International Bryozoology Association

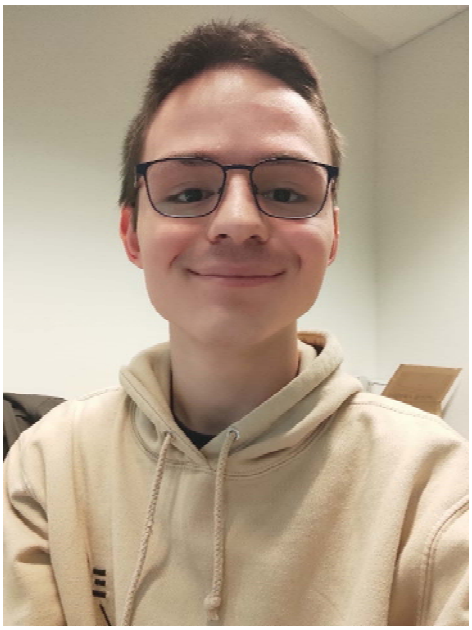
Bulletin

Volume 19 Number 1 March 2023

Caroline Butler, President
Catherine Reid, Secretary
Abigail Smith, Treasurer
ISSN 1941-7918

Comments regarding this Bulletin should be addressed to the IBA Secretary: catherine.reid@canterbury.ac.nz
Copies of the Bulletin are archived at the Natural History Museum London.
Further information at http://www.bryozoa.net/iba/index.html

NEW MEMBERS



Alexis Cavalier - I am a student in the Master "Systematics, Evolution, Paleontology" at the National Museum of Natural History in Paris. Collecting bryozoan fossils for a few years, I discovered their wonderful world last year thanks to Loïc Villier and Paul Taylor. After having worked last year on the systematics of some bryozoans from the Cretaceous of Charentes (France), my search now focuses on the paleobiodiversity of the Bathonian bryozoans of Calvados (France).

