



Bulletin

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Further information at <http://bryozoa.net/iba.html>

News from the Membership

Alex Gruhl. I have received a one-year postdoctoral fellowship by the German Academic Exchange Service (DAAD) starting from October. I will spend this time at the Natural History Museum, London in the lab of Beth Okamura, where we will continue studies on morphology and development of *Buddenbrockia plumatellae*, a parasite of phylactolaemates. In particular we aim to search for elements of a nervous system, which is so far unknown from these strange animals. Furthermore, planned studies include a characterization of Hox genes and their expression patterns in order to get information about symmetries and body-axis polarities. This latter part will be done in collaboration with Pete Olson (NHM) who is an expert for parasitic flatworms.

Matthias Obst. Earlier this year I received a little grant from the Swedish Taxonomy Initiative (www.artdata.slu.se) to organize a mini workshop on bryozoans at Kristineberg Marine Research Station (now called the Sven Lovén Center for Marine Sciences). The idea was to gather a few taxonomic experts and young trainees to help with the identification of the bryozoan samples, which we had collected in Skagerrak and Kattegat during our marine inventories between 2006-09. In the first week of June a number of bryozoologists met to have a closer look at the Swedish marine fauna (see picture below). Until this point Judith and myself have identified about 30% of this collection and recorded the distribution of approximately 120 bryozoan species. We usually found every fourth species to be a new record for the country. During the workshop we worked ourselves through a large part of the collection also collected live colonies and larvae for anatomical and taxonomic studies. We found at app. 13 previously unrecorded species for the country and perhaps 1 or 2 new species. We also had a closer look at the exceptional habitats like the cold-water coral reefs and the deeper parts of Skagerrak. Although the coral reefs were dead for several years they had a dense bryozoan fauna growing on it. No unusual species were detected in this habitat. The deeper parts of the Skagerrak are mainly mud flats and revealed only few species. However, one of them is probably a new species, or even a new genus (see “New Bryozoan Species...” elsewhere in this Bulletin)



Ernie Gilmour and Ed Snyder. It is with great sadness that we report the passing of Miriam (Mime) E. McColloch, former student, co-author, and dear friend. Mime was one of the best workers to ever pass through the Eastern Washington University paleontology laboratory.

She was conscientious and dependable in the lab and in the field. She often spoke about the wonderful time she had presenting our paper in Russia and the subsequent field trip through the Russian landscape. The information we received is that Mime died of complications from emphysema. We will miss her very much.

Andrea Jiménez Sánchez. I am happy to report that I successfully defended my Doctoral Thesis on Ordovician Bryozoa in the upper Katian of Spain on March 27th. The original title is: *Los Briozoos del Katiense superior de la Cadena Ibérica Oriental (NE España)*. I would like to thank Andrej Ernst for his invaluable help during the development of my thesis and also to Robert Anstey and Caroline Buttler for their help during these years on several occasions.

Hans Arne Nakrem. I have added photos from the two recent Larwood meetings on my bryozoan home page. Some photos are from the Larwood 2008 meeting in Vienna (only the excursion), and some more photos from the 2009 Larwood meeting here in Oslo. I have also added some photos that I got from Andrew Ostrovsky, Urszula Hara and Kamil Zagorsek. The link to these pages is: <http://folk.uio.no/hanakrem/iba.html>

Seabourne Rust. Since completing my PhD thesis (Plio-Pleistocene Bryozoan Faunas of the Wanganui Basin, New Zealand: diversity, distribution and paleoecology. University of Auckland, 2009), I have been taking a break from academia, and have been focusing on my art (have yet to paint a bryozoan, but we'll see!). However work continues preparing Wanganui thesis material for publication (with Dennis Gordon of NIWA). I have been living up in the wilds of Hokianga, Northland, and have been investigating local occurrences of fossil bryozoans and other macrofauna, with my partner Diane. We are currently doing fieldwork and researching localities in the isolated Taita Valley, where Miocene deposits of the Otatau Group are in places known to contain a regionally significant mollusc fauna (e.g. Laws 1947, 1948; Wakefield 1977; Evans 1994; J.Grant-Mackie pers.comm.). Bryozoans are common in shelly grit horizons of the Waititi Formation, which also bear some of New Zealand's largest foraminifera. We found one discoidal specimen with a test 25 mm across, that had been encrusted by a bryozoan colony! Although yet to be studied in detail, there appears to be a diverse bryozoan assemblage in the unit, with both encrusting and erect colony fragments present. Of particular interest to myself are a number of rounded calcereous mudstone cobbles and boulders in the bed of the Taita Stream that show dramatic evidence of multiple-reworking. They represent Late Cretaceous concretions (some contain fragments of the bivalve *Inoceramus*), that have been exposed on the shallow sea floor during the Miocene, during which time they were worn, bioeroded and encrusted by bryozoans, serpulid tubeworms, oysters, corals and other epifauna. These are still preserved today on rocks now weathered out and occurring in the bed of a (fresh-water) mountain stream! Some photos shown on the next page. We hope to continue our investigation next summer and soon provide a taxonomic list of fossil bryozoans. I can be contacted at: seabourne.rust@gmail.com



Judy Winston. I'm in Brazil at CEBIMar, the University of São Paulo marine lab. I am working with their director, Alvaro Migotto, and USP graduate student Leandro M. Vieira on the final version of the bryozoan guide for the BIOTA field guide series. It has been a long project, started in 2002, but I think it will be a great resource for bryozoologists. The photo below shows Alvaro Migotto, Leandro and me with background of São Sebastião channel and island of Ihlabela.



New Member

Julia Cáseres. I am a marine biologist from Chile currently working together with Dr. Andrew Ostrovsky at the University of Vienna. We revise and describe the bryozoan collection from the North Red Sea (Safaga Bay). Specifically I work on the systematic of the group with an intention to write a monograph in a future.

When in Chile I have worked with Professor H. Moyano (Universidad de Concepción) on systematic of Antarctic cheilostome bryozoans and principally on the ancestrulae and astogenetic patterns of some species from the Strait of Magellan. I have some experience in ecology, and worked together with Dr. J. Cancino (Universidad Católica de la Santísima Concepción), specifically on the cycles of the larval release in *Bugula neritina*.

If you want to contact me or need some information, please, write to Juliacata@gmail.com.

9th Larwood Symposium

The 9th Larwood Symposium was organized by Hans Arne Nakrem and held May 22 at the Natural History Museum, University of Oslo. It was preceded by an excursion to the Drøbak Marine Station and followed by a palaeontological excursion to Ringerike. Hans Arne has posted photos of the meeting, excursions, and receptions at <http://folk.uio.no/hanakrem/larwood-2009/index.html>. There you will also find abstracts of all presentations. Here is the full list of presentation and poster titles and authors.

The photos below were provided by Andrew Ostrovsky.



