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News from the Membership

Andrej Ernst. News from the Working Group on Australian Permian Bryozoa (Andrej Ernst, Eckart Håkansson, Hans Arne Nakrem, David Haig): Four parcels with bryozoan samples from the Lower Permian Callythara Formation have reached Kiel (additionally to the UWA collection material which had arrived earlier). The samples are full of diverse and abundant bryozoans. Following Andrej's rule "The best bryozoan is a thin sectioned one", they will undergo an intensive treatment in order to reveal their secrets during the next two years. Hot days in Australia, accompanied by thousands of aggressive flies have resulted that this treasure became to be available for intriguing research!



1) Eckart in our field camp at Dead Man's Gully, W. Australia. 2) Andrej with received boxes of fossils at the University of Kiel. 3) Unpacked samples, ready for study.

Karin Hoch Fehlaue-Ale: I am still working on two parallel projects related to *Bugula*. The first one is the investigation of worldwide phylogeography of *Bugula neritina* type S, with the collaboration of **Andrea Waeschenbach**, **Grace E. Lim-Fong**, **Ezequiel Ale** and **Joshua**

Mackie. We are working to finish the sequencing of two mitochondrial and two nuclear genes of ~100 colonies from various localities, including USA, Brazil, Spain and Australia. The data analyses shall start soon. This would not be possible without the donation of tissues that we received from American, Australian and Brazilian colleagues, and also from IBA members. Many thanks to all of you! The other project, which deals with the morphological and molecular phylogeny of *Bugula*, is being done with the collaboration of **Leandro Vieira, Judy Winston** and **Alvaro Migotto**. The sequencing of two mitochondrial markers from ~15 species widely distributed is about to finish soon, as well, and on October Leandro and Alvaro will work on SEM images... it seems that we might have a good number of new species! Once again, many thanks to all the colleagues whom sent us several exemplars!

Piotr Kuklinski. I was very sad to learn from the last bulletin about the death of Karen Bille Hansen. In 1997 I was lucky enough to receive a scholarship from the Danish government to participate in several marine biology and ecology courses in the Danish International Study Program. Earlier, back in Poland I became very interested in the ecology of arctic bryozoans but I was facing lots of problems with their taxonomy. When I knew that I was going to Copenhagen I contacted Karen through Claus Nielsen and she very kindly agreed to introduce me to arctic bryozoan taxonomy. I do not remember our first meeting but I remember vividly the period I spent with Karen at the Zoological Museum. I would pop up to her office twice a week where she taught me the difficult art of bryozoan taxonomy. She not only showed me how to identify a particular species but also examined me to see whether I still remembered what I had learnt a few days previously. With Karen's help I built a fantastic reference collection, which I have kept to this day. She spent hours and hours of her time with me, never showing any sign of being annoyed or impatient with this persistent, undergraduate foreigner. I am not sure I am a good taxonomist but I enjoy my work with bryozoans, and am so grateful to Karen Bille Hansen for her time, enthusiasm and kindness. I will never forget her mentorship. Karen... thank you – Piotr Kuklinski.

Abby Smith. Wanted: Specimens of *Iodictyum* — a tropical to subtropical Pacific reteporiform cheilostome with about 32 species, some of which are bright purple/red/pink (see photo at right by Kevin Tilbrook). I am keen to collect and work on specimens of any colour and any species in this genus — if you have any spare, I'd be delighted to receive them. If you see any while you are out and about collecting, please think of me. Thanks. Abby Smith abby.smith@otago.ac.nz



PhD student, **Jennifer Loxton**, supervised by Dr Piotr Kuklinski (NHM) & Dr Joanne Porter (Heriot-Watt), won one of the three prizes awarded for best posters at the first conference of the Marine Alliance for Science and Technology for Scotland (MASTS). The conference, which was held at the Edinburgh Conference Centre at *Heriot Watt* University from 22nd -

24th August, 2011, promoted the sharing of ideas to further understand the challenges facing Scottish marine environments in the 21st Century. Jennifer's poster entitled "*Biodiversity and Calcification in Scottish Bryozoans and the Potential Implications of Climate Change on these Communities*" highlighted the potential effects of acidification on bryozoans in Scottish waters.

Andrew Ostrovsky has just returned from a 4 week stay with **Aaron O'Dea** and his team (Felix Rodriguez, Santosh Jagadeeshan, Andrew Ugan and Brigida DeGracia) at the Smithsonian Tropical Research Institute in Panama, collecting and sorting Recent cupuladriid bryozoans in the Bocas del Toro archipelago on the Caribbean coast of the Isthmus. The main aim of the trip was to check if the several species of cupuladriids that are found in Bocas reproduce sexually at this time, and compare the mode of their reproduction with related species found along the Pacific coast and studied in 2007 by Andrew and Aaron and published in 2009 and 2010. The trip was very successful (despite a burnt out winch on the second day meaning the bottom sampler had to be hauled up by hand). At one site many hundreds of colonies were found of seven species in just a few square metres - they must have been crawling over each other. Many of the living colonies found were reproducing with embryos, but species differed greatly in the frequency. The SEM (below, right) is of a *C. biporosa* colony with vibracula setae (O'Dea 2009). Apart from this, Andrew also dived at two sites, searching for erect cheilostomes with embryos. The low visibility limited an effective search (so he claims!), although one reproducing colony (probably, *Bicellariella*) was found. This research trip was funded by a Smithsonian Marine Science Network Grant



and the Marine Time-Series Research Group.

EOL Rubenstein Fellow, **Sally Rouse**, will be finishing her fellowship at the NHM towards the end of September. Sally is departing for the *Scottish Association for Marine Science* Institute (SAMS) in Oban, Scotland where she will be starting her PhD on "*Understanding benthic productivity on artificial structures: maximising the benefits of marine renewable energy devices*" supervised by Dr Joanne Porter (Heriot-Watt) and Dr Tom Wilding (SAMS). She will be mainly concentrating on the effects caused by bryozoans on artificial structures over the next four years.

Paul Taylor. I was asked by the Palaeontological Association to write an obituary for Ken McKinney. This has now been published in their Newsletter 77 (pp. 60-61) which can be downloaded from the following site:
<http://www.palass.org/modules.php?name=palaeo&sec=newsletter>

Judy Winston. It has been a busy summer at VMNH. **Peter Hayward** and I saw the final proofs and publication of our USARP bryozoan paper.