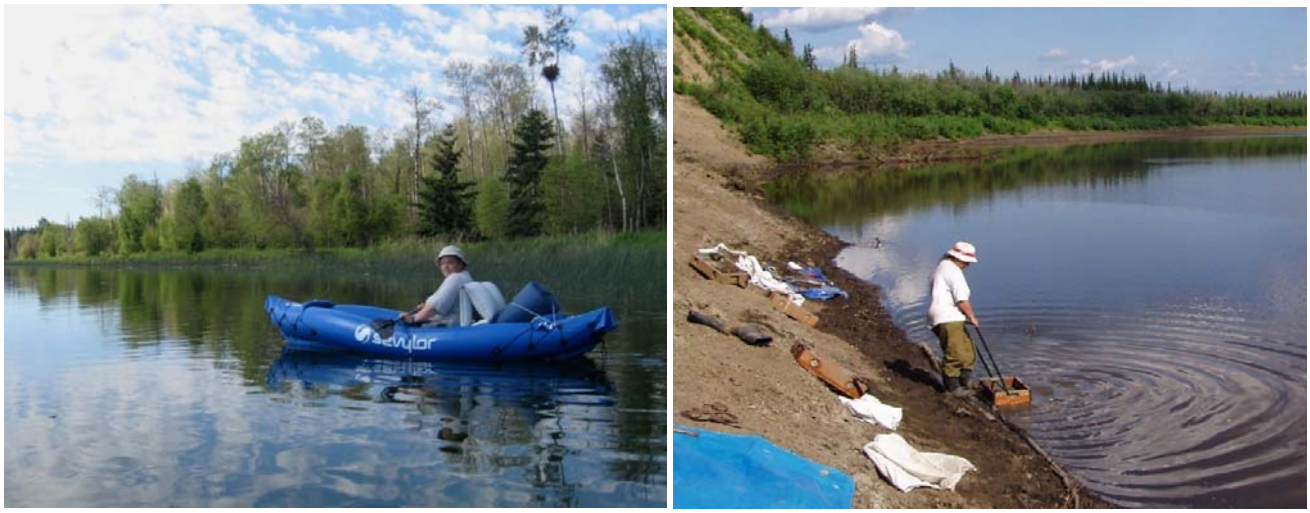
Best regards, Alex

Svetlana Alexandrovina Kuzmina - Candidate of Biological Sciences (Ph.D.), entomologist, paleontologist, hydrobiologist. She was born on August 26, 1961 in Moscow (Russia, then the Soviet Union), studied at school No. 144 until 8th grade, 9th and 10th grades studied at school No. 57, in a class with an in-depth study of biology. I dreamed of studying insects from early childhood, tried after school to enter the biology faculty of Lomonosov Moscow State University (MSU Biofac), but did not pass the competition, worked as a laboratory assistant at the Moscow Institute of Microbiology and Immunology for a year, then again tried to enter the MSU biofac and again failed. She joined the Russian State Agrarian University named after K.A.Timiryazev (Moscow Agricultural Academy; Timiryazev Academy), the Department of Plant Protection with the aim of becoming an entomologist. In 1980, she entered the Moscow State University Faculty of Geology, Department of Paleontology. From 1980 to 1985, she studied at the Department of Paleontology, did her first term paper on the Cretaceous rectoptera of Transbaikalia, the second term paper and diploma were written on quaternary insects (mainly coleoptera) of the Kolyma Lowland. After graduating from the university with honors (with a red diploma), she worked at the Department of Paleontology as a senior laboratory assistant. During the years of economic difficulties, she was forced to leave the university. From 1993 to 2000, she worked in institutions of additional education, where she led paleontology circles, was in charge of the school museum, organized tourist work with schoolchildren. In addition, she worked in the funds of the V.I. Vernadsky Geological Museum, compiled a catalog of paleontological collections. In 1998, she entered the correspondence postgraduate course of the Paleontological Institute of the Russian Academy of Sciences (PIN RAS), went on a Russian-German expedition to the north of Yakutia. For some time she lived and worked in Germany. She prepared a PhD thesis "Late Cenozoic insects of the coastal lowlands of Yakutia", defended in 2001 (Candidate of Biological Sciences). Since 2002, she has worked at the Arthropod PIN Laboratory as a senior researcher. In 2003, she participated in an expedition to Alaska. In 2004, she left for the UK to study postdoctoral studies at University College London in Egham, where she studied the quaternary insects of Alaska under the supervision of Professor Scott Elis. In 2007, she moved to Edmonton, Canada, as a postdoctoral fellow at the University of Alberta. There she continued to study quaternary insects of Alaska and Yukon, which was a continuation of the study of insects of the Northeast of Siberia, since in the Pleistocene these areas were part of the single continent of Beringia. In 2012, the contract with the University of Alberta ended, a period of temporary contracts began, among which the longest and most productive was cooperation with the Museum of the Ice Age in Moscow. Since 2019, he has been working in PIN RAS senior researcher. S.A.Kuzmina conducted and conducts field work mainly in the north (Northeast of Eurasia and North America). She collected fossils and modern insects (as well as other hydrobionts and

near-water invertebrates) in the Kolyma and Yano-Indigir lowlands (the North Pole of Cold), the Lena Delta, the Novosibirsk Islands, Chukotka, Central Yakutia, the Yukon River Valley, northern Alaska (the Northern Slope and the Seward Peninsula), the Klondike gold mines, in the valley of the Old Cro River. In 2020, trips to the sections in central Russia were added to the north, and material from archaeological sites began to arrive. She has published about 100 scientific papers, including a monograph; she has co-authored several methodological manuals for schoolchildren, including a popular manual on the definition of the fossil fauna of the Moscow region. Actively engaged in nature conservation and popularization of scientific knowledge. She is a member of the Board of the Amphibian and Rept Conservation Society of Alberta (Canada). He is fond of traveling (in Canada, the west of the USA, Northeast Eurasia), photographing nature, keeps pets (insects, fish, amphibians, reptiles). Currently located in Yukon (Canada).

When S.A.Kuzmina a few years ago was looking for a specialist to determine the fossil statoblasts found by her, Doctor of Biological Sciences L.A.Viskova from the Paleontological Institute of the Russian Academy of Sciences recommended her to turn, of course, to A.V.Vinogradov as the largest specialist in Russia on Phylactolaemata and Bryozoa of continental reservoirs and the only specialist on fossil Phylactolaemata and Bryozoa of continental reservoirs. Our cooperation with S.A.Kuzmina turned out to be very effective and fruitful.

S.A.Kuzmina is a modest person, she does not like to talk about difficulties in expeditions, considers them quite natural, is shy to say that the search for fossil statoblasts and other hydrobionts is a very difficult matter. But sometimes she told me details: "And fires happen there every year. On Vilyui [in Yakutia] we were in September, it's not hot anymore, it's even cold, but there was an incredible number of midges, just abnormal. They clogged in the nose, eyes, ears, we could only eat in the morning when it was still cold and in the evening when it was already cold, because once the mesh was removed, all the nostrils were clogged with midges. I had to drink through the net. All my samples are full of midges that have fallen off me. The clothes were sticky from their crushed bodies. You put your foot in a sock in a boot, and then you have to wash the sock from the pressed midges, they manage to sit down in an even layer without gaps so that the fabric is not visible. And they don't all choke inside the boot, but begin to crawl over the body. In general, the conditions of fossil statoblasts were terrible. I worked for a month on the Undulung River, then a break in Yakutsk, then a week-long trip to the Lena River near the village of Bulgunyakhtakh, then Yakutsk again and in the final a week-long trip to Vilyu. They lived in tents, moved around on inflatable boats with a motor (letter to A.V.Vinogradov dated November 2, 2021). But still S.A.Kuzmina is in love with the nature of Beringia and with science.



Left - on Jackson Lake, Alberta, Canada. Right- On the Old Crow River (Yukon, Canada). The process of rock washing in the search for fossil insects is shown. Photo from the archive of S.A.Kuzmina.