PRESENTATIONS

- Berning, B. & Wisshak, M. Diversity and abundance of bryozoans on settlement panels deployed off Faial Island (Azores).
- De Blauwe, H. Diversity and long-term changes in the bryozoan fauna of 'forgotten' gravel grounds of the southern bight of the North Sea.
- Ernst, A. Morphology of some Devonian Fenestrata
- Gruhl, A. Neuromuscular System of the larva of *Fredericella sultana* (Phylactolaemata).
- Hara, U. Distribution and colony growth-pattern of the bryozoan fauna in the Sarmatian carbonate buildups of the northern margin of the Carpathian Foredeep: focus on the genus *Cryptosula*.
- Key, M.M. Jr., Zágorsek, K. & Patterson, W.P. Paleoenvironmental reconstruction of the Middle Miocene sediments of the Vienna Basin and Carpathian Foredeep using stable isotopes from single bryozoan skeletons.
- Knowles, T., Leng, M.J., Taylor, P.D., Williams, M. & Okamura, B. Isotope analyses of mid-Pliocene North Atlantic fossil bryozoans and Bivalves.
- Kuklinski, P. & Taylor, P.D. Mineralogy of Arctic bryozoan skeletons in a global context
- Lombardi, C., Taylor, P.D. & Cocito, S. Effect of acidification on three bryozoan species from the Mediterranean Sea: preliminary results.
- Nielsen, C. & Worsaae, K. Structure of the cyphonautes larva of the freshwater ctenostome *Hislopiya malayensis* from Bangkok, Thailand.
- Ostrovsky, A.N., Cáceres, J. & Vávra, N. Bryozoan collections from the Red Sea, Maldives and Oman: current progress in identification.
- Porter, J.S., Moore, H.P., Brackin, A.P. & Winson, M.K. Association of bacteria with larvae of marine Bryozoa in coastal waters of Wales.
- Rosso, A. Bryozoans from coralligenous habitats from SE Sicily.
- Schwaha T., Handschuh S., Redl, E. & Walzl, M.G. Development of the bud in *Cristatella mucedo*.
- Sendino, C. & Taylor, P.D. Charles Lyell's fossil bryozoans from the Canary Islands
- Taticchi, M. I., Battoe, L., Havens, K., Elia, A. C., Rosso, A. & Prearo, M. Importance of collecting floatoblasts from the surface of the lakes.
- Taylor, P.D., Wilson, M.A. & Sime, J. Enigmatic preservation of ctenostome bryozoans encrusting Late Cretaceous baculite ammonites from the Western Interior Seaway, USA.
- Tompsett, S., Taylor, P.D. & Porter, J.S. *Schizoporella dunkeri* - investigation the phylogeography of a cosmopolitan Cheilostome.
- Waeschenbach, A., Littlewood, D.T.J., Taylor, P.D. & Porter, J.S. Mitogenomics in Bryozoa.
- Wanninger, A. Catastrophic events and postmetamorphic *de novo* formation during myogenesis of the cheilostome gymnolaemate *Triphyllozoon mucronatum*.
- Wöss, E.R. & Waeschenbach, A. Phylogeny of Plumatellidae (Ectoprocta: Phylactolaemata): using molecules and morphology.
- Zágorsek, K., Ostrovsky, A.N. & Vávra, N. Superficial frontal calcification ('secondary calcification') on new bryozoans from the Middle Miocene of Moravia (Czech Republic).
- Zaton, M. & Taylor, P.D. Cyclostome bryozoans encrusting mobile hard substrate from the Middle Jurassic of Poland.

POSTERS

- Knowles, T., Leng, M.J., Taylor, P.D., Williams, M. & Okamura, B. Using zooid size variation and stable isotopes in skeletal carbonate to infer seasonality from bryozoans.
- Milne, R. Bryozoan substrates in the Pliocene Coralline Crag of Suffolk: Niche differentiation, ecological tiering and evidence for soft bodied and aragonitic biota.
- Rosso, A. Bryozoans associated with deep-water corals: preliminary data from selected Mediterranean localities.
- Souto, J., Reverter-Gil, O., & Fernández-Pulpeiro, E. Rediscovery of the type material of *Amathia semiconvoluta* Lamouroux, 1824 (Bryozoa, Ctenostomata).
- Taticchi, M.I., Pieroni, G., & Elia, A.C. A question: can three patterns of the same species coexist in the same biotope?
- Tompsett, S., Cocito, S. & Lombardi, C. Looks can be deceptive - molecular results support ecophenotypic variation in *Schizoporella errata*.
- Wyse Jackson, P.N., Reid, C. & McKinney, F.K. *Protoretetepora* (De Koninck, 1878): the schizophrenic Upper Palaeozoic fenestrate bryozoan.



New IBA Website Address

The IBA Webmaster, Rolf Schmidt, reports that the IBA website is functional once again in its new home, <http://bryozoa.net/iba.html>. Please note that the old website address, hosted by the Natural History Museum, is no longer valid.



IBA

15th International Bryozoology
Association Conference
August 2nd – 6th 2010, Kiel



Dear colleagues,

As you have been informed through the IBA Bulletin 5(1), the 15th International Bryozoology conference will take place from August 2-6, 2010 in Kiel, Germany. Below you will find the registration deadlines, prices and some further information. You can download the first circular with the preliminary schedule, and fill out the preliminary registration form on our website <http://www.ifg.uni-kiel.de/iba2010/>. Please check regularly for updates. For further information please contact iba2010@gpi.uni-kiel.de.

We are looking forward to hosting you all in Kiel,
Priska Schäfer and organizing committee

Registration deadlines

Preliminary registration (online registration on website).....	September 30 th , 2009
Final registration.....	January 31 st , 2010
Payment of conference fees.....	March 31 st , 2010
Abstract submission.....	April 30 th , 2010

Conference fees

Fees include abstract volume, icebreaker party, wine reception, conference dinner, mid-conference trip to old Hanseatic city Lübeck, conference proceedings, and Annals of Bryozoology.

IBA members.....	250,- Euro
Non-IBA members.....	270,- Euro
Guests.....	170,- Euro
Students.....	170,- Euro

One-day trips after conference 07.08.2010..... 40,- Euro

- West-coast tidal flat ecosystem (UNESCO world heritage)
- Western Baltic Sea (Kiel Bight) (dredge tour to collect living bryozoans)
- Lägerdorf / Kronsmoor (Late Cretaceous Chalk)

Pre-Conference Trip 25.07. - 31.07.2010975,- Euro
Denmark and Scania (southern Sweden).

Late Cretaceous to Early Palaeogene in various facies rich in bryozoans; dredge tour to collect living bryozoans in the Kattegat.

The price will cover bus transportation, accommodation/breakfast, boat trip, and 3 evening meals.

Notice: The excursion will start in Copenhagen and end in Kiel; for those, who require a visa please check in advance with Danish and Swedish embassies.

Post-Conference Trip 08.08. - 14.08.2010720,- Euro

Late Cretaceous to Early Palaeogene in the Maastricht area, Mid-Devonian in the Eifel Mountains, Palaeogene/Neogene in the Mainz basin, Messel quarry, and Senckenberg Museum (Frankfurt).

The price will cover transportation by train (Kiel-Cologne), bus, and ship (Rhine), accommodation/breakfast, 3 evening meals, and lunch packages.

Notice: The excursion will start in Kiel and end in Frankfurt/Main. The excursion is limited to a total number of 30 participants.

Workshops

- Bryozoan biodiversity on the web (Scott Lidgard and colleagues)
- Bryozoan geochemistry and carbonates: proxies for palaeoclimate and environment (Abigail Smith & Marcus Key)
- Trepostomate Bryozoa (Caroline Buttler & Andrej Ernst)

Please see the First Circular or our website for details. One or two further workshops could be accommodated – please contact the organizers.

Talks

Official conference language is English. Only one oral presentation per participant is allowed. Each talk is 15 minutes plus 5 minutes discussion. Due to single sessions, the organizers retain the right to change talks into posters after consulting the author. Laptops and beamers will be provided, please consult us if you need other equipment.

Posters

Maximum post size is A0 (90 x 120 cm portrait); up to 3 posters per presenting author are accepted.

Abstracts

Abstracts must be received before April 30 and will be printed only if the presenting author is properly registered. Abstracts arriving later cannot be considered.

In Memorium : Geneviève LUTAUD (1926-2008)

Françoise P. BIGEY and Jean-Loup d'HONDT



Geneviève was Léon Lutaud's daughter. Dr L. Lutaud, a famous French geologist from the Academy of Sciences, and held the professorship of Physical Geography and Geodynamics until 1955 in Sorbonne. So Geneviève grew up in a scientific atmosphere. She obtained her graduation certificate with distinction despite difficult living conditions during WW II. Then she studied Natural Sciences in Sorbonne (Faculty of Sciences). She was recruited by CNRS where she spent her all career and finished it as *Directeur de Recherche* in Paris University (UPMC).

Geneviève's supervisor was Prof. Marcel Prenant, Head of the Comparative Anatomy and Histology Laboratory of the Faculty of Sciences. For her doctoral research he assigned her the development of budding and growth of colonies in bryozoans after the pattern of *Membranipora membranacea*. She perfected a process of collecting larvae and rearing this species on glass slides, making easier vital observations and drawings.

Geneviève was interested at once by coloniality and functional unity of cheilostomate bryozoans with main interest on living samples. Her first papers concerned morphogenesis of ancestrula, calcareous deposits in cystidian exoskeleton, budding of first daughter-zooecia from ancestrula in different cheilostomate species (in *Flustrina* and *Ascophorina* as well). She could measure rate of growth in young colonies and observe morphological change of ancestrulae in different species with slow rates of calcification. Meantime, she published two preliminary papers concerning development of the bud in *Membranipora membranacea*, illustrated by two films realized with Jean Painlevé, a scientific director. These films were given during marine biology stays in Roscoff (Brittany). It is the place where she spent numerous summers, collected and prepared almost her material. She submitted her state doctorate in 1961 (Faculty of Sciences, Paris): the jury members were Marcel Prenant, Georges Teissier and, Pierre Drach, the last two knew more especially her work as heads of the Roscoff Biological Station, and appreciated her observations *in vivo*, as close as possible from sea conditions.

