established school to one that was newly built, so newly built that the grounds were still a construction site with the heavy equipment removed just as the school term began. The school was on an area of Lower Ordovician carbonates largely covered by residual clays and chert left by dissolution of the bedrock. Broken chert was littered all over the school grounds, and one day after a tumble, I found the mold of a gastropod (*Lecanospira*) in the piece of very sharp chert that had bloodied my knee. I eventually found that this prize was the remains of a marine shell, and that discovery, combined with my love of watching crabs and other marine life when on the annual one-week holiday on the Redneck Riviera (the panhandle of Florida) and with gazing for hours on end into a small aquarium at home, generated a keen interest in fossil-collecting and dreaming of ancient seas.

I had absolutely no intention to work on bryozoans. As an undergraduate in a small college in Birmingham, I was one of three students who spent a lot of time collecting fossils from the prolific Ordovician and Carboniferous rocks of northern Alabama. Our favorite collecting sites were in Mississippian limestones, which provided thousands of beautiful echinoderms and brachiopods within a background of even more abundant and uninteresting (except the axes of *Archimedes*) bryozoans. One fellow in the group claimed the echinoderms for his future research, the female in the group (now Marjorie McKinney) claimed the brachiopods, and being a little slow off the mark, I decided to work on the moderately common trilobites. Arriving at graduate school and informing my advisor of this intention, he said “No. There are too many people working on trilobites.” I thought, “I want to work on Mississippian fossils from around home, and the two good groups are already taken; sure don’t want to work on bryozoans.” Those “thoughts” must have been muttered, because he said, “Bryozoans, yes. Work on bryozoans. There aren’t many people studying them.” After about two weeks of moping about, I decided reluctantly that it was time to get started. After a few weeks it became clear that bryozoans were indeed interesting, and by the time graduate study was over it was clear that although biological understanding of ancient bryozoans wasn’t quite virgin territory, it was close enough to provide a fascinating basis for a career.



Lake Champlain island offers view of world's oldest reef

Editor's note: This Associated Press article, featuring IBA's Roger Cuffy, first appeared in late October, 2006 and was brought to our attention by Dennis Gordon. We have cleaned up the misspellings and added a few photos from internet sites.

Vermont's Chazy Reef was built by invertebrates of the Phylum Bryozoa and predates coral reefs by about 30 million years.

To the uninitiated, the flat rock slabs found across the center of this island at the northern end of Lake Champlain appear to be nothing more than giant stones. But the rocks offer a history of the last half billion years of this area, which was washed by a warm equatorial sea and saw long-extinct plants and animals congregate in what is believed to be the earliest ancestor of modern coral reefs. The walls of the now-preserved Fisk Quarry offer a vertical timeline - in stone - of the different layers of fossilized plants and animals that inched their way north as the world's continents drifted into their present locations.



A cross-section of fossils of warm equatorial sea and long-extinct animals is seen in the rocks, Aug. 16, 2006 in Isle La Motte, Vt.

Visitors to the 32-hectare Goodsell Ridge Fossil Preserve here can use a trail that will lead to the fossilized remains of cephalopods, an ancestor of present-day squids; stromatolites, a cabbage-like animal that was the primary builder of the reef; and early snails known as gastropods. Some of the fossils are as big as a playing card, others can be seen only with a magnifying glass.

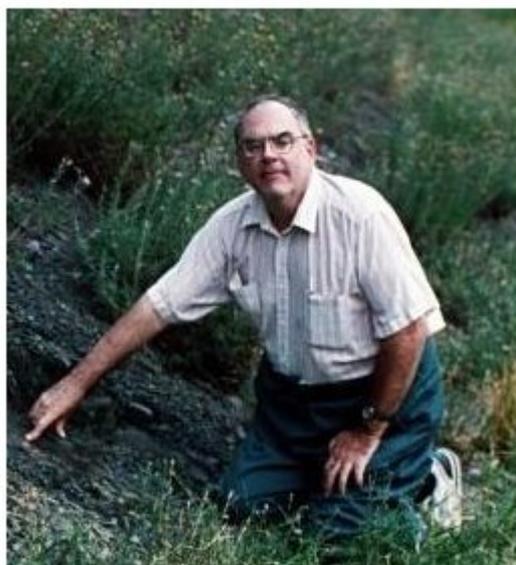
"As we walk through the Goodsell Ridge, we'll be able to actually walk across their tops, which would be very similar to what you'd see if you were snorkeling over them 480 million years ago," said Charlotte Mehrtens, chair of the geology department at the University of Vermont, who has studied the reef for decades.