We also turned in the final revision of text and figures for “Bryozoans of the Northeast Coast of the US, Maine to Virginia”, the guidebook we have been working on for so long. It should be at the printers by the end of September. It includes more than 100 species and an equal number of plates, about 20 of them color plates and we plan to have it available as print and pdf. More on that when it is published.

Meanwhile, **Leandro Manzonía Vieira**, (shown at right), the University of Sao Paulo PhD student I am co-advising, spent about a month here during his US museum visit. He was able to make very good progress with his research and we worked on several joint projects as well. I really enjoyed having someone here with whom to talk bryozoans. I made less progress on my Portuguese, but hopefully will get back to it this fall, so I can ask questions at his dissertation defense next year!



Richard Stanton Boardman

1923 - 2011



Richard (Rich) Boardman who spent a lifetime researching stenolaemate bryozoans sadly died this July in Florida aged 87.

During World War II Rich was a weather man in the Army Air Corps and afterwards, as beneficiary of the American G. I. Bill, he attended the University of Illinois. His passion for bryozoans was developed during his PhD research on Devonian trepostome Bryozoa of the Hamilton group of New York State. This dissertation was published as a US Geological Survey Professional Paper in 1960.

Rich was first employed as a geologist with the United States Geological Survey for the six years and then as a curator in the Department of Paleobiology in the National Museum of Natural History from 1958 to 1985 in Washington, DC. Rich spent his whole career at the Smithsonian which housed one of the finest Palaeozoic bryozoan collections in the world built up by E. O. Ulrich and R. S. Bassler. Rich said of the Smithsonian that there was “not a grander place to be”. Helen Duncan of the Geological Survey was his first mentor and he overlapped with Raymond Bassler for several years, about whom he loved to recant stories. His favorite one was from when he first started at the Museum and Bassler asked to examine some of his Devonian thin sections to see what he was finding. Bassler took out a x10 hand lens, looked them, and pronounced them most interesting. Rich was curious at this method of examination because a monocular microscope was sitting on his desk. Rich asked, with some trepidation, if he ever used his microscope to look at sections. He answered that every time he used it he saw too many structures that he did not understand (a fact that bryozoan workers often find to be true!). Rich admitted that Bassler was perhaps understating the situation because he had written that describing new species required a microscope; but a hand lens was generally adequate for identifying previously described species. Ulrich was also famous around the Museum for the tongue in cheek expression, “If I can’t see it with a x10 hand lens it doesn’t exist.”

Rich was part of an illustrious group of bryozoan workers at the Smithsonian. He developed a career-long interest in the evolution, mode of growth, functions, and classification of stenolaemate bryozoans. Rich realized that the study of living species was necessary in order to advance the understanding of the fossils. The soft parts of living species revealed much of how the animals grew and functioned, and their relationships with their skeletons. He compared skeletons of living colonies with those of fossil species to reveal new details of their long evolutionary history. Rich introduced new techniques to examine bryozoans in collaboration with students and technicians at the Smithsonian. Living stenolaemate bryozoans were previously studied either as stained soft tissues after dissolution of the skeleton or as a clean skeleton with the soft tissue bleached away. In collaboration with Don Dean he demonstrated that epoxy could be driven into the tissues of modern bryozoans and the thin sections prepared with the tissues attached in life position. For the first time direct observation of the skeletal-soft tissue relationship could be made.

While he was Curator-in-Charge for the Division of Invertebrate Paleontology Rich led a major expansion of the Paleobiology Department. During his last five years in the

Smithsonian he was in charge of the Museum's exhibits committee during the modernization of the Paleontology Halls. In addition to his research on bryozoans Rich also co-edited, and co-authored a volume on animal colonies and a textbook on fossil invertebrates. He was the co-recipient, along with Paul Taylor and Ken McKinney of the Golden Trilobite Award by the Paleontological Society for the best systematic palaeontology monograph of 1992. This is a beautifully illustrated work on the morphology, anatomy, and systematics of the new stenolaemate bryozoan family Cinctiporidae.

Rich was a founding member of the IBA and was present at the Stockholm meeting in 1965 and a member of the first council. The IBA volume from the 2001 Dublin meeting was dedicated to him.

After a career in Washington, Rich moved to Sarasota in Florida for his retirement, but continued to regard bryozoan research as a full time job until just lately when health issues prevented him from continuing. There he also indulged his other passion for sport. I got to know Rich in his later, perhaps mellower, years but he was still intensely passionate about his subject and prepared to fully argue his point of view. There was a sense of achievement if he decided that you were perhaps right. Rich was supported throughout his all career by his wife Phyllis and they provided wonderful hospitality to visiting researchers.

In 1953 the first in the series of the Treatise on Invertebrate Paleontology was published. This was a slim volume on bryozoans authored by Ray Bassler that contained line drawings of all genera. Soon after publication it was realised a revision would be required. In 1983 the first part of the revised Bryozoan treatise was published, which Rich co-ordinated and co-authored; it was a weighty volume dealing with just two orders and with a comprehensive introduction to bryozoans. Trepastome bryozoans, Rich's speciality, were not included in the new edition and he returned to them for his final project. They were to be published together with the fenestrate bryozoans in a volume co-ordinated by Ken McKinney. Ken died just three months before Rich, two great losses to the bryozoan community and it is particularly sad that they did not see the completion of the volume. In time it will be finished and will be a fitting memorial to these eminent bryozoan workers.

Caroline Buttler (adapted from *Palaeontological Association Newsletter*)

Remembering Richard Boardman

Alan Cheetham. Although we had corresponded for several years previously, Richard Boardman and I first met in the spring of 1965 when he appeared in Stockholm to attend the conference I had organized—with the help of Sten Schager—on the post-Paleozoic Bryozoa of the North Sea region. With his lanky frame and closely cropped reddish hair, my Swedish colleagues said they were reminded of John Wayne, and Rich enlivened the conference by firing several pointed questions at us, especially about cheilostome skeletal wall structure, about which we then knew little. As the conference ended, he became one of the 16 founders of the International Bryozoology Association, and for the next six years served as a member of the council. During those years, Rich was a dependable ally, along with Pat Cook, in resisting efforts to make the IBA conferences less broadly open and international (Cheetham, 2002).