In Prenant Laboratory, well known for excellence in fixing and staining cytological preparations, Geneviève could observe the formation of new autozooecia from proximal cells periodically isolated by a ring partition born from invagination of the wall. In *Flustra foliacea*, that lives several years, she demonstrated that development of the bud mitoses were not apical, but deeper, and revealed glucose accumulations for winter season.

After Prenant's retirement Geneviève moved to Prof. Jean Vovelle's Laboratory of Cytology of marine invertebrates in Paris University (UPMC). She described in great detail the cystidian nervous system using histology and then TEM. So, she confirmed interzooecial nervous relationship and action in coordination of global reaction of the colony to external factors. She showed also diverse tiny details in nervous system.

Geneviève was quite competent in different soft parts of cheilostomate bryozoans. So she was a contributor to *Biology of Bryozoans* by R.M. Woollacott and R.L. Zimmer (Eds, 1977) for the Chapter *The Bryozoan Nervous System* and in *Treatise of Invertebrate Paleontology* Part G Bryozoa, revised by R.S. Boardman, A.H. Cheetham, D.B. Blake et al. (Eds, 1983) for the chapter *Autozoid Morphogenesis in Anascan Cheilostomates*.



Geneviève published about 50 papers. She had her main interest in cytology and histology. Anyway she collected herself all her material and had an excellent knowledge of ecological trends of each species in Roscoff area more particularly. After her retirement she bequeathed to the Department Milieux et peuplements aquatiques of the Paris National Museum of Natural history her collection of microscopical preparations and a selection of her photographs, the more significant of her research.

Geneviève had a good command of English, inherited from a part of her family. She spent several stays in the US, Woods Hole, Washington (DC). She was active also in the IBA, attending several Conferences. She was the leader of the Preconference Field Trip in Roscoff before the Durham Conference (1980). She was also of good help when we organized Paris Conference (1989).

Geneviève Lutaud was considered as a true parisianer, living in the “Mouff” district. Always smiling despite of an accurate judgment, she appreciated all good things from life. After her retirement she spent more time in her family house in Cévennes mountains, where she admired wild landscapes. She left several nephews that admire her scientific career and familial kindness.

How I started studying bryozoans

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

Since childhood I had an extraordinary interest in natural history. Soon I had nearly all Belgian species of marine gastropods and bivalves identified in my collection. At the age of 11 I became birdwatcher and at 16 I identified hoverflies and dragon-flies instead of chasing girls. Eventually I became a professional fire man.

My colleagues knew that I had a more than normal interest in nature and in 1999 the divers of the fire department asked me to come to their weekly practice in the inner harbor of Zeebrugge. They pushed me in a wetsuit and took me down under. What I saw was amazing: I collected a bucket full of solitary ascidians, an organism I had never seen before. I contacted someone of the 'Belgian marine field study group' to help me with the identifications. Together we looked at them through his binocular and then I saw my first living bryozoans: *Bowerbankia gracilis*. I could easily identify it with the Handbook of the marine fauna of North-West Europe that he possessed. This triggered even more my curiosity.

On a fieldtrip to Brittany I found a plastic net for oyster culture covered with bryozoans. It took me a week to identify the first due to my poor knowledge of the English language and the morphology of these curious creatures. As I was the only Belgian looking at bryozoans I had nobody to help or correct my identifications. It was hard to persevere but after three months all 20 species were identified. On that same excursion I found an invasive species not earlier reported from that place. This provided an extra motivation to go on.

I started collecting plastic and *Himantalia* buttons on the Belgian sandy shores. As the seaweed *Himantalia* does not live on Belgian territory, the 75 species I encountered were mainly not living in Belgium but came with the currents and the wind from the English channel and from even further away. Later I focused on bryozoans on breakwaters, harbor structures and in the estuaries of the Netherlands.

In the meantime I studied medusa of Zeebrugge, rearing them in my garage. Of most of them I could rear the hydroid from the eggs and once let the hydroid produce medusa again. I could resolve two taxonomic problems.

In 2004 a beach was replenished with sand from offshore sandbanks revealing 2 undescribed bryozoans during the investigation of approximately 16000 empty shells. My family spent most of our holidays at the coast of Great-Britain or France (Atlantic and Mediterranean) collecting bryozoans and identifying them with stereomicroscope in the hotel room.

In 2005, Mary Spencer Jones brought me in contact with someone in the Museum of Natural History in Brussels who was looking for a bryozoologist for his project on offshore gravel grounds. I was very pleased to revise the material that Gilson had collected 100 years ago and to resample with a beam trawl during one week on the oceanographic research vessel 'Belgica'. This research indicated a decline of erect colonies due to intensive beam trawling.

Luckily for me we sometimes missed the gravel grounds and collected empty shells from the sandbanks. About 80 bryozoan species encrusted the inner side of shells.

My next project will be to compare the recent bryozoan fauna on shells with these on shells from Gilson. During these 10 years I have put all this information in my computer, meanwhile taking color and SEM photographs. Eventually I decided to replace the outdated identification key of Lacourt and out of proportion it became quite a large book.

All this would not have been possible without my curiosity, internet, the availability of good literature and identification keys and the support and interest of many persons and organizations encouraging my motivation. It is great to be an amateur bryozoologist!

Editor's Note: Please see the reviews of Hans De Blauwe's new book in the "Bryozoan Bookstall" page of this Bulletin.

Honoring Jeremy Jackson

Aaron O'Dea

The [North American Paleontological Convention](#) (NAPC), hosted this year at the University of Cincinnati, held a one-day symposium in honor of Jeremy Jackson's contributions to biology, paleontology and conservation.

Organized by Ann Budd and John Pandolfi, the symposium brought together speakers who have worked with Jeremy in the last 35 or so years. Apart from a small number of notable exceptions, including Alan Cheetham and Judith Winston, the past and current students, post-docs and collaborators managed to cover all of Jeremy's major scientific adventures, and the roughly chronologically-ordered talks did a fantastic job of coating most of Jeremy's wonderfully-villous scholarly tract.

Needless to say, bryozoans featured heavily from end to end despite Jeremy's propensity to distraction, particularly in recent years as he has become a real champion for marine conservation using rigor and passion in equal measures. As the symposium progressed however, it became clear that Jeremy's ecological and evolutionary work on marine invertebrates acts as the foundation to all that has come since, and even permeates his collaborators who wouldn't know a bryozoan if it lightly scratched their wetsuits.



It was also obvious from the ongoing nature of the work presented, and the two talks that Jeremy gave outside of the symposium, that the old dog has a lot more yet to come.

Symposium in Honor of Jeremy B.C. Jackson: Biotic response to environmental change: Ecology, Evolution and the Future.

Opening remarks (John Pandolfi and Ann Budd)

Wulff, Janie I. Is persistence of the Porifera promoted by structural simplicity?

Buss, Leo W.: why do they have so many polyps?

Lidgard, Scott: Zooids and modularity in bryozoans

Erwin, Douglas H: Was the metazoan radiation biologically driven?

Gingerich, Philip D: Evolutionary rates and Lri log-rate-interval scaling

Budd, Ann; Pandolfi, John. Hybridization, speciation, and extinction at the geographic margin of a reef coral species complex

Coates, Tony; Collins, Laurie; O'Dea, Aaron: The Panama Paleontology Project (PPP), A Jacksonian legacy

O'Dea, Aaron: Life history evolution and environmental change in tropical America

Johnson, Kenneth: Asynchronous response of Caribbean and southeast Asian coral reef ecosystems to late Cenozoic global change.

Collins, Laurel: Paleobiogeographic comparisons of benthic foraminifera from the Panama Paleontology Project.