Reference: Vinogradov A.V., Kuzmina S.A. Cenozoic Phylactolaemata and Eurystomata of north-east of Eurasia and north of America. Modern and fossil. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 p. The book is dedicated to the paleoentomologist and paleolimnologist A.P.Rasnitsyn. In Russian. [Виноградов А.В., Кузьмина С.А. Кайнозойские Phylactolaemata и Eurystomata северо-востока Евразии и севера Америки. Современные и ископаемые. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 с. Книга посвящена палеоэнтомологу и палеолимнологу А.П.Расницыну].

Submitted by A.V. Vinogradov (Russia, Samara)

CLASSIFIED ADS

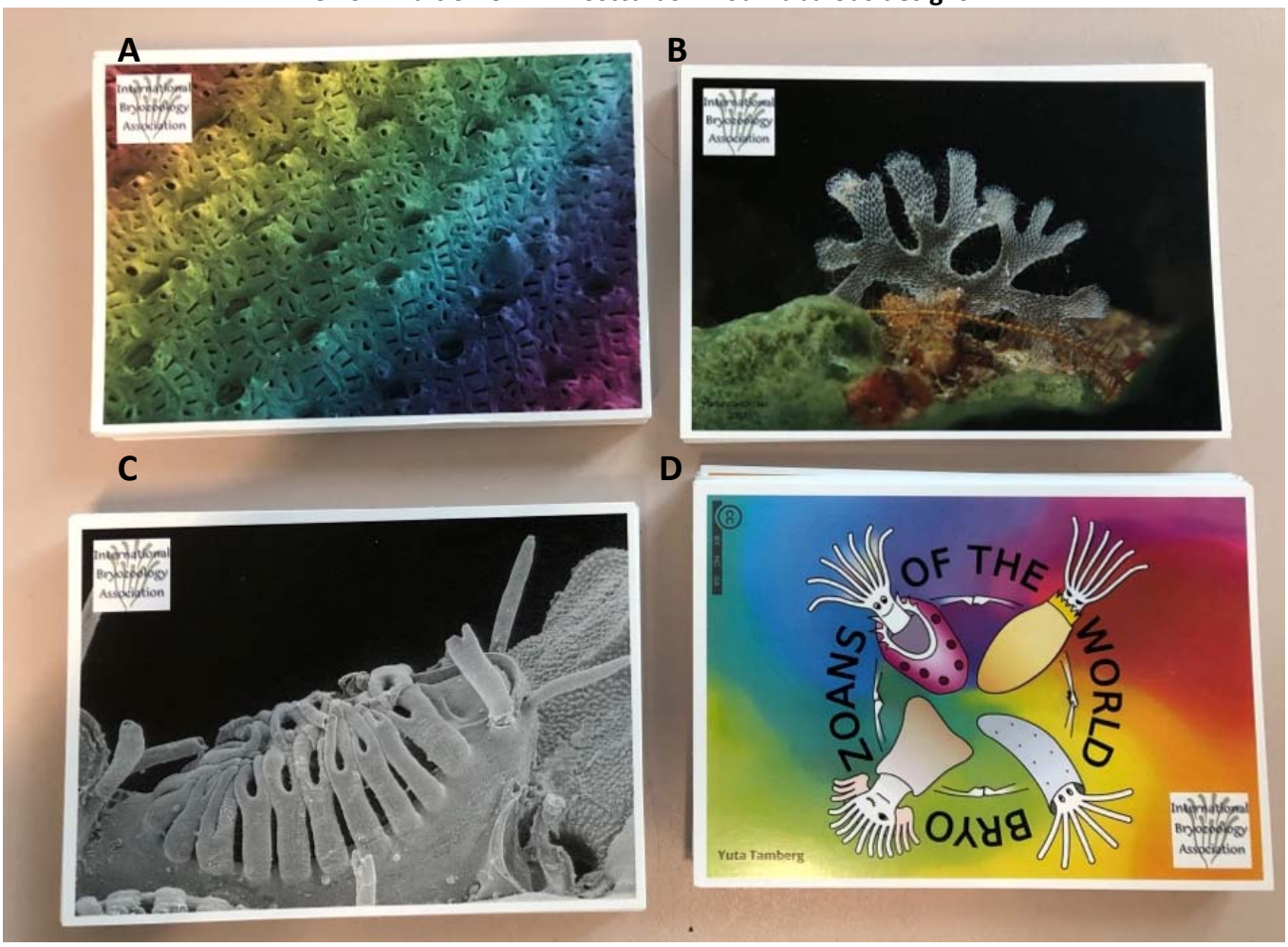
Steve Hageman - Any takers for Paleozoic bryozoan primary literature?
I have duplicates from the consolidated libraries of McKinney, Utgaard and Blake.
I would be pleased to ship a few bundles of mixed primary papers (no photocopies) to those with interest and with commitment to ensuring long term homes of the most rare items.
Please contact me if you are interested.
Steve Hageman
Appalachian State University
hagemansj@appstate.edu

FUNDRAISING

DON'T FORGET THE BRYO-STORE!

All money raised goes straight into the IBA accounts.