After my return to Louisiana State University in the fall of 1965, Rich introduced me to Raymond C. Moore, who had not yet retired as editor of the *Treatise on Invertebrate Paleontology*. Thus began the first of our collaborative projects: revision of *Part G (Bryozoa)* for which Rich had been given the responsibility of organizing its panel of contributing authors.



Enlisting *Treatise* authors was only one of the recruitment efforts that Rich was engaged in during the 1960s. In 1963 the Smithsonian and USGS paleontologists and their collections housed in the 53-year-old National Museum of Natural History moved into much larger quarters in the building's just completed east wing. During the next three years Rich led a correspondingly major expansion of the Department of Paleobiology, newly separated from the mineral scientists in the former Department of Geology, by hiring curators with expertise in unrepresented specialties, especially those likely to be needed for an anticipated influx of fossil material from the newly developing deep sea drilling program. Rich's interests and those of most of the increasing number of students working with him (e.g., John Utgaard, on the right, with Rich in his office in 1963 or 1964, in the photo above) were firmly rooted in the bryozoan orders with Paleozoic representatives. His attendance at the Stockholm conference had confirmed his suspicion that the study of the exclusively post-Paleozoic cheilostomes required an equal commitment to different approaches and study methods. In 1966, I thus became the last of the string of curators hired in the department's expansion.

In our collaborative work, Rich and I soon discovered that our writing styles were sufficiently different that we could rarely agree on how best to express every idea. Then we hit upon a plan whereby each of us would compose a major section of a paper (he on stenolaemates, I on cheilostomes) and then hammer out an introductory section. In most cases, e.g., Boardman and Cheetham (1969) and our chapter in the *Animal Colonies* book (Boardman et al., 1973), our contributions are signed. The “hammering” sessions always took place in Rich’s office, where we would sit for hours, agreeing on wording one sentence at a time; the results would be definitive, because changing even one word might restart the whole process. The sessions that stand out most vividly in my memory are the ones in which Rich, Pat Cook, and I wrote the introductory article for volume 1 of the revised Part G of the *Treatise* (Boardman et al., 1983). When we reached an impasse, one or the other of us would stalk out of Rich’s office, returning in perhaps five or ten minutes with a compromise to suggest, often after the other two had agreed on a not very different one. I’m sure that my writing style was permanently altered by these sessions, as well as by Rich’s reviews of some of my individual manuscripts. Anyone who had a manuscript reviewed by Rich in those days will remember his extensive marginal comments, usually in red pencil, that left very few pages untouched.

One of Rich’s passions was to “bring the study of Bryozoa out of the 19th century.” He had little patience with papers that were all systematic descriptions, with “no interpretive front end,” especially if based on a “typological approach” not allowing for variation in characters, or on a “monothetic approach” arbitrarily selecting a single character as “necessary and sufficient.” Papers on stenolaemates that made insufficient use of sections, in his estimation, were also undeserving of praise. As Rich’s attention and those of some of his students turned toward cyclostomes, especially those with living representatives, as a model for understanding stenolaemate growth, he became a user of part of the collection that had been my curatorial responsibility, and he strongly disagreed with my feeling that sectioning type specimens is a form of destructive testing, one which in most circumstances, however, is certainly justifiable.

Rich was proud of the work of all his students, work that met his stringent criteria of praiseworthiness. When he thought their ideas had been used by others without acknowledgment, he was unafraid to confront anyone, regardless of position or reputation. His post-docs included Dan Blake and Ken McKinney, as well as John Utgaard. Ozzie Nye, Raman Singh, Gary Gautier, and Bob Hinds all completed their dissertation research working with Rich at the museum. The department’s embedding and sectioning equipment got a real workout, under Don Dean’s watchful eyes. After Rich retired, he persuaded me to sponsor the dissertation research at the museum of a young man named Marcus Key, his last student.

Rich’s and my collaborative work ended with the publication of the *Fossil Invertebrates* textbook (Boardman et al., 1987), two years after he retired and left Washington. The last time we saw each other was in 2001 at the Dublin IBA meeting. During Marge’s and my visits with Rich and Phyllis during the meeting, Rich told me of two of his regrets. One was that he had finally been able to figure out how morphometric work might be done on the trepostomes, but only after the years he had spent on the cyclostomes. Perhaps some of those who worked with him during those years will find a way to carry forward this aspect of his legacy. Rich’s second regret was the five years of research time that he had devoted to editing *Fossil Invertebrates*—time that he could have instead spent on completing work on the *Treatise*. The textbook’s reception was a great disappointment to Rich; its intended niche had largely disappeared because of the major changes in university curricula made during that period.

Reflecting on my own career, I see that it was divided into three periods, one before and one after a two-decade-long period during which Rich and I remained close associates and friends in spite of a bump or two along the road of collaborative research. I like to think that our association matured my own thinking significantly.

In dedicating the proceedings of the Twelfth International Bryozoology Association Conference to Rich (Wyse Jackson, et al., 2002), the editors concluded their tribute by stating, “There is much to celebrate in the focus, quality, and timeliness of Rich’s research ... as well as his service to

palaeontology as co-editor of additional books aimed at a broad audience of palaeontologists and students." I concur wholeheartedly in this well-deserved praise.

Thanks to JoAnn Sanner for the photograph.

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From Dennis Gordon

I first met Rich at the Durham IBA conference in England in 1971, when I was a young and naive New Zealand student doing my PhD in Nova Scotia. Of course, Rich's name was already well known to me and it was great meeting him and Alan Cheetham and all the others from that era at the meeting. I remember Rich as a gentleman, and very encouraging to me as a new recruit to the profession. I subsequently visited the US Natural History Museum in Washington, possibly the following summer, and was very impressed with the set-up there, especially for obtaining thin, stained preparations of soft tissues and skeletons.

Some years later, after I had returned to New Zealand and with the thin-section technique in mind, I sent him some glutaraldehyde-preserved specimens of a very remarkable cyclostome bryozoan - *Cinctipora elegans*, a large-zooid taxon that is endemic to our part of the world. Rich's work on this species formed a significant part of a superb publication on the Cinctiporidae in 1992, coauthored by Ken McKinney and Paul Taylor, which won a Golden Trilobite award. Rich sent me a signed copy of the publication, noting: "This is what you started. Thanks so much." It was gratifying to see those specimens put to such fruitful use.