Todd, Jonathan: Making the right choice: ecology affects interpretation of clade dynamics in *Polystira* (gastropoda: turridae) through the Neogene of the Americas

Sandin, Stuart: Reconstructing reef ecology with insights from remote island areas

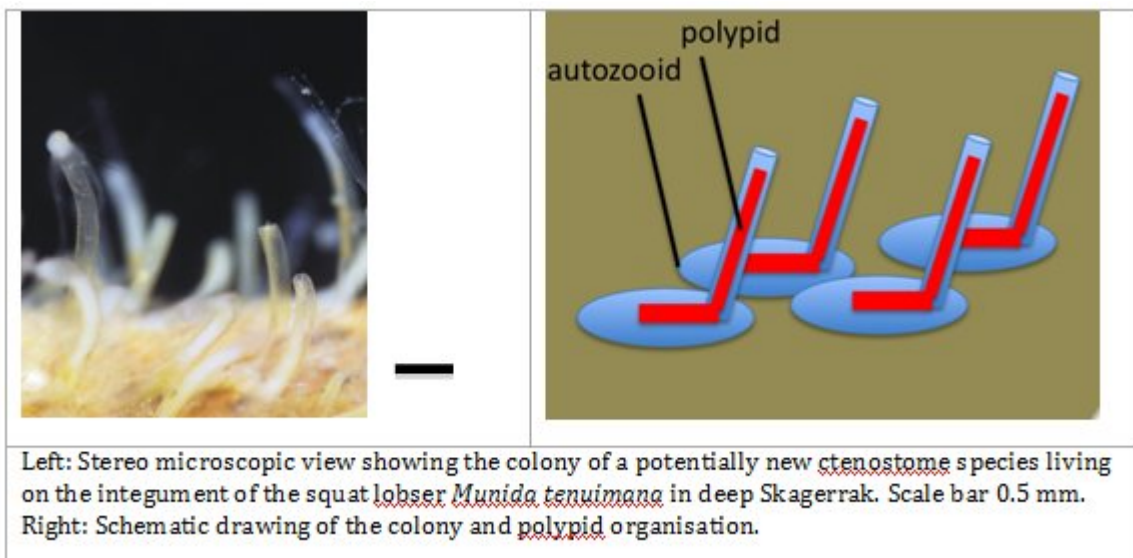
Sala, Enric: Human-induced reversal of ecological succession in marine ecosystems

Kidwell, Susan; Tomasovych, Adam: Nobody's perfect: assessing modern death assemblages as historical recorders using "live-live" comparisons
 Baum, Julia K. Ecological and conservation implications of removing top predators from the worlds oceans.
 Pandolfi, John, Lybolt, Matt; Roff, George: Reefs since Captain Cook: an antipodean perspective
 Kaufman, Les; Shank, Burton: Multiple alternative states in anthropocene coral reef systems: slime is not the worst of it.
 Hughes, Terry P.: Ecosystems, people and scale: the "wicked problems of the Galapagos
 Keller, Brian: Slippery slopes and management of marine protected areas
 Knowlton, Nancy: The future of coral reefs
 Concluding remarks (John Pandolfi, Ann Budd)

New bryozoan species from Sweden

Matthias Obst and Judith Fuchs

In the May edition of the IBA bulletin we submitted a short description of an unknown ctenostome. Shortly after we received many replies from all over the world. Indeed, the bulletin seems to be a much sought-after reading. It turns out that the animal is a new species, very closely resembling *Nolella sawayai*, but with distinct features. Funnily enough, we've found another mysterious ctenostome here in Sweden, just last month during a cruise in the deep waters of Skagerrak. We showed it to experts during the Bryozoan workshop in Kristineberg and it appears to be a new species, perhaps even a new genus (see picture below). We found specimens in two locations at depths below 550 m in the deep parts of Skagerrak, south of Norway. The colonies live attached to the claws of squat lobsters and consist of closely jointed zooids, which are attached with their proximal part. The distal part of the zooid is long and erected with a terminal orifice. Has anyone ever seen anything like this before? We're hoping to be able to describe and sequence these species in the coming year and this will be a part of Judith's thesis.



Left: Stereo microscopic view showing the colony of a potentially new ctenostome species living on the integument of the squat lobster *Munida tenuimana* in deep Skagerrak. Scale bar 0.5 mm.
 Right: Schematic drawing of the colony and polypid organisation.

Investigations in Freshwater Bryozoan Biofouling – Downunder

by Robin Mitra

After the presentation of the research entitled *An Investigation into the control of Bryozoan infestation of water pipeline systems* at the Australarwood Symposium on Friday the 13th of March 2009, the project has since progressed in a number of ways. Two sampling tours have been carried out, one in early autumn (March 2009) and the other in late autumn (May 2009) in the four prime sampling sites viz. Ouyen, Kiamal, Piangil and Nyah pump stations along the Northern Mallee Pipeline (NMP) system in Victoria, a paper on the initial findings have been submitted, the research has been presented again at the GWMWater Research Forum held at Horsham, Victoria and a Bryozoan culture laboratory has been established at the Victoria University, St Albans campus (**Fig 1**).



Fig 1: Bryozoan biofouling research station at the St Albans campus, Victoria University Australia. Note - the culture tanks have been compartmentalized into four sections to contain water from the four prime sampling sites – Ouyen, Kiamal, Piangil and Nyah in Victoria.

GWMWater is the owner and operator of a large network of pipelines in the West and North-West of Victoria known as the Wimmera-Mallee Pipeline (WMP) and the Northern-Mallee Pipeline (NMP) systems that cover a region over 12,000 km in length and servicing an area of about 3 million hectares. For many years, the freshwater Bryozoans had been a major cause of biofouling problems in the Northern Mallee Pipeline system and the current project was originally envisaged by the field operators who having dealt with the biofouling problem on a day to day basis now harbor an immense interest in it. The project not only attempts to investigate the identification of the problem species but also endeavours to explore the possibility of controlling them through experiments conducted under both the ‘static’ and the ‘flow’ conditions of pipeline water. However, the overall objective of the three year project is to devise a long term plan for the management of Bryozoan infestations in the GWMWater pipelines. The first year of the \$400,000 research project involves the establishment of a research platform that would facilitate an ongoing scientific investigation into the biofouling problem. The second and third years of the project aim to implement a strategy that would incorporate the application of all laboratory trials to the field and extend the fieldwork to all GWMWater pipelines including the Wimmera-Mallee Pipeline (WMP) system. According to

Paul Atherton, Manager, Research and Regional Development. GWMWater “We recognise not only the great value of this project to the Corporation but towards the rest of the water industry in Australia as well, and for this reason - are excited by it”.

Currently four major sampling sites have been established in the present project that lie along the Northern Mallee Pipeline system pipelines – (a) Ouyen pump station from where *Cordylophora caspia* (Pallas 1971) belonging to the class Hydrozoa was first detected from a sample scraped off a clogged strainer during the summer sampling trip of December 2008 (**Fig 2**). Subsequently in the early autumn trip (March 2009), statoblasts of the Fredericellid type and floatoblasts of the Plumatellid type (**Fig 3**) were also isolated from a puddle of water designated as the Ouyen filter backwash (not shown). (b) Kiamal from where *Fredericella australiensis* (Goddard 1909) was first detected from colonies entwined within a filter dislodged from a water distribution system in Kiamal (**Fig 4**), (c) Piangil pump station located on the banks of the River Murray where both *Cordylophora caspia* and *Fredericella australiensis* were detected (**Fig 5**) and (d) the Nyah pump station from where *Plumatella emarginata* (Allman 1844) was first detected (**Fig 6**). Nyah was sampled again during the early (March 2009) and late (May 2009) autumn sampling tours (Refer to **Fig 7**). The above mentioned Bryozoans and the Cnidarian *Cordylophora caspia* were all identified with the assistance of Bryo Technologies, 2295 Banyon Drive Dayton Ohio 45431 USA.



Fig 2: (a) Ouyen pump station Victoria, Australia (b) the clogged strainer at the Ouyen station from which *Cordylophora caspia* was first identified during the first summer sampling tour in December 2008.