The rocks sticking through the surface on Isle La Motte were part of a geologic formation that once ran from Newfoundland to Tennessee and Virginia. The area, known as the Chazy Reef, has attracted geologists from across the world.

"There is something unique about the environment here in Vermont, where the reef diversity was very high, meaning there are lots of different kinds of organisms, lots of different kinds of species," said Mehrtens. "On top of that, those species changed over time, so the organisms that built the oldest layers of the reef are different from the organisms that built the middle layers and are different from the organisms that built the youngest layers."

The area offers a perfect example of what geologists call biological succession, where one species is followed by another. To geologists, the Chazy Reef is unique.

It is the first and most extensive reef that was ever built in the earth's history by the Phylum Bryozoa," said Roger Cuffy, a professor of paleontology at Penn State University, who has studied the Lake Champlain reef for decades. Bryozoans are a line of animals that evolved from soft-bodied invertebrates like sponges. They predate coral reefs by about 30 million years. "Think miniature coral and think the seacrust crud on shell and rocks growing in shallow water when you wade into tidal pools," Cuffy said.



Roger Cuffy has been studying the Chazy Reef for decades.

Now, that area will remain accessible to the public forever. The Isle La Motte Preservation Trust has been working with the Lake Champlain Trust to raise \$US400,000 to buy the land on Goodsell Ridge and open a visitor center in a renovated farmhouse.

"It's this wonderful sort of museum of creation and of evolution," said Peter Espenshade of the Lake Champlain Land Trust. "It really sort of sparks the wonder and the mystery of things, when you think of something that was alive half a billion years ago, that was alive before there was life on land."

Isle La Motte is a 5-by-11-kilometre island near where Lake Champlain empties into the Richelieu River in Quebec. French soldiers first started pulling rock from what is now the Fisk Quarry in 1666, to help them build a fort on the northwest side of the island. Early English settlers started quarrying around 1800 and the Fisk Quarry closed around 1919, said Linda Fitch, of the Isle La Motte Trust, whose family has owned land on the island since 1970. About a century ago, state geologist Raymond Percy recognized the importance of the area and throughout the mid-part of the last century scientists crisscrossed the island, Mehrtens said.

There is still a working quarry on the land. Isle La Motte is known for its dark limestone, which has been used to build the National Gallery of Art in Washington and New York's Radio City Music Hall, said Fitch. She first learned the significance of the area after tagging along with a geologist showing it to some adult students. She got interested in preserving the

8-hectare Fisk Quarry when a businessman tried to reopen the quarry, which was preserved in 1999. It now attracts about 3000 people a year.

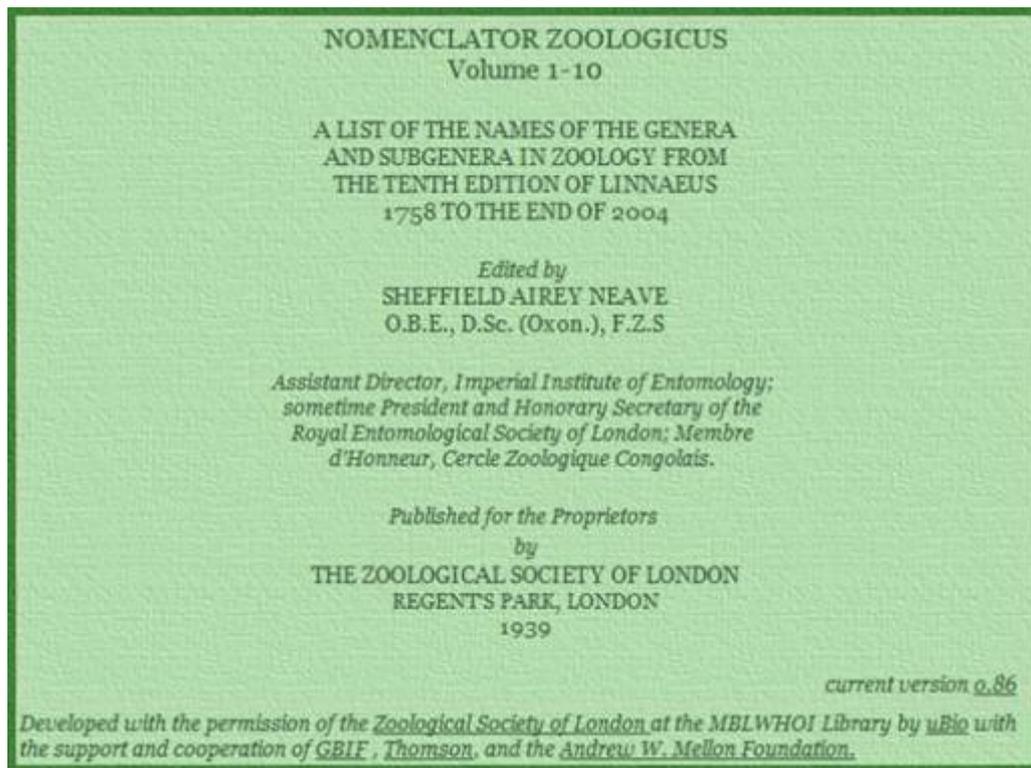
Last year, the Isle La Motte Trust, with help from the Lake Champlain Land Trust, bought the land that is now the Goodsell Ridge Fossil Preserve, where visitors are able to tour the geologic history of the reef on a series of trails mowed through the grass that covers the island between the rock outcroppings.