The 2022 Edition of IBA Postcards -- Four fabulous designs



A. *Bosytrychopora dentata* with rainbow highlighting, by Abby Smith
B. Flustrid bryozoan from Red Sea, Egypt, by Sebastian Decker
C. *Klugerella antarctica* taking a rest, by Hans de Blauwe
D. Bryozoans of the World logo from 2021 Larwood/Australarwood, by Yuta Tamberg

One card (your choice)	1 Euro	$1 USD	$1.50 NZD
Four cards (one of each design)	3.50 Euro	$3.50 USD	$5.50 NZD
Ten cards (your choice)	8 Euro	$8 USD	$13.00 NZD

Kate Steed's Bryozoan Art Postcards

A. Rainbow circle B. *Archimedes*

One card (your choice)	Four cards (two of each)	Ten cards (your choice)
1.50 Euro	5 Euro	10 Euro
$1.50 USD	$5 USD	$10 USD
$2.25 NZD	$8.00 NZD	$16.00 NZD

Stick-On Temporary Tattoos

Logo Designed by Katie Wyse Jackson, tattoos produced by Judith Winston
The tattoo is 4x6 cm in size.

Two tattoos	1 Euro	$1 USD	$1.50 NZD

Bryo-Hat Knitting Pattern

Caroline Buttler's knitted hats are famous among IBAers – and now she has made her knitting pattern available! For only $3 NZD (= 2 Euro = 2 USD) you can buy a PDF of the pattern, and make one yourself (or get your grandma to do it).

While you're at it, why not buy an extra copy of the…
***Bryozoan Studies 2022* IBA Dublin Conference Volume**
70 Euros, $70 USD, $115 NZD (postage included)
Note that delivery will not be until 2023.

Copies of *Annals of Bryozoology* 1 to 6 are available
Copies are available from Patrick Wyse Jackson (wysjcknp@tcd.ie) at no cost for purchase or postage. However, donations to the IBA in support of student travel grants are welcome.

You can always make a donation to the IBA
MOST OF THE WORK OF THE IBA IS CARRIED OUT ELECTRONICALLY, SO THE IBA HAS NO FORMAL MEMBERSHIP FEES. THE IBA COUNCIL MAKES AWARDS TO HELP SUPPORT CONFERENCE ATTENDANCE AND TRAVEL OF STUDENTS AND SCIENTISTS WITHOUT INSTITUTIONAL SUPPORT. IN 2019-2022, OVER 95% OF OUR EXPENDITURE WAS ON TRAVEL GRANTS, BRINGING FIVE PEOPLE TO THE IBA CONFERENCE WHO COULD NOT OTHERWISE ATTEND.
IN ORDER TO CONTINUE TO SUPPORT NEW BRYOZOOLOGISTS, THE IBA NEEDS YOUR DONATION.

Bryo-Store Order Form

IBA accounts are currently held in New Zealand. Please make your order **in New Zealand dollars** (check exchange rates on-line) using a credit card (Visa or Mastercard only), by filling out this form. We are no longer able to accept cheques.

Name	
Email Address	
Merchandise Order (list of things you want to order – please provide lots of detail)	
Merchandise amount	New Zealand Dollars
Conference Proceedings	New Zealand Dollars
Donation	New Zealand Dollars
Total	**New Zealand Dollars**

Card Type (tick one)	Visa ____ Mastercard ____
Card Number	
Expiry Date	
Cardholder's Name	

Please email your completed form to the IBA Treasurer at abby.smith@otago.ac.nz.

Or you can post it to Dr. Abigail Smith, Department of Marine Science, University of Otago, P.O. Box 56, Dunedin, New Zealand.

You will receive acknowledgement and receipt by email.

ARTICLES

BRYOZOOLOGISTS AROUND THE WORLD: CHIARA'S EXPERIENCE IN NEW ZEALAND

Chiara Lombardi

Thanks to the Italian Antarctic Project BIOROSS – "Bioconstructional Organism from the Ross Sea Under Climate Change", based on a cooperation action between Italy (ENEA) and New Zealand (National Institute of Water and Atmospheric Research - NIWA), last February I had the great opportunity to visit bryozoan colleagues in New Zealand.

The first week I have been hosted by Abby and Hamish in Dunedin, who have been amazing hosts introducing me to local natural beauties including - and greatly appreciating as Italian -Abby's delicious meals matched with master wine selections by Hamish. Attending the AustraLarwood has been great! It was nice to present updates on past (ICECLIMALIZERS) and current Antarctic projects (BIOROSS) and listen to interesting talks. Most of all, giving the participation of few European attendees, I was delighted to share scientific but also relaxing times with overseas and local bryo-friends I did not meet for few years due to the pandemic.

A *B*

Figure 1. A. Group attending the field trip (from the left to the right, back: Yuta, Tyler, Katerina; front: me, Eckart and Abby), Moeraki beach with round boulders (4 My for the largest). B. Chiara and Abby posing with the tuatara (see on right, close to the pebbles, he is a master of camouflage!), Orokonui ecosanctuary. Pictures: C. Lombardi.