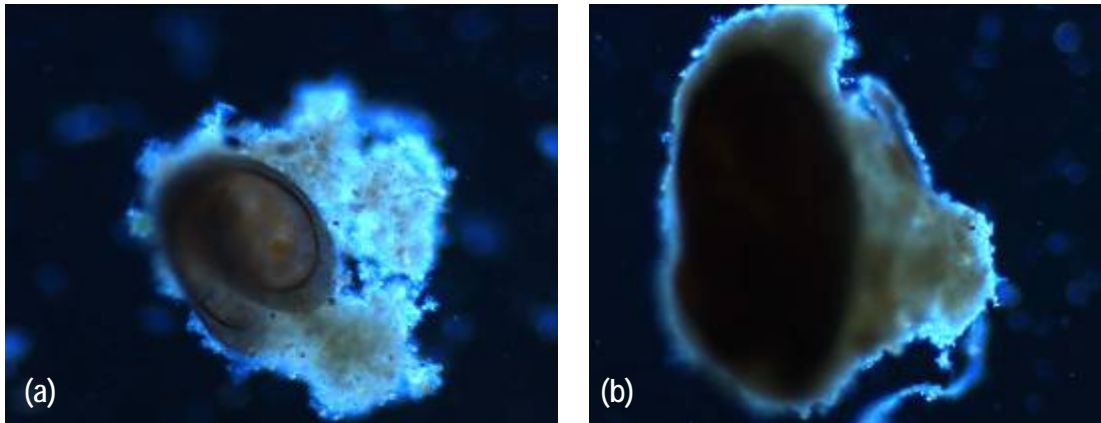


Fig 3: (a) Germinating floatoblast of *Plumatella emarginata* most probably isolated from the Ouyen filter backwash and not from the strainer (b) Germinating statoblast of a Fredericellid type also isolated from the Ouyen filter backwash.

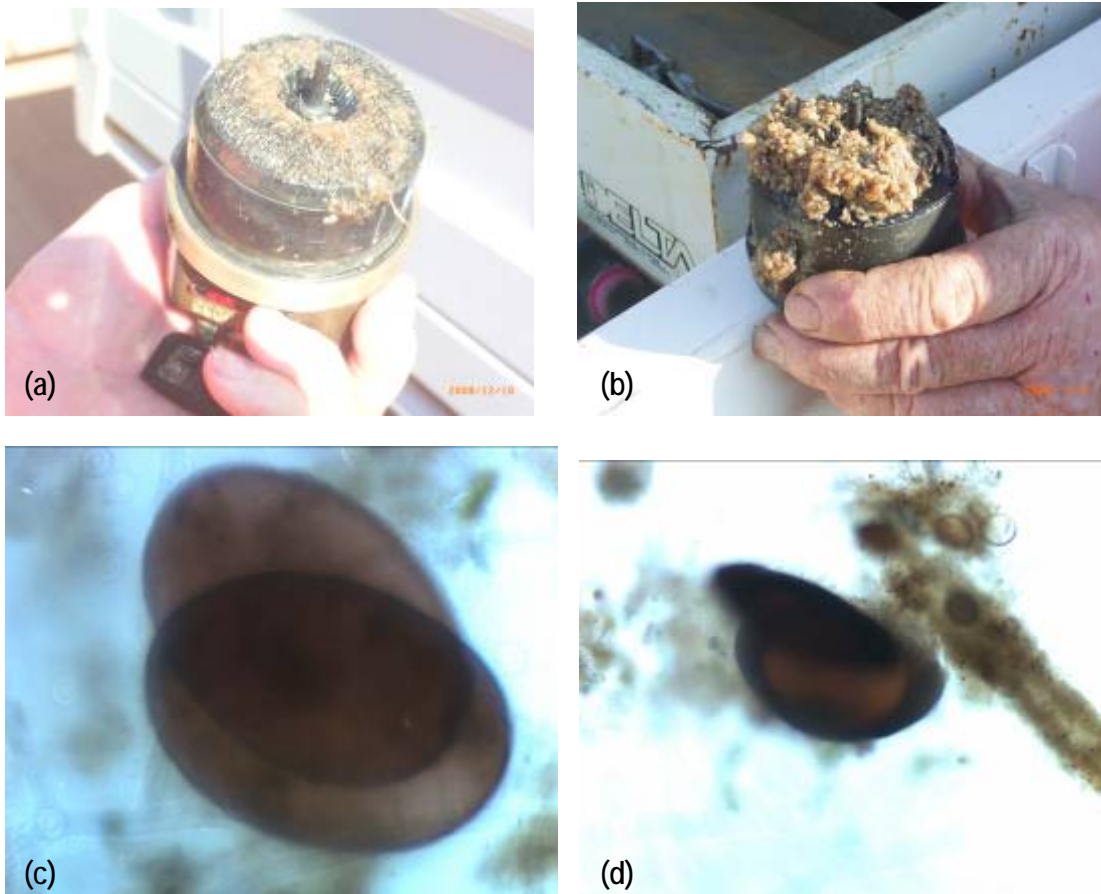


Fig 4: (a) The filter dislodged from a water distribution system in Kiamal from which *Fredericella australiensis* was detected during the first sampling tour in the summer of December 2008 (b) Another filter depicting the growth of biofouling colonies dislodged from a water distribution system in Kiamal from which (c) Fredericellid statoblasts and (d) Plumatellid floatoblasts were isolated and germinated in the laboratory.

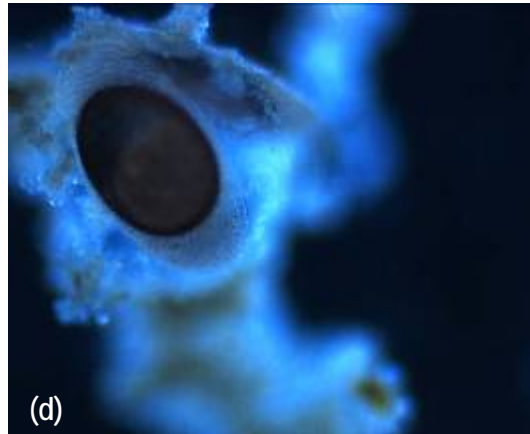
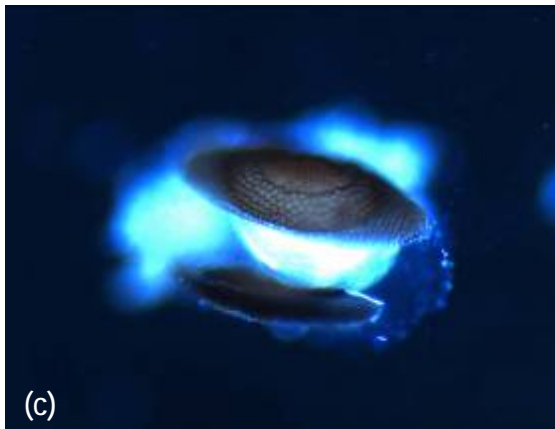


Fig 5: (a) Piangil pump station Victoria Australia (b) the pump station is situated on the banks of the River Murray from which the Northern Mallee pipeline system takes its water to supply towns and farms across an area of 920, 000 Ha in North-Western Victoria. Separating valves in a germinating *Plumatella emarginata* floatoblast isolated from (c) filter membrane (d) sand membrane at the Piangil pump station.



Fig 6: (a) Nyah pump station Victoria Australia (b) Membrane filter at Nyah from which *Plumatella emarginata* was first identified after the inaugural sampling tour conducted during the summer of December 2008