I saw Rich a number of times at the various meetings over the years, most recently in Dublin in 2001. His work was always of the highest standard and his passing is a big loss to the 'bryozoan family'. The continuation of his work on the trepostome *Treatise* until very recently will ensure that his legacy continues well into the 21st century.

From Robin Wass. It is often said that behind every successful man is a wonderful woman and that applies to Rich and Phyllis Boardman who I had the pleasure of knowing for over 4 decades.

The following comments have little to do science. With their love of good food and wine, I casually stated during one short stay with them in Florida that I always had boned and stuffed turkey at one celebratory meal every year. There was immediate interest in this with a flurry of activity including a scramble around Sarasota late that evening finding a suitable bird to bone the next day. Phyllis was shown how to and successfully boned part of the turkey. Many months later they advised me that family and friends demanded this dish be served at every forthcoming Thanksgiving dinner.



Photo at right shows Rich Boardman with Pat Cook.

Rich and I had a love of sport and played, or should I say competed at, golf and tennis over many years. Golf courses in Florida are large expanses of water separated by narrow grassy fairways, often frequented by alligators. Being familiar with Aussie and African crocodiles made me very apprehensive and in a short time, much to the delight of Rich, I found my little white ball close to one of these monsters. As I left the cart, it was obviously more frightened of me and took a swim but then I couldn't see him. My next few strokes were awful as I tried to overcome my nervous tension and the peals of laughter from the golf cart.

A few years ago I had a birthday in Brisbane during my 16 days in intensive care due to major heart problems including an irregular heart beat. I have fully recovered. Some 10 weeks later I was allowed to return home and found a letter from Phyllis and Rich to say they had lost one of their sons to the very same problem. He passed away on my birthday. You never forget that.

I am so grateful to have worked with both Ken McKinney and Rich Boardman. We will always be richer because of their magnificent achievements and I am pleased to see that so many more people are now advancing the study of Bryozoa.

I may not have worked on Bryozoa for a long time but I still remember the pleasure I received from meeting fellow workers all over the world. In the early part of last year I was tracked down by two students, now married, from 1st year in 1965. They own a few wineries and wanted me to help them with a display of fossils at one winery close to their home. The rocks are Permian, occur all over the area and are dominated by erect and fenestrate Bryozoa. Speaking to me over a couple of days, they remarked how complex these organisms were, had a much better idea of how to study them and proudly showed me their prac books from 2nd year palaeontology with diagrams on Permian Bryozoa as I had lectured them during my doctorate years.

From Caroline Buttler. I first met Rich at the 1985 IBA meeting in Bellingham. I was in the first year of my PhD and he was in his retirement year. He walked up to my poster and I nervously asked this eminent bryozoologist if he thought the identifications were right. He took a few minutes to look, pronounced that they seemed ok and moved on. The next time we met was at the Dublin IBA when I stopped to read his poster and this time Rich asked what I thought. We got talking and then had a number of conversations during the course of the meeting. On the last day at the very end he called me over and asked if I would like to help with the trepostome revision of the treatise. It has been fun working on it and I have had hugely enjoyable visits to Florida to stay with him and Phyllis. In breaks from work I picked grapefruit and swam in their pool. It was very sad to hear the news of his death

especially because my last visit was only in April this year. It was then that Rich decided that his health would not let him continue with the Treatise. He remained passionate about project and I hope reassured that it would be completed.

From Piero Braga. Here included you can find a photo of Rich and me, which is very dear to me. It is a little faded, considering it was taken precisely 40 years ago. We met during the Second IBA Conference at Durham (1971), when an antiquity expert guide has taken us to visit the very interesting remnants of the Hadrian's Wall. Rich and I menacingly disposed ourselves on the opposite sides of the wall: I was representing the "conquerer" Roman Empire and Rich was the anglo-saxon "defender".



SCUBA Diving in the Antarctic to Investigate Bryozoan Mineralogy



View from Rothera field station ©D.Barnes

Links

- www.sls.hw.ac.uk
- www.cmbb.hw.ac.uk
- www.antarctica.ac.uk
- www.nhm.ac.uk
- www.masts.ac.uk

IBA member Jennifer Loxton was recently awarded funding from the BAS Collaborative Gearing Scheme and the Heriot Watt Alumni fund to support a project investigating the effects of climate change in Antarctica on bryozoan skeletons. The project is a collaboration between scientists from Heriot-Watt University, the Natural History Museum (NHM), and the British Antarctic Survey (BAS) and will form a part of Jennifer's PhD studies.

Jennifer will join scientists from the British Antarctic Survey (BAS) on an expedition to the Antarctic Peninsula, to spend 6 weeks SCUBA diving in Jan/Feb 2012. During this time she will be examining and collecting bryozoans in order to carry out experiments which will enable future monitoring of the effects of ocean acidification and climate change on their calcium carbonate skeletons.



Jennifer diving in the Arctic 2010 ©P.Kuklinski

Climate change in Antarctica

Since the industrial revolution the increase in atmospheric CO₂ released from the burning of fossil fuels has had wide ranging climatic impacts worldwide. Climate change has been particularly significant for the marine environment where the rise in atmospheric CO₂ has led to an increase in sea temperature and an increase in oceanic acidification. "The West Antarctic Peninsula region around Rothera Research Station has amongst the fastest warming air and sea temperatures on Earth and is a global hotspot for sea ice loss" explains one of the project scientists Dr David Barnes from the British Antarctic Survey. "Due to its unique chemical composition the effects of carbon dioxide in the Southern Ocean are amplified compared to the rest of the world's seas. Scientists predict that in as few as twenty years ocean acidification may have changed the chemistry of the Southern Ocean to the extent that it will be inhospitable for some calcifying organisms."

The marine invertebrates chosen for this study are tiny marine animals called bryozoans; these filter feeders live together in colonies and build intricate and chemically complex calcium carbonate skeletons. Bryozoans are of interest to scientists studying climate change as it is reported that they are able to vary the composition of the calcium carbonate as a response to changing conditions in the water they live in. However in addition to environmental influence on mineralogy it is suspected that mineralogy is also under a level of biological control by the organism itself. Jennifer will be analysing the skeletons of three of the most common Antarctic species in order to understand the patterns of this biological mineralogical variation and thus establish a baseline of this "vital effect". Understanding the patterns of this variation will allow us in the future to monitor for change beyond this natural baseline and therefore gauge the actual effects of climate change on Antarctic animals.