"The stone as it is in the reef is a national conservation treasure. It's one of a kind," Fitch said. "It's the one place you can answer certain fundamental scientific questions."



Nomenclator Zoologicus is online

Mary Spencer Jones notes that Neave's *Nomenclator Zoologicus* ("a sort of Sherborn for genera rather than species, and very useful too") is available online in a searchable version, here is the link:- <http://uio.mbl.edu/NomenclatorZoologicus/>.



Bryozoan Bookstall



Contributions to Bryozoology: a tribute to Ehrhard Voigt (1905-2004)

Edited by Joachim Scholz, Paul D. Taylor, and Norbert Vávra

2006. 176 pages, 40 figures, 10 tables, 22 plates, 20x21 cm
(Courier Forschungsinstitut Senckenberg, Volume 257)

ISBN 3-510-61384-8 paperback, EUR 39.80

Ordering information is available at:

<http://www.schweizerbart.de/pubs/isbn/sng/cfs-courie-3510613848-desc.html>

In the introductory pages Joachim Scholz writes: “Professor Ehrhard Voigt, University of Hamburg, passed away on November 22, 2006. By that time he was nearly 100 years old and a living legend. He was one of the last scientists firmly rooted in the tradition of the great 19th and early 20th century naturalists, feeling equally at home in palaeontology and mainstream geology. Yet, there is no doubt that the true passion of his life was bryozoans. There is a remarkable 80 year continuous history of Voigt publications on bryozoans, quite possibly a record for a palaeontologist if not for a scientist in general.

This enormous collection of bryozoans, one of the largest of the world and certainly the largest one ever collected by a single person, is now housed at the Senckenberg Research Institute and Natural History Museum in Frankfurt, and this is the main reason the volume is published by the Senckenberg and not elsewhere. In this memorial volume, the international editors bring together three generations of bryozoologists who were his friends, colleagues and collaborators. Aside from being a tribute to this truly unique scientist, the volume presents the state of the art of bryozoan research at the beginning of the 21st century. This century will now have to live without him, but the legacy of Professor Voigt will surely live on.”

Contents

Hillmer, G.: Ehrhard Voigt, 28 July 1905 - 22 November 2004

Bernecker, M., & Weidlich, O.: Paleocene bryozoan and coral mounds of Fakse, Denmark: Habitat preferences of isidid octocorals

Braga, G., & Crihan, I. M. Up-dating of the taxonomy, stratigraphy and palaeoecology of Bryozoa rich sediments from Mera (N.W. Transylvania-Romania)

Cuffey, R. J.: Bryozoan-built reef mounds --The overview from integrating recent studies with previous investigations

Ernst, A., & Schäfer, P.: Palaeozoic vs. post-Palaeozoic Stenolaemata: Phylogenetic relationship or morphological convergence?