Something I have learnt about NZ is that the weather changes fast, and it something to be aware about, especially when a cyclone is around. During the field trip the most exhausting part was to wear and remove layers of clothes to 'survive' but we escaped the cyclone. Despite the changing weather, Abby's organization was great! She patently drove and entertained the five of us (fig. 1A.) with the exploration on the southeast coast, talking about history of the area, guiding us to discover natural landscape and the wild-life (penguin, seals, birds, reptiles…see fig. 1B). Then, assisted by Catherine who joined us during the day, we visited fossil outcrops at Katiki, Kakanui and Oamaru. We ended the trip eating fish and chips while watching the yellow eye penguins swimming back at the sunset!


A *B*

Figure 2. A. Part of the crew of the Ross Sea Voyage 2023 (right) sorting the samples; B. A sample collected at 450 m of depth with several bryozoan species. Pictures: R. Kolzenburg.

During the second part of my journey I moved to Wellington, where my colleagues Regina (BIOROSS PI, ENEA) and Simone Pietro (from Stazione Zoologica di Napoli) were heading after the Ross Sea Voyage 2023, led by NIWA (fig. 2A, B). While waiting for the Tangaroa crew, I had the amazing opportunity to be hosted by Dennis Gordon at NIWA and work on the precious bryozoan collection. I was especially interested in looking for specimens of *Idmidronea obtecta* from Ross Sea, recent and historical. In 2018, several specimens of blue *Idmidronea obtecta* were collected from Ross Sea banks (below 200 m of depth) during an Italian Antarctic campaign (GRACEFUL project). By using different approaches, from molecules to structures and pigments, by using morphological and molecular analyses applied to the bryozoan but also to bacteria, Raman spectroscopy and Luminescence analysis on the bryozoan skeletons, I and colleagues from Italian and European institutes are trying to understand the origin of the colour. During my stay ay NIWA, I took the opportunity to analyze 'historical' samples (1950-60s) and scan some of them with Dennis (picture 3A and B). As often happens while we do research, more interesting questions arise on the path. So, *Idmidronea obtecta* 'case' is becoming complex and interesting and, with the help of experts such as Paul and Dennis (now they now they are 'on board' of *Idmidronea* project), I hope to clarify part of the mystery or, at least, deliver a nice story.


A *B*

Figure 3. A. some specimens of Idmidronea obtecta (1959). *B. With Dennis at the SEM working on* Idmidronea *samples from the collection. Pictures: C. Lombardi.*

SUCCESSFUL PALEONTOLOGICAL EXPEDITION TO AOTEAROA NEW ZEALAND LOOKS SET TO COMPLEMENT ONGOING MAJOR EVOLUTIONARY STUDIES

Dennis Gordon, Lee Hsiang Liow, Emanuela Di Martino and Paul Taylor

A recently concluded expedition to collect Cenozoic New Zealand bryozoans achieved amazing success. Led by Lee Hsiang Liow, the two-part expedition had the aim of augmenting her ERC-funded study of the 'black box' of bryozoan evolution (resolving phenotypic changes on millennial time-scales) and a more-focused Research Council of Norway-funded study by Emanuela Di Martino on the evolution of *Microporella* in New Zealand. New Zealand's Whanganui Basin has for several years been the principal area of study, based on a bryozoan-rich unbroken sedimentary series ranging through two million years of the Plio-Pleistocene. To provide a wider context to these studies, a recently published global phylogeny of Cheilostomata was achieved (Orr *et al*., 2022), and now, within New Zealand, the new field work was undertaken with the aim of expanding the temporal context by sampling elsewhere in the Cenozoic. Two fossil-rich areas were selected—the Chatham Islands and the Oamaru district of South Island, to survey species diversity with a 'population' focus on *Microporella*, *Antarctothoa*, *Cellaria* and *Steginoporella* and, opportunistically, other genera that may become targets in later projects.

Bryozoologist expedition members comprised Lee Hsiang, Emanuela, Dennis Gordon and Paul Taylor. Our field guide on the Chathams was well-known New Zealand paleontologist Hamish Campbell, whose knowledge of the geology of the Chathams and of key contacts on the islands is unsurpassed. The trip began on Wednesday 1 February with an Air Chathams flight from Wellington to the main island and then immediately onward by Cessna to Pitt Island 22 km to the south—the remotest permanently inhabited part of New Zealand, with a population of only 31 people. Regrettably, Paul missed these flights, having been stranded at San Francisco airport owing to flooding of Auckland International Airport's terminal by knee-deep water. He reached Chatham Island the following day.