Diving in the Southern Sea

Animals such as bryozoans, with their small size and fragile skeletons, are best retrieved from the seabed by hand. However, diving in the waters of the Southern Sea is not something to be taken lightly. “Antarctic diving poses many interesting challenges because the sea surface freezes and the water temperature at Rothera is below -1 C most of the year and rarely reaches +1 C.” explains Dr David Barnes (BAS). “Weather, such as high wind speeds, icebergs scouring the seabed, leopard seals and killer whales also mean much care is required as well as specialised training and kit”

Even with these extreme environmental conditions the Southern Sea is far from barren; Divers are often visited on the surface by Minke whales and underwater are an object of fascination for curious fur seals during the summer months. The seabed in the shallows is dominated by filter feeders such as sea cucumbers and these in turn are preyed on by gigantic predatory ribbon-worms. Sea animals which are often tiny and diminutive in warmer waters can grow to monstrous and daunting sizes in the Antarctic.

Despite the many challenges, SCUBA diving is crucial to answer many questions about how the physical environment is changing in the Antarctic shallows and how life is responding to these changes and Jennifer is ready to jump in.



Ice diving

©D.Barnes



Curious fur seal

©D.Barnes

Collaborators

The Antarctic expedition will be undertaken with BAS and funded from the Natural Environment Research Council (NERC) Collaborative Gearing Scheme. The project has been granted additional equipment funding from Heriot-Watt Alumni Fund. Jennifer's PhD and this Antarctic trip are sponsored by Apeks, O'Three and the Caitlin Group

The research forms part of Jennifer Loxton's doctoral thesis (funded by the Marine Alliance for Science and Technology Scotland (MASTS) and Heriot-Watt University).

Scientists supervising Jennifer's PhD project are:

- Dr. Joanne Porter - Heriot-Watt University, School of Life Sciences
- Dr Phil Cowie - UMBS, Millport
- Dr. Piotr Kuklinski - Natural History Museum, London and IOPAN, Poland
- Mary Spencer Jones – Natural History Museum, London
- Prof. James Mair – Heriot-Watt University, School of Life Sciences

Further information

Follow Jennifer on twitter @jenloxtan

Jennifer Loxton's blog will be available from Dec 2011 at www.nhm.ac.uk

Eduard Rüppell: A World without Bryozoans

Eliza Winston & Joachim Scholz

Eduard Rüppell was born in Frankfurt on November 20, 1794, and became one of the founding members of the Senckenberg Nature Research Society (November 22, 1817). As a son of a merchant, he was destined to follow his father's example, but a foreign expedition permanently altered his career path. He traveled to Egypt, and the experience made him decide to become a researcher, collector and explorer instead (1817).

Rüppell is best remembered for two pioneering expeditions to Egypt, the Sinai, Nubia (Sudan) and Abessinia (Ethiopia) from 1822 to 1828, and 1830 to 1834. The specimens, written observations and drawings he brought back helped contribute to much of the museum's founding collections. His final years were dedicated to his collection of coins, and numismatic research. He died on December 10, 1884.

Unlike many of his contemporaries in cities such as Berlin, Rüppell was entirely self-funded and not a state employee. He financed his explorations, and then donated nearly everything he collected back to the Senckenberg museum, to the city library, and to the History Museum in Frankfurt. The specimens he collected were displayed in the museum(s) for the benefit of Frankfurt citizens. For many, it was the first time they saw animals such as a dugong, a hippo, or a giraffe.

Much of Rüppell's collection is still intact today, and the surviving collections are now kept in various parts of the museum's storage areas. As a valuable part of the museum's history, his specimens are carefully preserved, and a select few remain on display in the museum for Frankfurt residents and visitors.

Rüppell is considered one of the great pioneers of European knowledge of nature and culture in Egypt, Sudan and Ethiopia. He contributed to Biodiversity research, describing many new species of crustaceans, fish, birds, mammals and other taxa. But he did not stop at biodiversity, he also contributed greatly to the history research in Egypt and Ethiopia – in fact just this year, two volumes of his chronicles of Abessinia were re-discovered.



Figure 1. Today Rüppell's collection of fish from northern Africa and Arabia represents the core of the ichthyological collections in the Senckenberg. More than 1600 Rüppell specimens, many of them published by Rüppell himself, are kept in this one, and in a neighboring compartment.

Last May, Rüppell's outstanding historic scientific collection of the Senckenberg Research Institute came out of the drawer and into the spotlight. During the month of May 2011, journalist and graphic designer Eliza Winston traveled to Frankfurt am Main in Germany and to the Senckenberg Museum of Natural History in order to explore the collections of Eduard Rüppell. The travel was supported by a grant of the Senckenberg Nature Research Society.

Like Rüppell, Winston was also exploring, but she was hunting for the highlights of his historic collection. However, unlike Rüppell, she used a camera to shoot the specimens, and left them intact in the museum.

Growing up as the daughter of scientist Dr. Judith Winston, she spent a lot of time in museums and eventually developed a passion for the history of collecting. She is especially interested in European museums that have a rich history, such as Senckenberg. Winston became interested in Rüppell because he and his fellow Frankfurt naturalists were unique in the museum world, both then and now.

Winston, with the help of Joachim Scholz, sought out different specimens from Rüppell's collection and photographed them. They were greatly aided by knowledgeable scientists and collections managers at Senckenberg.

After the individual specimens have been selected, the staff photographer at Senckenberg will take photos of each specimen to be published in a book edited by Winston. The book will provide photos, historical background and commentary from contemporary experts on Rüppell's travels, collections and legacy. It will be the first monographical contribution on Rueppel in English language.

When Rüppell traveled, he almost never turned away from a potential specimen, but avoiding bryozoans. Why did he collect corals, ascidians, sponges, even tiny specimens, but apparently no “zoophytes”? At the present stage in the development of Winston's study, one can only speculate. But his lack of bryozoan species might stem from a bitter rivalry with Christian Gottfried Ehrenberg, mentioned numerous times in the only existing biographical book about Rüppell, written in German language (Robert Mertens, 1949: Eduard Rüppell. Leben und Werk eines Forschungsreisenden. Verlag Waldemar Kramer, 388 pages).