Gordon, D. P.: *Sfeniella*, nom. nov. pro *Sphenella* DUVERGIER 1924, and *Sfeniellidae*, a new family of umbonuloid-shielded cheilostomes

- Harmelin, J.-G.:** The *Puellina flabellifera* species complex: a remarkable example of worldwide species radiation in cribrimorph bryozoans
- McKinney, F. K., & Taylor, P. D.:** Encrusting community on an Upper Cretaceous erect bryozoan assemblage, eastern North America
- Ross, J. R. P., & Ross, C. A.:** Permian Bryozoans from the Kap Stosch area, central East Greenland
- Schäfer, P., Bader, B., & Blaschek, H.:** Morphology and function of the flexible nodes in the cheilostome bryozoan *Cellaria sinuosa* (Hassall)
- Taylor, P. D., & Voigt, E.:** Symbiont bioclaustrations in Cretaceous cyclostome bryozoans
- Voigt, E., & Vavra, N.:** *Stylodefranciopora turris* nov. gen. nov. sp. - eine neue cyclostome Bryozoe aus der Oberkreide von Schleswig-Holstein (Deutschland)
- Wyse Jackson, P. N.:** Bryozoa from Waulsortian buildups and their lateral facies (Mississippian, Carboniferous) in Belgium and Ireland
- Zágorsek, K., & Vodráza, R.:** Cretaceous Bryozoa from Chrtniky (Bohemian Massif).

A Patent on Asexual Propagation

Aaron O’Dea has sent the following paragraph, pointing out to all those who work on animals that clone that asexual propagation has been patented, and “apparently evolution is now going to have to pay its dues...”

United States Patent 5906175 “Controlled asexual propagation of certain marine invertebrates by means of segmental transplantation.”

Abstract:

“A methodology for the asexual propagation of a plurality of species of substantially sedentary marine invertebrates which naturally attach to or hold fast to a support where propagation is achieved by employment of segmentation and transplantation which is accomplished by intentionally forced segmentation of a predetermined portion of the invertebrate's tissue and where the segmented tissue is manipulated to become substantially attached to a suitable support by a temporary holding device thereby resulting in a condition where the primary invertebrate as well as the propagated invertebrate can survive independently of one another.”

IBA members wishing to learn more may google “patent 5906175.” To our knowledge there have been no patent applications for polymorphism, brooding, larval metamorphosis, filter feeding, or statoblast production, so these exciting opportunities are still available.



Budding zooid of the ctenostome bryozoan, *Hislopia* (photo not included in the patent document).

Where is that bryozoan collection?

A survey by Mary Spencer Jones and Patrick Wyse Jackson

Although many general collection indexes and catalogues have been published, none has exclusively dealt with the location of bryozoan collections.

IBA members are asked for their help in providing information about bryozoan collections that are either in their care, they have worked on, or they know of the location of material. We will collate all data received from members and a complete listing will be published at a future date in *Annals of Bryozoology*.

The following information on each collection would be gratefully received:-

Name of collector/cruise/expedition/institution:

Location of collection:

Age: Recent / Geological

Please list Period(s):

Geographical coverage of collection:

Size of collection:

Any papers on material:

Any extra information (biographies, portraits, archives)

Please send all returns to Mary Spencer Jones (msj@nhm.ac.uk) and Patrick Wyse Jackson (wysjcknp@tcd.ie)



Funding Opportunity: PEET (USA)

Here is a reminder that the National Science Foundation's (USA) program Partnerships for Enhancing Expertise in Taxonomy (PEET) is running a competition for 2007. The deadline for proposals will be **Monday, March 5**. The PEET program preferentially supports projects that work on understudied groups of organisms, and is an effort designed to encourage the training of new generations of taxonomists and to translate current expertise into electronic databases and other formats with broad accessibility to the scientific community. The PEET program is a biennial competition that has been in existence since 1995. To date 70 projects have been funded through the PEET program. Significant infrastructural developments (e.g., museum collections, databases) and international collaborations distinguish all the projects. We invite you to view the solicitation (announcement NSF 04-606; <http://www.nsf.gov/pubs/2004/nsf04606/nsf04606.htm>) for further details on the program and proposal guidelines.

Please note that the Cognizant Program Officer since Dr. James Rodman's retirement is now Dr. Juan Carlos Morales (sbbi@nsf.gov).