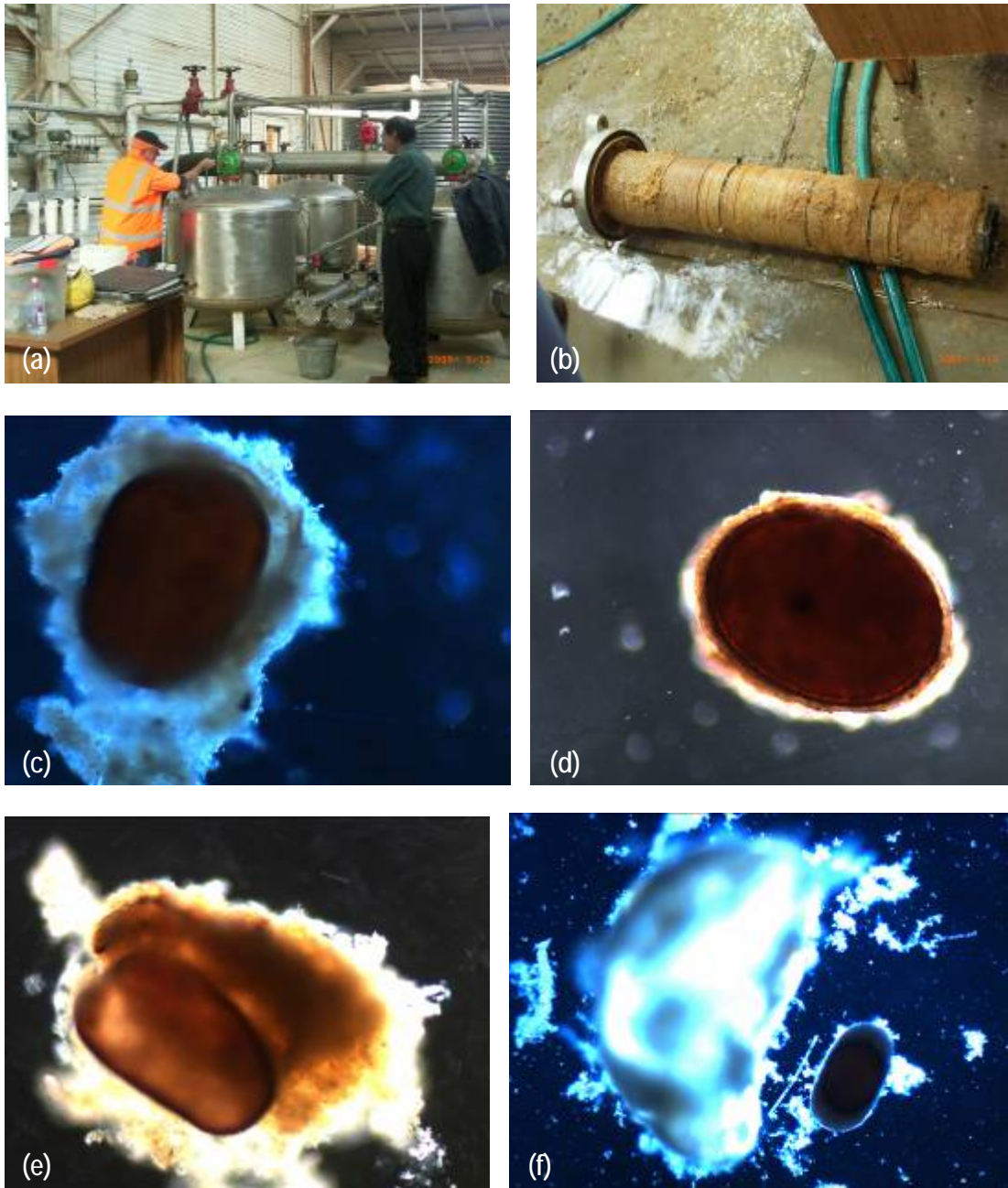


Fig 7: (a) Visiting Nyah pump station during the late autumn sampling tour in May 2008 for the collection of living Bryozoan colonies from inside both the sand and the membrane filters. Assistance was provided by Dennis Pretty from GWMWater (b) Clogged membrane filter depicting biofouling colonies at the Nyah pump station (c) Germinating statoblast of the Fredericellid type isolated from Nyah pump station (d) Fredericellid type statoblast with surrounding periblast isolated from colonies growing inside the sand filter at Nyah (e) Germinating Fredericellid statoblasts isolated from colonies growing inside the sand filter at Nyah (f) *Plumatella emarginata* floatoblast isolated from sand sample from within the sand filter at Nyah and compared to a granule of sand.

Presently hundreds of statoblasts of both the Fredericellid and floatoblasts of the Plumatellid types have been isolated from colonies and raw water samples that were collected during the course of the second and third sampling trips and put out for germination in petri dishes within the source tanks nourished with a mixture of source water and 'aged' water from a thriving goldfish aquarium. The use of 'aged' water was suggested by Dr Timothy Wood.

The current project endeavours to study and document the development stages of the germinating statoblasts. A part of the experimental program will be the study and investigation of Bryozoans under static conditions whilst another part will be focussed on the flowing water conditions to represent the environment within the pipeline systems affected by the biofouling community. Dr Andrew Barton (Senior Water Resources Engineer, GWMWater) is of the opinion that “Flowing water experiments are important as the forces exerted on the Bryozoans and nutrient and chemistry dynamics at the biofilm and water interface may be important in any possible control strategy”. Annular reactors and variable slope flumes will be employed as a means in the project to achieve this purpose.

The project commenced in October 2008 and is a joint venture between Victoria University and GWMWater (www.gwmwater.org.au/). The research team comprises of John D. Orbell (Professor. School of Engineering and Science/Institute for Sustainability and Innovation, Victoria University) who is the project leader and Robin Mitra (Research Fellow. School of Engineering and Science/Institute for Sustainability and Innovation, Victoria University) in collaboration with Paul Atherton (Manager, Research and Regional Development. GWMWater), Andrew F. Barton (Senior Water Resources Engineer. GWMWater, Adjunct Senior Lecturer, Institute Institute for Sustainability and Innovation, Victoria University), Steven Briggs (Bulk Systems Planner, GWMWater) and Darcy Prior (Water Resources Officer GWMWater) (**Fig 8**).



Fig 8: (a) John Orbell (Project leader Victoria University) and Robin Mitra (Research Fellow Victoria University) (b) Darcy Prior (Water Resources Officer GWMWater), Andrew Barton (Senior Water Resources Engineer. GWMWater) and Paul Atherton (Manager, Research and Regional Development. GWMWater). Absent from the photo is Steven Briggs (Bulk Systems Planner, GWMWater)

Tributes to Phil Bock

(Editor's Note: At this year's Australarwood Symposium, in celebration of Phil Bock's 70th birthday, Phil was presented with written tributes collected by Dennis Gordon from around the world. Here is a sampling. Phil Bock's Bryozoa Home Page is located at <http://www.bryozoa.net/>.

Jim Chimonides

I have always valued Phil as the quiet sensible man who always seemed to do the right thing at the right time and at the right pace.

Many years ago as a younger bryozoologist, I was lucky enough to be on field trip in Aus. His presence was just the right antidote to the exuberance of the Wass who, lovely man that he has always been, seemed oblivious to the 24 hr day and the need for sleep. Never forgotten.

However, above all I am exceedingly grateful for the care and friendship that he has shown towards P.L.Cook when she embarked on her new life down under. What happens to people that one has worked with for 20 years remains important.

I hope that the tragedy unfolding in Aus at the moment has not adversely affected any of them. May any force that governs the lives of men keep them safe and sound.

Andrei Ostrovsky

His bryozoan web-page is one of the most useful tools that is equally important for all bryozoologists and non-specialists. It is a great help and wonderful idea! The next step is to add family and generic diagnoses. Then it would be priceless.

Andrea Balduzzi

Thank you very much if you will transmit to Phil Bock my sincere thanks for his very precious work in developing Bryozoa Home Page, and my best wishes for a still long and happy life during the next 70 years!

Lena Viskova, Raisa Goryunova, Olga Weiss, V. Lavrentjeva, A. Koromyslova, I. Renga, D. Lisitsyn

We are very pleased indeed to congratulate Philip Bock on the occasion of such a great jubilee. We all wish him, as it is said in Russia, Siberian health and Caucasian longevity. We are also pleased to mark his contribution to our knowledge of bryozoans by his publications which are very useful and we would like to have news of them for a long time. We wish every success in his work on bryozoans in the future. We also wish him and his family many years of happiness, peace, and love.

Valentina Gontar

Congratulations and best wishes for your 70th. We commend you for your productive service and many your ideas. I know that you are in the top of your field.

Norbert Vávra

There are people who like ‘bird watching’, others enjoy even ‘train watching’ – I personally prefer ‘colleague watching’, a hobby which is very informative and often even amusing and which I really can recommend. One item of special interest in this connection is the observation of the behaviour pattern at the time of retirement: a few decide to focus on their favourite hobbies, others start travelling or hiking extensively, but others take the occasion to intensify their scientific activities to an incredible extent. You, dear Phil, distinctly belong to this last species. To mention at least one example as an outstanding witness of your activities – your excellent homepage ‘Recent and Fossil Bryozoa’ containing an incredible amount of data and information and many, many useful cross-linkages! Therefore, sending you the very best wishes on the occasion of your birthday includes also a little bit of egoism – that you will remain active for many years to come and enjoy bryozoan research also in the future!

Judy Winston

Almost every day I use and rely on Phil's important contribution to bryozoology — the Bryozoa home page. What I admire most is the fact that he just did and continues to do what needed most to be done — to create an online resource that would give bryozoologists around the world a resource that does not depend on their geographic location or the financial status and history of their home institution. Not only that, but being an good Australian, he did it all without whingeing (most unusual in taxonomic circles). I wish him many more productive years during which the rest of us will find ways to continue to develop his pioneering project.

Seabourne Rust

Happy birthday and many thanks for so many great contributions to bryozoology!

Aaron O’Dea

Best wishes and many happy returns from Panama!