Ehrenberg was born only 5 months after Rüppell, on April 19th, 1795, in Delitzsch, a small township near Leipzig in Saxonia. He joined a scientific expedition to Africa and Sinai from 1820 to 1826. Struck by disaster, the few survivors of the Ehrenberg expedition met Eduard Rüppell in Kairo 1825. Rüppell hired the painter, and the hunter of the Ehrenberg expedition for his own tasks. Perhaps this planted the seed of a bitter rivalry between two huge silverbacks of the Middle East biodiversity research.

Could it be possible that Rüppell avoided bryozoans because of the interest Ehrenberg developing in such tiny gritters (like wolfes of the Amur region avoiding the scent of a tiger)? Further research may have the answer, or it may remain lost to history. Meanwhile, we are left with the Rueppell collections, and our great admiration for his monumental legacy. This admiration has been shared by many others, demonstrated by the fact that about 80 species of plants and animals (maybe more) have been named after Rüppell.



Every help is welcome. Please send to Eliza a note if you know about Rüppell specimens in the collections of your institution, as he traded many specimens with other museums. (contact: eliza.winston@gmail.com).

Figure 2: Too bad, that's not a bryozoan: Eliza inspects the Ascidian species *Phallusiopsis nigra* Savigny 1816) (now: genus *Phallusia*) collected by Rüppell.

An unusual bisinuate orifice in *Schizoporella errata* from the Red Sea

Noga Sokolover and Paul Taylor nogasoko@gmail.com

While scanning specimens of the common cheilostome *Schizoporella errata* as part of a SYNTHESYS project, we discovered an unusual bisinuate orifice.

Species of *Schizoporella* have a characteristic orifice with a proximal sinus and paired condyles (Figure 1). In the unusual example shown in Figures 2 and 3, two sinuses exist, located at opposite ends of the orifice. Each sinus is accompanied by a pair of condyles, and both are narrower than usual for this species. Unfortunately, the specimen was bleached prior to the discovery of this bisinuate orifice and we do not know whether it accommodated one or two opercula and, if the latter, how they interacted. A third possibility is that there was no operculum at all.

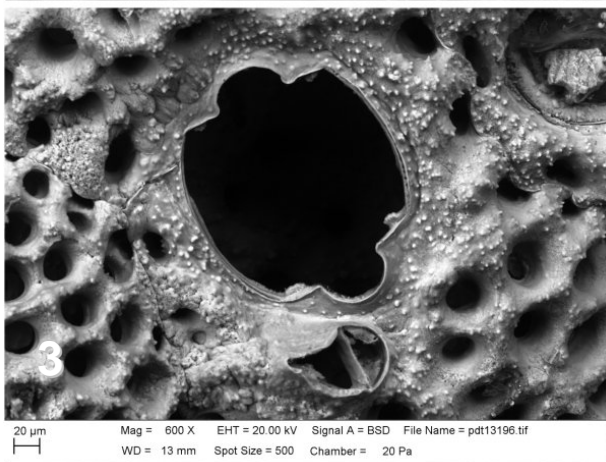
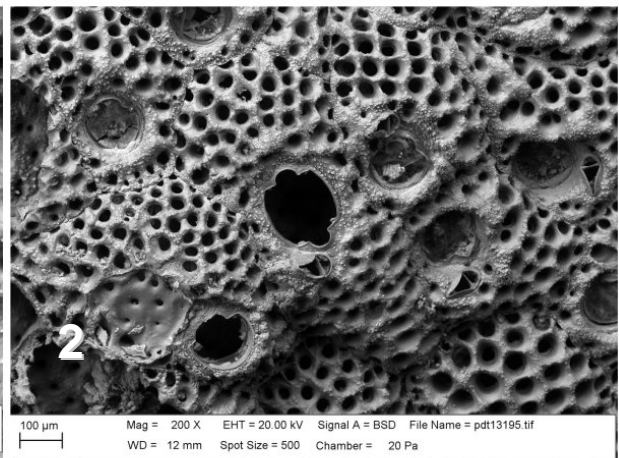
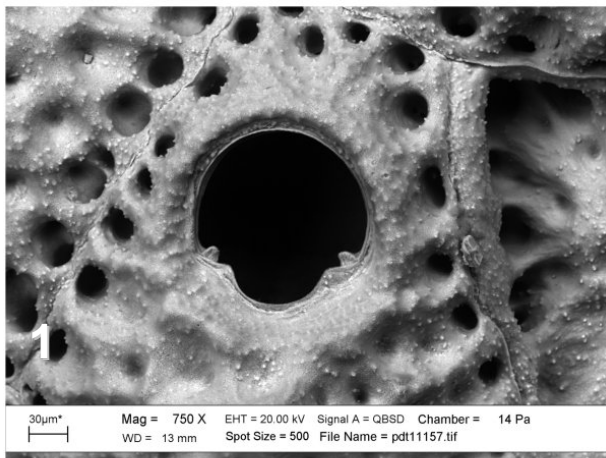


Figure 1: *Schizoporella errata* characteristic orifice.

Figure 2: Zooid of *S. errata* with bisinuate orifice.

Figure 3: Details of bisinuate orifice in *S. errata*.

It seems likely that the double orifice resulted from skeletal fusion between two frontally budded zooids, each zooid having its own polypide but sharing the same orifice. However, the edges of the orifice appear smooth and a line of fusion is not clearly visible.

Comparable abnormalities in various anascan cheilostomes were reported by Jebram & Voigt (1977) and Jebram (1978), and in the ascophoran *Cryptosula pallasiana* by Jebram (1977). Similarities are also evident between the peculiar orifice of our specimen of *S. errata* and the 'bilunar zooecia' described in the Permian cystoporate *Fistulipora elegantula* by Gorjunova (2005).

We would value any comments or examples of similar orifices in *S. errata* or other ascophorans.

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Treasurer's Report

Since 1 July 2010, the IBA has received donations totaling \$4440 NZD (which is \$2634 Euros or \$3722 USD), all of which can be used for travel awards to our next conference in Catania. Applications for travel awards will be called for next June; it would be great if we had more to give away. If you wish to donate to the IBA travel awards, information and a form can be downloaded from here: <http://bryozoa.net/iba/membership.html> and sent to abby.smith@otago.ac.nz.