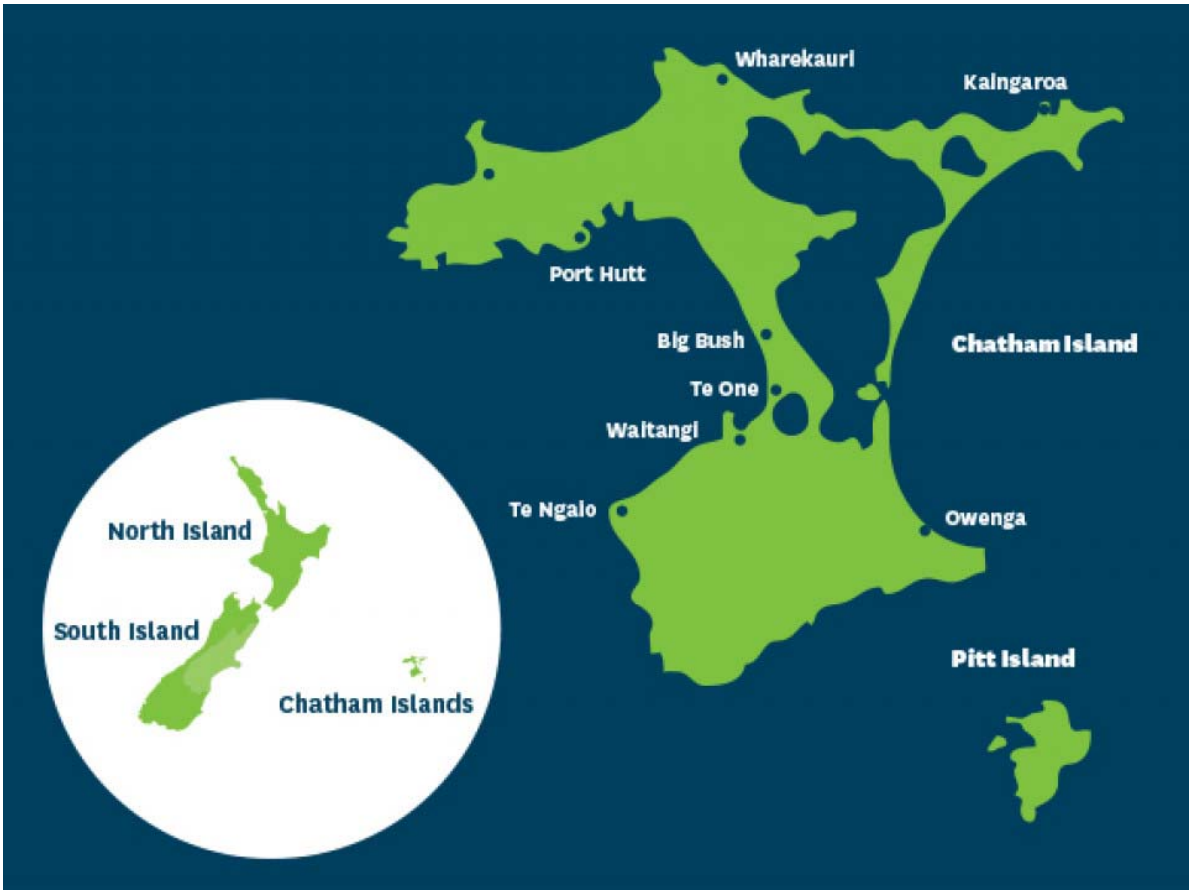


Fig 1. Chatham Islands, New Zealand. [Image from Chatham Islands Council]

The Chathams, a remnant of eastern Gondwana, are the only emergent part of the Chatham Rise, which extends about 1000 km eastwards of the collisional plate boundary that runs through mainland New Zealand. Accordingly, the

Chathams are the most tectonically stable part of New Zealand. The islands have also been submarine for much of the last 50 million years, emerging only for about the past three million years. Sampling was made from the latest Paleocene, Eocene, Oligocene, Pliocene and Pleistocene of the islands.

Fig 2. Getting ready to board the Cessna flight to Pitt Island. [Photo: Emanuela Di Martino]

Fig 3 (left). Lee Hsiang viewing bryozoan-encrusted rock-lobster trap at Flowerpot wharf, Pitt Island [Photo: Emanuela Di Martino]. Fig 4 (right). Lee Hsiang and Emanuela collecting bryozoans of early–late Pliocene age in the Whenuataru Tuff, Motutapu Point, Pitt Island. [Photo: Dennis Gordon]

The Chathams visit was not without its challenges and highlights. When landing on Pitt Island's grassy airstrip, the 50-year-old Cessna struck a rut, compromising the structural integrity of a strut in the front-wheel assembly. Upon landing back on Chatham Island with the last five passengers of the day, the Cessna was immediately grounded until a new part could be obtained from the United States! With local fishing and rock-lobster trapping for the season already concluded, our team of four was effectively stranded; hire of a separate fishing boat to come and take us back

to the main island would be prohibitively expensive. Fortunately, Hamish was able to ascertain that there would be a fishing boat in the area on day three of our Pitt Island stay; it was taking conservation workers to some offshore islands and could pick us up and take us back to Chatham Island about 17 hours earlier than planned. Notwithstanding the shortened stay on Pitt (at the amazingly luxurious Flowerpot Lodge with its plush furnishings and three-course dinners), we were able to visit several productive localities.