Larwood Meeting 2007

The 7th Larwood Meeting will be held February 2, 2007 at the Real Museo Mineralogico, Centro Museale delle Scienze Naturali, University of Naples «Federico II». Excursions are being arranged for the following morning. This event is being organized and hosted by Francesco Toscano, with the patronage of Stazione Zoologica "A. Dohrn." Information has been distributed by email to all IBA members, including details of transportation, lodging, abstracts, and registration. Although the published deadlines were startlingly close, IBA members are assured that every effort will be made to accommodate late registrants. Anyone needing further information may contact Dr. Toscano: frantosc@unina.it, (Tel +39) 81-253-8185; (Fax +39) 81-552-5611

Recent Publications

The following list includes works either published since the previous issue of the *IBA Bulletin* or else missed by previous issues. As always, members are encouraged to support future compilations by continuing to send complete citations to the IBA secretary at any time. Reprints will be gratefully received by the IBA archivist, Mary Spencer Jones.

- Anonymous (2006). "Bryozoan Workshop, Linz Domach, Austria, September 08 -10, 2005." *Linzer Biologische Beiträge* 38(1): 11-13.
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- Elia, A. C., G. Pieroni and M. I. Taticchi (2006). "Evaluation of the antioxidant defense of the freshwater bryozoan *Cristatella mucedo* Cuvier, 1798 (Bryozoa, Phylactolaemata) of Lake Piediluco (Italy)." *Linzer Biologische Beiträge* 38(1): 39-45.
- Ernst, A. and P. Schäfer (2006). Palaeozoic vs. post-Palaeozoic Stenolaemata: Phylogenetic relationship or morphological convergence? *Contributions to Bryozoology: a tribute to Ehrhard Voigt (1905-2004)*. J. Scholz, P. D. Taylor and N. Vávra. Senckenberg, Courier Forschungsinstitut. 257: 49-63.

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Subject Index to Volumes 1 and 2

Bryozoan Bookstall

Braga & Finotti	2(1)
Cancino	2(2)
Gordon	2(4)
Hayward & Ryland	2(2)
Schoilz, Taylor, & Vávra	2(5)
Taylor & McKinney	2(3)
Tilbrook	2(4)
Winston, Judy	2(1)
Wyse Jackson	2(4)

New IBA Members

Abdel-Salam, Khaled M.	2(3)
Amui, Ann-Margret	2(1)
Fuchs, Judith	2(4)
Hirose, Masato	1(2)
Jimenez-Sanchez, Andrea	1(2)
Jones, Emily	2(5)
Knowles, Tanya	2(3)
Kotenko, Olga N.	2(5)
Lombardi, Chiara	2(4)
Milankov, Vesna	2(4)
Obst, Matthias	2(2)
Sharp, Jasmine	1(2)
Yagunova, Ekaterina	2(5)

News from the membership

Balduzzi, Andrea	1(1)
Barnes, David	2(1)
Berning, Björn	2(1)
Bock, Phil	1(1)
Braga, Giampietro	2(1)
Cancino, Juan	2(2)
Carter, Michelle	1(1)
Cheetham, Alan & Marge	2(4)
Chimenz, Carla	2(5)
Ernst, Andrej	2(2)
Ernst, Andrei	2(4)
Fluegel, Erik	1(1)
Gordon, Dennis	2(1)
Grischenko, Andrei	1(1)
Grischenko, Andrei	2(2)
Guha, Asit	2(1)
Guha, Asit	2(3)
Hageman, Steve	2(3)

Hirose, Masato	2(2)
Hui-Lian Liu	1(1)
Key, Marcus	1(2)
Key, Marcus	2(2)
Key, Marcus	2(4)
Lidgard, Scott	2(4)
Louis, Soja	1(2)
Manriquez, Patricio	1(1)
Milankov, Vesna	2(4)
Nakrem, Hans Arne	1(1)
Nielsen, Claus	2(1)
O'Dea, Aaron	1(1)
O'Dea, Aaron	2(1)
O'Dea, Aaron	2(3)
O'Dea, Aaron	2(5)
Okamura, Beth	2(3)
Ostrovsky, Adnrew	1(1)
Ostrovsky, Andrew	2(3)
Ramalho, Lais Vieira	2(2)
Reverter-Gil, Oscar	2(3)
Ross, June	1(2)
Rust, Seabourne	1(2)
Rust, Seabourne	2(5)
Ryland, John	1(2)
Scholz, Joachim	2(5)
Seo, Jieun	2(4)
Smith, Abby	1(2)
Smith, Abby	2(3)
Spencer Jones, Mary	2(2)
Spjeldnaes, Nils	1(1)
Steinthorsdottir, Margret	1(2)
Tillbrook, Kevin	2(2)
Tillbrook, Kevin	2(4)
Vávra, Norbert	2(2)
Vávra, Norbert	2(5)
Winston, Judy	2(1)
Winston, Judy	2(4)
Wood, Anna	2(3)
Wood, Anna	2(5)
Wood, Tim	1(2)
Wöss, Emmy	1(1)
Wöss, Emmy	2(1)
Wöss, Emmy	2(4)
Wyse Jackson, Patrick	2(3)
Wyse Jackson, Patrick	2(4)