Bryozoan Bookstall:

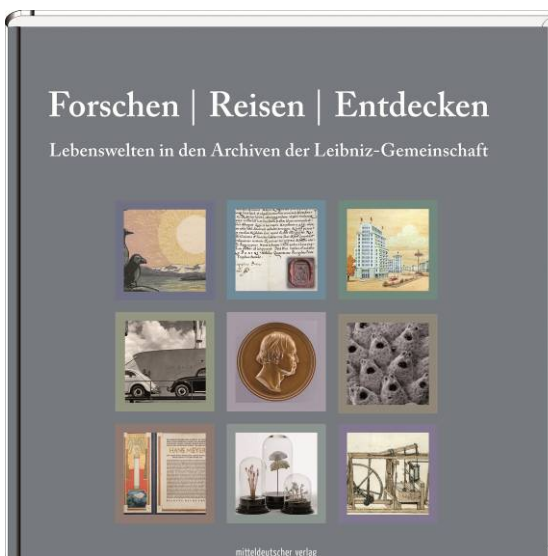
Professor Voigt's famous Bryozoan Choir *Murinopsia francqana* (d'Orb.) shown as an accessory frame encruster settling on an unlikely substrate.

Joachim Scholz

As pointed out by Roger Cuffey in his remarkable 1970's series of articles on reef bryozoans and bryozoan reefs, Bryozoa as a group are ecologically more tolerant than Anthozoa. Recently, and unlike the Anthozoa, they encrusted a book cover, facing Christian Gottfried Ehrenberg in the center who gave the scientific name to both. Ehrenberg, by the way, is illustrated in bronze, casted into a medal that is part of the archive collection of the Senckenberg Nature Research Society.

Yet, the book is neither a journal cover, nor does it fall into the category of the "bryozoan book stall" in a stricter sense, since it is not really a book on bryozoans. It is a multi-author contribution on the several archives of the "Leibniz Association".

The Leibniz Association comprises 87 institutions conducting application-oriented basic research and providing scientific infrastructure. In total, around 16,800 people work for Leibniz institutions – including 7800 scientists and researchers (cited from: www.wgl.de). The archive working group (AK Archive) of the Leibniz foundation is concerned with documenting the national academic significance and histories of the Leibniz Association in all its diversity. In order to promote the public image of the archives, the respective book has been prepared.



In the Senckenberg Nature Research Society, the legacy of Professor Voigt is represented not only by his huge bryozoan collection, but also by his letters, correspondences, photographs, and manuscripts since he was influential in the German geoscience community. On January 14, 1995, E. Voigt became a corresponding member of our society, but the first of his letters we keep in our archives (not regarding the arrival of his inherited collection and notes in 2005) dates back to the year 1937. As early as 1970 (as I found out only recently while updating the archive's inventory), E. Voigt was suggesting the transfer of his bryozoan collection, writing to Wilhelm Schäfer, Priska Schäfer's father and director to the Senckenberg at that period of time. More than 25 years later, Gero Hillmer mediated in the actual transfer of the collection from Hamburg to Frankfurt.

Accordingly, Professor Voigt (accompanied by one of his favourite bryozoans) entered a book quite far away from bryozoology, written in German and published on Sept. 15, 2011:

Forschen, reisen, entdecken

Lebenswelten in den Archiven der Leibniz-Gemeinschaft

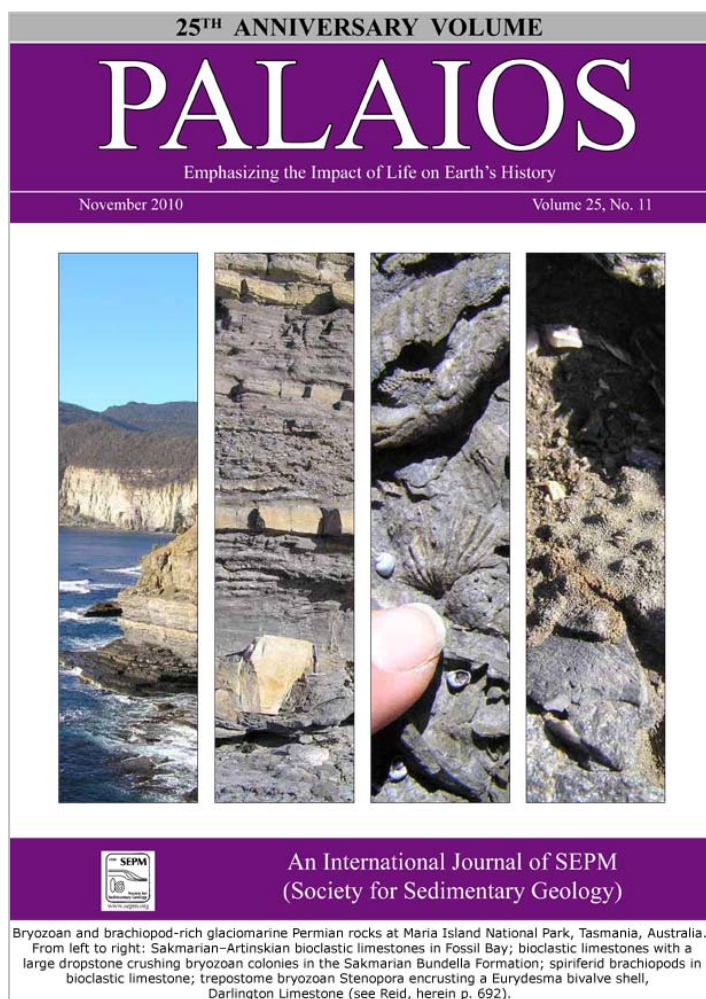
Edited by Brogiato, Heinz Peter / Kiedel, Klaus-Peter

Publisher: Mitteldeutscher Verlag

ISBN : 978-3-89812-821-6

176 pages 22 € (price within Germany)