Thus in the evening of Friday 3 February our group of four finally met up with Paul on the main island, which was a delightful reunion. Over the next several days we visited numerous localities, trudging many kilometres across farmlands and clifftops, collecting abundant samples. Inasmuch as 95% of the Chathams, including the coast, is in private ownership, permission to cross property to visit outcrops is necessary, and Hamish's relationship with landowners, based on years of personal contacts, was a real boon. One challenge, however, was electric fences. Sometimes landowners were able to turn them off for us. In one instance, however, forgetting that the charge is pulsed and intermittent, Dennis determined that one fence was safe and proceeded to straddle it, with painful and amusing consequences! The fossil collecting enabled us to see many splendid scenic, cultural and historical localities and meet interesting people—including the mayor of Chatham Island Monique Croon, and writer and museum curator Jocelyn Powell. Dr Powell now plans to devote one of her temporary exhibition rooms to a display on Bryozoa, which are abundant in local limestones and on hauled-ashore rock-lobster traps. The last night of our glorious Chathams adventure ended on a high note, when we joined guests of Hotel Chathams for a garden tour and culinary feast at Admiral Farm and Garden.

Fig 5. Bryozoan-rich Big Bush Quarry, Te One, Chatham Island, of late Eocene–early Oligocene age, with up to 25 m thickness of sediment. [Photo: Lee Hsiang Liow]

During the next two and a half days back in Wellington we visited the Institute of Geological and Nuclear Sciences, discussing various issues with the collection manager and selecting a number of slides of fossil bryozoans collected in the 1960s by G.H. Uttley, including several of *Microporella*, for later SEM examination by Dennis.

The next leg of the expedition involved flying on Saturday 11 February to Dunedin. Abby Smith had made available fresh and preserved dredged material for us to examine during the weekend at the Portobello Marine Laboratory. This yielded plenty of material of *Steginoporella* (five species) for further examination back in Oslo (chiefly by Kjetil Voje's postdoc Meghan Balk for another ERC-funded project). On Sunday evening, prior to next day's AustraLarwood XI conference [see separate account in this Bulletin], Abby's biologist husband Hamish Spencer treated the conference group to a tasting of several fine New Zealand wines. After the conference, our group travelled north of Dunedin to the town of Oamaru, famous in New Zealand for its Victorian buildings built of bryozoan limestone. Here our field guide was Dr Jeffrey Robinson, a paleontologist at the University of Otago. The principal localities in this area included some Whaingaroan (latest Eocene to middle Oligocene) sites mentioned by D.A. Brown in his 1952 volume *The Tertiary Polyzoa of New Zealand*, especially McDonald's Quarry (Ototara Limestone), which yielded a treasure trove of bryozoan-encrusted brachiopods. The expedition ended on Friday 17 February back in Dunedin in Otago University's Department of Geology, where Jeffrey showed us additional samples from McDonald's Quarry and other locations, which were added to the huge quantity of samples to be sent back to Oslo.

For the entire 17-day period we were, remarkably, blessed with near-perfect weather, in stark and surreal contrast to the calamitous rainfalls being experienced across the northeastern part of North Island, especially from Cyclone Gabrielle. All up, the samples from the Chathams and Oamaru yielded abundant new fossil material of high diversity, including plenty of colonies of *Microporella*, which, enhanced by the addition of NIWA's excellent collection of numerous species of this genus from the present day, may enable an unparalleled detailed analysis of the biogeography and evolution of *Microporella* in the New Zealand region.

Fig 6. Examining and wrapping bryozoan-encrusted brachiopods at McDonald's Quarry, Oamaru. The soft-limestone rock between Emanuela and Lee Hsiang alone yielded dozens of examples. [Photo: Jeffrey Robinson]

Fig 7. Bryozoan-encrusted brachiopod from the rock mentioned in the previous caption. [Photo: Paul Taylor]

FINDING STATOBLASTS OF *HYALINELLA* (PHYLACTOLAEMATA) IN CENOZOIC DEPOSITS OF BERINGIA

S.A. Kuzmina[1], A.V. Vinogradov[2]

1 - Borissiak Paleontological Institute, Russian Academy of Sciences, Moscow; 2 - Samara Regional Branch of Russian Ecological Academy

Fossil statoblasts of various Phylactolaemata species are found in Cenozoic deposits of Beringia (Vinogradov, Kuzmina, 2021). Previous finds were not identified very accurately, for example, as *Plumatella* sp. and *Fredericella* sp. (Turner Derek G., Ward Brent C., Bond Jeffrey D., Jensen Britta J.I., Froese Duane G., Telka Alice M., Zazula Grant D., Bigelow Nancy H., 2013). Statoblasts of *Hyalinella punctata* (Hancock, 1850) (Phylactolaemata, Hyalinellidae Vinogradov, 2004) were found by us in Cenozoic sediments in the northeast of Eurasia in Yakutia, at Cape Chukochy (collected by S.A.Kuzmina, determined by A.V.Vinogradov), and in various forms: flotoblasts (prostrata form), cessoblasts (table "Fossil statoblasts of Quaternary deposits of Beringia"):