How I discovered bryozoans...

Ceetham, Alan	2(4)
Ernst, Andrej	2(4)
Gordon, Dennis	2(4)
Key, Marcus	2(3)
McKinney, Ken	2(5)
O’Dea, Aaron	2(3)
Ostrovsky, Andrew	2(3)
Taylor, Paul	2(4)
Wood, Tim	2(3)
Wyse Jackson, Patrick	2(3)

Remembrance

Arnold, Peter	2(2)
Soule, Dorothy	1(1)
Spjeldnaes, Nils	2(3)
Voigt, Ellinor	2(2)
Zevina, Galina	2(3)

News and Articles

“AustraLarwood” meeting report	2(2)
2007 Conference update	2(3)
2007 Conference: invitation letter	2(4)
2007 IBA Conference announce	2(1)
2007 IBA Conference news	2(2)
Advisory Council News	2(1)
American Museum online	2(2)
Bryozoa: Defining the Oxford way	2(2)
Bryozoan exhibition in Zagreb	2(2)
Bryozoan exhibition in Zagreb	2(3)
Bryozoan fossils from Spain	2(3)
Bryozoan sizes: a challenge	1(1)
Bryozoan Workshop, Linz:	1(1)
Bryozoan Workshop, Linz: report	2(1)
Bryozoans from Indian EEZ...	2(4)
Bryozoans: New suborder	2(3)
<i>Challenger</i> website	2(3)
Chazy Reef	2(5)
Cribrimorphology	2(2)
Grischenko appeal	2(3)
Hamburg Collection: status report	2(1)
Hans Hass “Reteporiden.”	2(1)
IBA becomes ICZN affiliate	2(4)
Largest bryozoan – colony records	2(1)
Larwood 2005 meeting report	1(1)
Larwood 2006 announcement	2(1)
Larwood 2006 meeting report	2(4)
Larwood 2007 announcement	2(3)
Larwood 2007 announcement	2(5)

Natural History Museum info	2(1)
<i>Nomenclator Zoologicus</i> online	2(5)
Patent on asexual propagation	2(5)
Reassembled trepostomes	2(1)
Voigt Collection, current status	2(1)
Voigt Collection: importance	2(4)
Voigt collection: status report	2(4)

Index to By-lined Contributors, Volumes 1 and 2

Berning, Björn	2(2)
Cuffy, Roger	2(1)
Gordon, Dennis	2(1)
Gordon, Dennis	2(3)
Hillmer, Gero	2(2)
Louis, Soja	2(3)
McKinney, Ken	2(1)
McKinney, Ken	1(1)
Nakrem, Hans Arne	2(3)
Reguant, Salvador	2(3)
Scholz, Joachim	2(1)
Scholz, Joachim	2(2)
Scholz, Joachim	2(3)
Spencer Jones, Mary	2(3)
Taylor, Paul D.	1(1)
Taylor, Paul D.	2(1)
Taylor, Paul D.	2(2)
Taylor, Paul D.	2(2)
Taylor, Paul D.	2(3)
Toscano, Francesco	2(3)
Vinogradov, Anatoly	2(3)
Whittlesea, Paul	2(2)
Winston, Judy	1(1)
Wöss, Emmy	1(1)

Note regarding *Bulletin* issue numbers

From the Editor: The IBA Bulletin dated January 2006 was designated “Volume 2, Number 1.” Subsequent issues were published at the end of March, June, and September, and now this one at the end of December, making this the 5th issue of 2006.

From this point forward there will be four numbered issues per year, one every three months. Volume 3, No. 1 will be distributed at the end of March, 2007.