Joachim Scholz

I composed a special birthday card for Phil and hope he will appreciate it. The tinny is still missing in the card and therefore the birthday present in its current stage of development may not really work well for an Australian or, as Kiwis usually call these people, a Western Islander; so please tell Phil that I shall invite him for a nice cool and much more beautiful and tasty lady to be shared; guess the Australians usually call her Victoria (Bitter).



Anna Occhipint Ambrogi

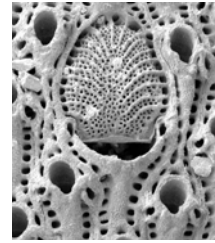
I congratulate Phil on this important goal. I wish him all the best and at least other 30 years with the beloved Bryozoans and IBA friends!

Asit Guha

All bryozoologists around the globe feel happy about Phil for his support-system at the IBA homepage where all bryotaxa fill their space with Phil's assistance. All the best for Phil's seventieth birthday on March 03, 2009; and we wish Phil's fulfilment extends to cover a century and more. Many happy returns for the day.

Alan Cheetham

HAPPY BIRTHDAY, PHIL! From Alan Metrarabdotos.

**Soja Louis**

Success in itself is a reason to celebrate. I take this day to wish Dr. Phil for his successful career as a bryozoologist and spending each day for encouraging and motivating young researchers on Bryozoa. Today's wishes are special in WISHING A HAPPY BIRTHDAY and congratulations for all the success and my good wishes for the days yet to come.

Ken McKinney

Best wishes on your 70th birthday. May you remain in good health and have many more! The internet service that you have provided to bryozoologists, to other biologists and paleontologists, and to just curious folks is huge, you know. At first I would visit The Bryozoa Homepage only occasionally, but more recently it has become a place that I check regularly for being sure that I have found all appropriate literature for a project, to see illustrations of various taxa with which I have little familiarity, to see in situ photographs, and to see if you have provided a pdf file of a needed article before. You also are owed a vigorous THANKS also, from all of us who know and care about Cookie, for being involved in her continued research over the past few years and most importantly for keeping an eye on her well-being.

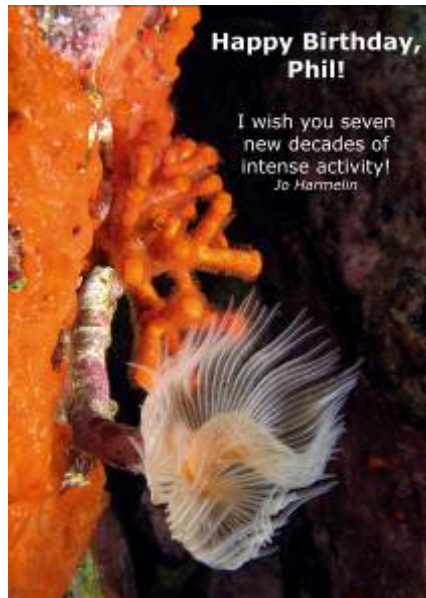
Hugo Moyano

I agree with you on the extraordinary value of Phil's work. I think that he deserves our deepest and best acknowledgement for his outstanding service to the IBA. I wish he lives a hundred more years because bryozoologists like him are not common. We should be glad at most for having this extraordinary serviceful man.

**Andrei Grischenko**

Please accept my sincere congratulations on the occasion of your 70th birthday. I wish you to be happy, healthy, surrounded by honest friends, and to have prosperity in all sides of your life. You are one of the rare representatives of a very attentive and friendly human type, that I was feeling since our first meeting at Dublin. I wish to present you a little image of the Urals natural history — a

shore of the Sylva River, located about 55 km from Perm City. This photo was taken a couple of years ago in the village where my family have a wooden summerhouse. I love this picture of native nature and would like to share it with you. Hopefully you ll be pleased to see the beauty of another side of the Globe!



Editor's note: This article by IBA's Abby Smith is reprinted from the Wellington *Dominion Post*, p. B5, 13 May 2009. It strikes me as a great example of effective scientific outreach through the popular press.

There is no antacid to cure the sea's indigestion. All we can do is slow it down, writes Abigail Smith.

Spectre of seas without shells

Remember *Silent Spring*? It was in 1962 that Rachel Carson's book alerted the world to the problems of the insecticide DDT in the food chain. Birds of prey were particularly vulnerable, with their eggshells becoming so thin they could no longer contain growing embryos. The threat of springtime with no birdsong catapulted the world into a new awareness of ecology and conservation.

Forty-seven years on, a new threat is looming, this time in the sea. Once again the busy rhythm of people is causing an ecological crisis. Not as complicated as modelling global warming, not as simple as banning a pesticide, our newest planetary drama is called ocean acidification. It happens because of the connections between air, water, and shells.

We know that human activities, particularly the burning of coal, oil, petrol and wood, have for the past 200 years increased the amount of carbon dioxide, or CO₂, in the atmosphere. While these molecules float around in the air, they act like a blanket keeping Earth warm and eventually changing the whole climate. The warming effects of CO₂ have been less than they could have been, however, because about a third of CO₂ from the air gets mopped up by the oceans.

What's good for global climate change, however, is bad for the sea. When you add CO₂ to sea water, it becomes more acid. And that means that the carbonate ion, CO₃, gets scarcer. That might seem like no big deal, but many marine plants and animals use carbonate, along with calcium, for constructing protection and structure.

Clams, snails, urchins, corals, some algae, and many plankton all use calcium carbonate (CaCO₃) to build their shells.

Marine ecologists have only just begun to investigate the potential problems that a more acid ocean might pose to creatures in the sea. What they have found so far is alarming. Tiny plankton, zillions of which form part of

the basis of the marine food chain, are usually protected by a robust and complex ball of carbonate.

But when you grow them in more acid conditions, these little shells become thinner and more frail. Even more alarming, experiments with corals show that under acid conditions, some do not make a skeleton. They sit there like a jelly glob with no sign of the complex architecture that makes coral reefs so diverse and so attractive to tourists - and to fish.

This isn't just a problem for squishy marine critters. Marine aquaculture and multimillion-dollar fisheries such as mussel farming are likely to be affected.

Tourism to coral reefs is another multimillion-dollar industry, and some economies are wholly reliant on it. There is even the suggestion that a more acid ocean could be more corrosive and thus affect shipping and ports.

The sea is growing more acid by the day. Early estimates suggested that acidity could go up 30 per cent by the end of this century. Now scientists are warning that, in the Southern Ocean, we could be seeing measurable changes within a few decades. The effects of what we have already pumped into the air are probably irreversible. There are no practical solutions or cures - no antacid for the sea's indigestion. The only thing we can do is to slow it down.

Luckily, we already want to reduce carbon emissions and know we need to stop the invisible clouds of CO₂ rising

Poisoned sea: Abigail Smith says the oceans are becoming more acid by the day, affecting the ability of shellfish and coral to create the shells and skeletons vital to their survival.

into the air. We already have mechanisms in place to change how we live and travel. Ocean acidification provides another, and perhaps a more urgent, reason for continuing on this path as fast as possible.

We still have birds of prey. That is because people cared, listened and took action. Ordinary gardeners stopped using DDT, and eventually governments



also responded. Now you can't buy DDT and you can't spray it around.

Geologists, who specialise in the longterm view, are beginning to call the present time period the anthropocene epoch.

They mean that the activities of humans are so pervasive that they will be the dominant signal in the geologic record of our time. So far it appears that the anthropocene will be renowned for its great extinction event - a period in which Earth became so unhealthy that hundreds of species of animals and plants ceased to be. Given that acidification is to be added to the effects of coastal pollution, ongoing development, sedimentation and over-fishing, it is not surprising that our coastal ecosystems are set to crash.

We can choose to make a difference. Just don't drive. Turn off the power. Think about all those millions of plankton making their complex and perfect skeletons. Think about that exhaust, puffing out the back of every car, each little bit of CO₂ heading into the air, into the sea, a little drop of poison for our planet. Each of us can make small differences. Think about what you could do, today, to save just one plankton, just one coral. Because a sea without shells is like springtime without birds.

• Associate Professor Abigail M Smith is a geochemist in the Marine Science Department at the University of Otago.