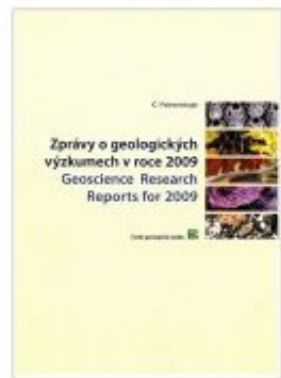
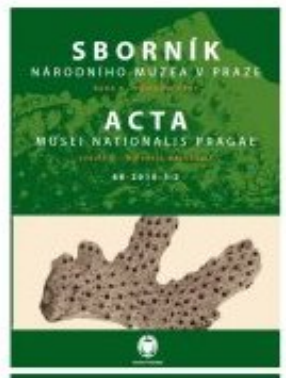
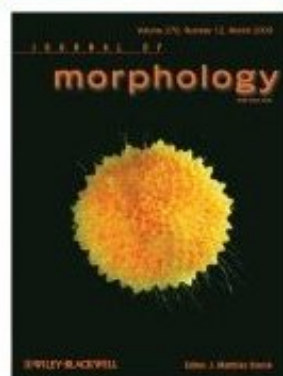
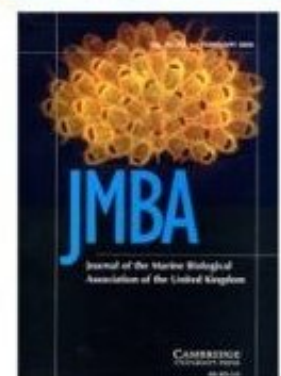
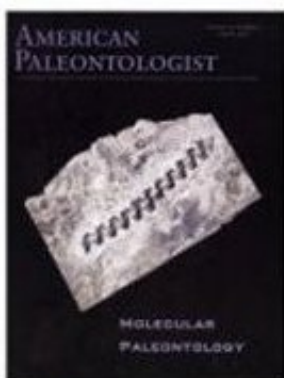
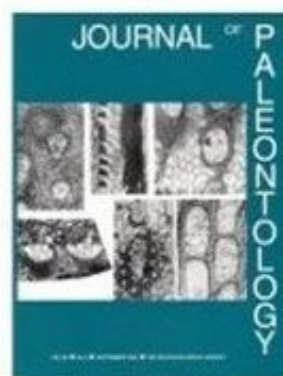
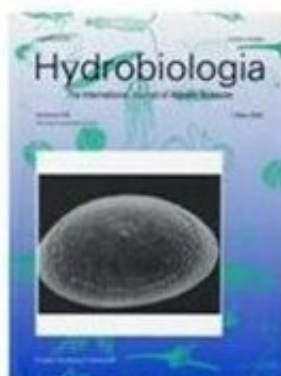
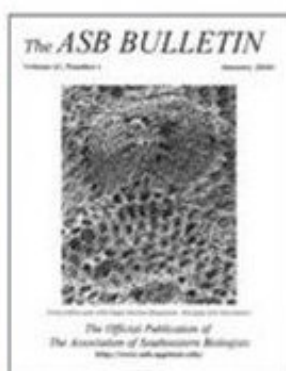
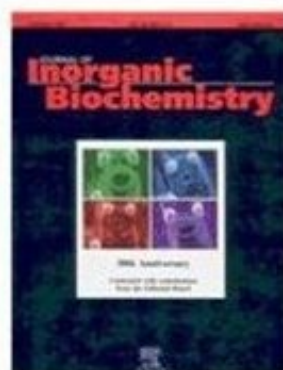
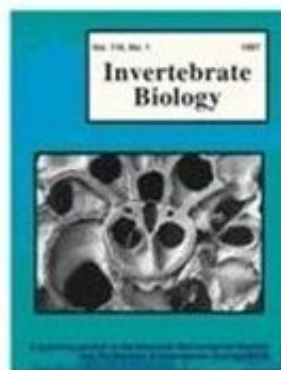
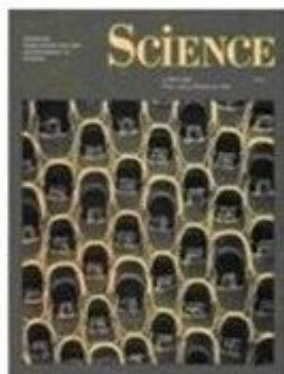
Journal Covers



The cover photo appearing here accompanied a 2010 article by Catherine Reid: "Environmental controls on the distribution of Late Paleozoic bryozoan colony morphotypes: An example from the Permian of Tasmania, Australia." *Palaaios*, vol 25 p.692-702.

The legend reads, "Bryozoan and brachiopod-rich glaciomarine Permian rocks at Maria Island National Park, Tasmania, Australia. From left to right: Sakmarian-Artinskian bioclastic limestones in Fossil Bay; bioclastic limestones with a large dropstone crushing bryozoan colonies in the Sakmarian Bundella Formation; spiriferid brachiopods in bioclastic limestone; trepostome bryozoan *Stenopora* encrusting a *Eurydesma* bivalve shell, Darlington Limestone.

Previous journal covers featuring bryozoans are shown on the next page.



Upcoming Meetings and Conferences

Bryozoology

11th Annual Larwood Meeting
31 May to 3 June 2012
Masaryk University, Brno, Czech Republic
Hosts: Kamil Zagorsěk and Tereza Tomašítková

Annual Australarwood Meeting
17 July 2012
Museum of Tropical Queensland, Townsville, QLD, Australia
Information: kevin.tilbrook@qm.qld.gov.au.

16th IBA Conference
10-15 June, 2013, Catania, Italy
(Website not yet announced)

Paleontology

American Geophysical Union
2011 Fall Meeting
5-9 December, 2011, San Francisco, CA.
<http://www.agu.org/meetings/>

American Geophysical Union
2010 Ocean Sciences Meeting
20-24 February 2012, Salt Lake City, Utah USA

The Palaeontological Association
55th Annual Meeting 2011
17-20 December 2011, University of Plymouth
http://www.palass.org/modules.php?name=annual_meeting&page=19

Tenth North American Paleontological Convention
Summer, 2013, (Venue not yet announced)

Geological Society of America Annual Meeting
9-12 October 2011, Minneapolis, Minnesota USA
<http://www.geosociety.org/meetings/2011/>

Biology

Aquatic Invasive Species, 18th International Conference,
(Not yet announced)
http://www.icaiss.org/pdf/1st_annc_17th.pdf

12th International Coral Reef Symposium

July 9-13, 2012, Cairns, Australia.

<http://www.coralcoe.org.au/icrs2012/NewsCoral2012/CoralNews.htm>

Ecological Society of America, 97th Annual Meeting

August 5-10, 2012, in Portland, OR

<http://www.esa.org/portland/>

International Society of Limnology

Various meetings and workshops

<http://www.limnology.org/links.shtml#meetings>

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.

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