Bryozoan Bookstall

Review of De Blauwe's *Moss animals of the Southern Bight of the North Sea*
John Ryland

The Southern Bight of the North Sea has a sandy sea bed and is bordered by the soft-substrate shores of southeast England to the west and of Belgium and Holland to the east. Several large estuaries open to this area, which supports a productive and much studied benthic in-fauna and significant demersal fisheries. It seems an unlikely region in which to find a rich bryozoan epifauna; but it has one. This may partly be a consequence of the residual water flow through the Strait of Dover which transports not only planktonic larvae but shell fragments from the English Channel. Bryozoologists are now more aware of spot colonies which are able to flourish on small fragments of shell. The soft shores are, of course, broken up by ports, breakwaters and marinas, but shell is the key substratum.



A book on the identification of Southern Bight bryozoans would be slim and of restricted value? Doubly wrong! Hans De Blauwe's new book is a weighty identification guide of 445 well-printed 230 × 155 mm pages, describes 179 species, and will be of immense value to anyone identifying bryozoans in Western Europe. The book follows a consistent format with keys, descriptions, and notes on distribution on the verso pages and a selection of photographs opposite them. These comprise either habit and close-up pictures, the latter often with extended lophophores (for ctenostomates) or habit photographs and SEMs (for calcified taxa). The text is in Flemish, with which most bryozoologists will be unfamiliar, but in fact the habitat and distributional notes can be reasonably well understood. The keys are associated with explanatory line drawings. Many workers will probably find the book most useful when used in conjunction with the four bryozoan volumes in the Linnean Society Synopses of the

British Fauna series, which provide detailed descriptions in English and are illustrated with line drawings. In De Blauwe's new book, the photographs, including the SEMs, are of very high quality and perfectly complement the synopses accounts; but, because of the careful way in which they have been selected and the details they reveal, they are equally valuable as a stand-alone resource used, as is obviously intended, by Flemish or Dutch language identifiers.

Bryozoologists have long been accustomed to benefiting from the writings of amateur naturalists, such as George Johnston and Thomas Hincks, and of biologists forced to pursue their research interest in leisure time, such as Folke Borg. That Hans De Blauwe belongs to the latter category makes this book all the more remarkable. It is a tribute to his energy and enthusiasm, commitment to field work, and ability to keep abreast of contemporary research and establish the academic links necessary for building up the outstanding SEM portfolio, that his book achieves such outstanding excellence. The accounts of several genera, such as *Alcyonidium*, *Puellina* and *Schizomavella*, are among the most comprehensive available for western Europe. Seven of the

included species have been recognized only within the last 15 years. The book has become instantly indispensable, and I urge all IBA members with interests that need them to be aware of western European faunas, to get their own copy. All marine stations and field centres located in Atlantic Europe should add a copy to their library. Hans is to be congratulated on the completion of this book, of which he can be justifiably proud.

.....and more acclaim:

Dear friends and colleagues:

It is our pleasure to announce the publication of a wonderful new book *Mosdiertjes van de Zuidelijke bocht van de Noordzee* (*Bryozoans of the Southern Bight of the North Sea*) that has recently been published in Belgium. Its author – Hans De Blauwe – has done an astonishing job in describing and illustrating 179 species of the salt- and brackish water bryozoans from all three marine orders – Cyclostomata, Ctenostomata and Cheilostomata. What is especially remarkable is that each species has been illustrated using both stereomicroscope showing natural coloration and colony shape, and scanning electron microscope showing small details of zooidal morphology. Taxonomists will definitely agree with us that pictures have more importance than species descriptions that are often very similar and repetitive. Hans De Blauwe was lucky in finding a publisher who agreed to print an enormous number of both colour and black-and-white images that complement each other perfectly. As a result an excellent identification key book has appeared that will be useful both in the field as well as in the laboratory. Actually, we do not know of any similar example in the bryozoological literature. Moreover, the careful selection of images makes this book as useful for beginners as for professionals. This book will be a welcome addition to the classic guides of German Kluge, Peter Hayward and John Ryland. The book can be ordered at info@vliz.be and costs €43 when sent abroad (port costs included).

Congratulations, Hans! Excellent job! We would greatly recommend your book for all who are interested in marine life! The next, and important step, is to translate the text to English. This will certainly greatly enlarge its audience.

Andrew Ostrovsky
Joann Porter
Piotr Kuklinski

De Blauwe, Hans. 2009. MOSDIERTJES VAN DE ZUIDELIJKE BOCHT VAN DE NOORDZEE [Moss animals of the Southern Bight of the North Sea]. ISBN 9789081290036 (soft cover). Vlaams Instituut voor de Zee (VLIZ), Ostend, Belgium. 464pp. (€25.00 + carriage, from VLIZ: info@vliz.be)

Upcoming Meetings and Conferences

Bryozoa

International Bryozoology Association
25-30 July 2010, Kiel, Germany
Contact Priska Schäfer, ps@gpi.uni-kiel.de

Paleontology

American Geophysical Union
2009 Fall Meeting
14-18 December, San Francisco, CA.
<http://www.agu.org/meetings/fm09/>

American Geophysical Union
Ocean Sciences Meeting
22-26 February 2010, Portland, Oregon
<http://www.agu.org/meetings/os10/>

American Geophysical Union
2010 Meetings of the America
8-13 August, Iguassu Falls, Brazil
<http://www.agu.org/meetings/ja10/>

Antarctic Conference of Gondwanan Palaeontology
Mid-2010, Australia (details forthcoming)
<http://www.uq.edu.au/dinosaurs/index.html?page=91899>

The Palaeontological Association
53rd Annual Meeting 2009
13-16 December, University of Birmingham
http://www.palass.org/modules.php?name=annual_meeting&page=19

International Symposium on the Cretaceous System
12-19 September, 2009, University of Plymouth, UK
<http://www.palass.org/modules.php?name=palaeo&sec=meetings&page=55>

North American Paleontological Convention 2010
(Not yet announced)

5th International Symposium on Lithographic Limestone and Plattenkalk
17-22 August 2009, Naturhistorisches Museum Basel, Switzerland
http://www.geolsoc.ch/events/files/5th_ISLLP.pdf.

Geological Society of America Annual Meeting
18-21 October 2009, Portland, Oregon, USA
<http://www.geosociety.org/meetings/index.htm>

Biology

Aquatic Invasive Species, 17th International Conference,
(Not yet announced)

12th International Coral Reef Symposium
(Not yet announced)

Ecological Society of America
2-7 August 2009, Albuquerque, New Mexico
<http://www.esa.org/albuquerque/>

International Association for Ecology
16-21 August 2009, Brisbane (Australia)
http://www.intecol.net/info-esk/X-INTECOL/10th_INTECOL_Congress-3.htm

International Council for the Exploration of the Sea
2009 Annual Science Conference
21-25 September, Berlin, Germany
<http://www.ices.dk/iceswork/asc/2009/welcome.asp>

International Society of Limnology
August, 2010, Capetown, South Africa
<http://www.limnology.org/news/circular2008.pdf>

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.

- Berning, B., M. Reuter, W. E. Piller, M. Harzhauser and A. Kroh (2009). Larger foraminifera as a substratum for encrusting bryozoans (Late Oligocene, Tethyan Seaway, Iran). *Facies* 55(2): 227-241.
- De Blauwe, Hans. 2009. Mosdierjtes van de Zuidelijke Bocht van de Noordzee [Moss animals of the Southern Bight of the North Sea]. Vlaams Instituut voor de Zee (VLIZ), Ostend, Belgium. 464 p.
- Dick, M., S. Lidgard, D. P. Gordon and S. F. Mawatari (2009). The origin of ascophoran bryozoans was historically contingent but likely. *Proceedings of the Royal Society B*. doi:10.1098/rspb.2009.0704.
- Ernst, A., B. Senowbari-Daryan and K. Rashidi (2008). Permian Bryozoa from the Jamal Formation of Shotori Mountains (northeast Iran). *Revue de Paléobiologie* 27(2): 395-408.
- Ernst, A. and A. Munnecke (2009). A Hirnantian (latest Ordovician) reefal bryozoan fauna from Anticosti Island, eastern Canada: taxonomy and chemostratigraphy. *Canadian Journal of Earth Sciences* 46(3): 207-229.
- Floerl, O., G. J. Inglis and D. P. Gordon (2009). Patterns of taxonomic diversity and relatedness among native and non-indigenous bryozoans. *Diversity and Distributions* 15: 438-449.
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Frosty Bryozoans

Abby Smith



This is a lovely photo of a hoar frost in the Manuherika Valley, New Zealand. It was taken by Lynda van Kempen and appeared in the *Otago Daily Times*. The thing that struck me was how like a bryozoan the fence looks! They're everywhere....