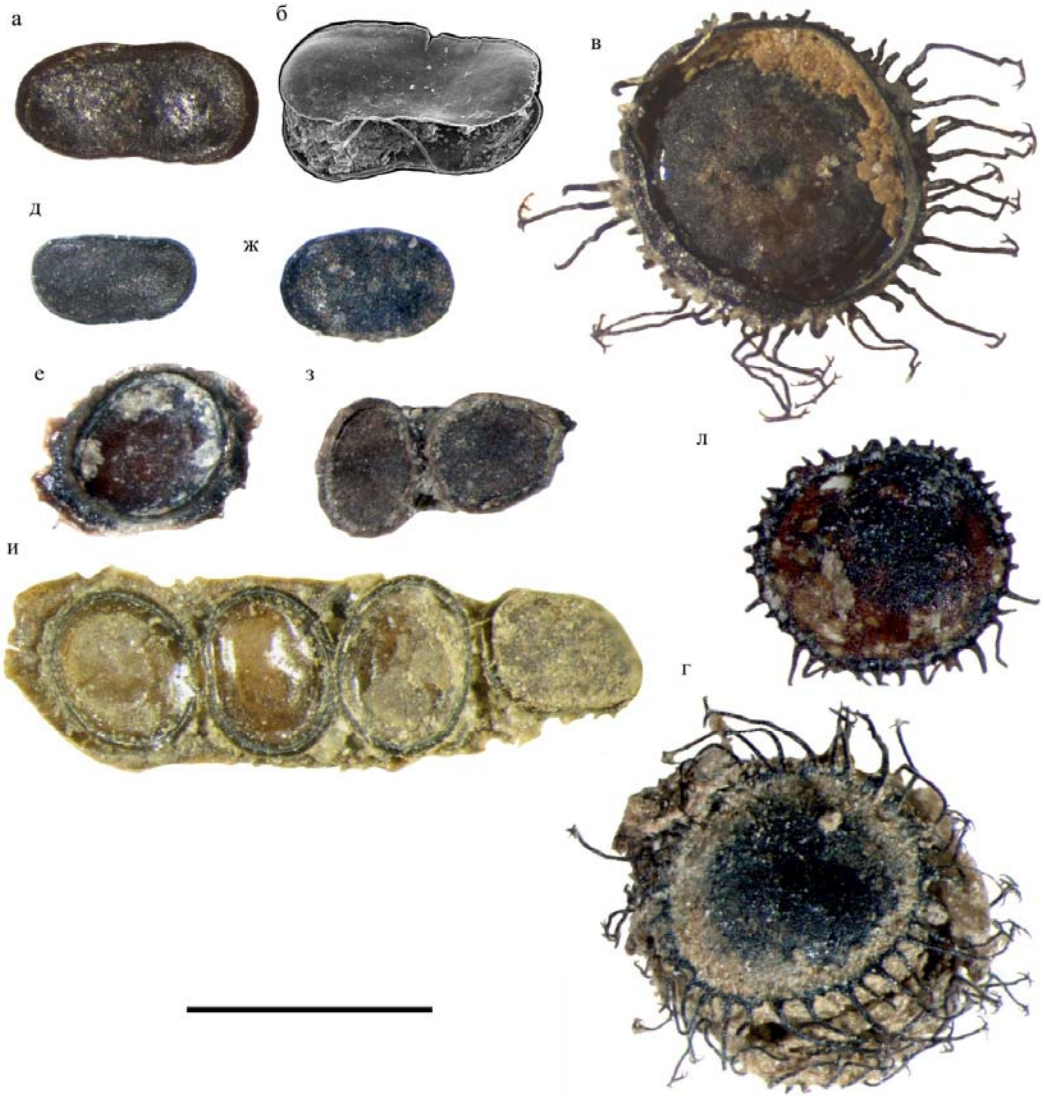


Figure "Fossil statoblasts of Quaternary deposits of Beringia":

А, Б - Fredericella sultana *statoblasts, AVR-9a sample, Tom Creek, (А – light microscope, Б – SEM), Б, Г, Л* - Cristacella mucedo *statoblasts, (В- BJ21 sample, Allan Creek, G -US19-B1a sample, Ulahan-Sullar, Л – sample Dmitrov В3, Д, Е, В, З, И* – Hyalinella punctata*, (Д, В – flotoblasts («prostrate» form), Е, З, И – cessoblasts; Д, Е - sample Ch-17-11, Cape Chukochy, В, З – sample Ch-17-09, Cape Chukochy, And – sample FK, Megin), scale 1 mm.*

References

Turner Derek G., Ward Brent C., Bond Jeffrey D., Jensen Britta J.I., Froese Duane G., Telka Alice M., Zazula Grant D., Bigelow Nancy H. Middle Pleistocene ice extents, tephrochronology and paleoenvironments of the White River area, southwest Yukon. – Quaternary Science Reviews, 2013, 75: 59 – 77.

Vinogradov A.V., Kuzmina S.A. Cenozoic Phylactolaemata and Eurystomata of north-east of Eurasia and north of America. Modern and fossil. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 p. The book is dedicated to the paleoentomologist and paleolimnologist A.P.Rasnitsyn. In Russian. [Виноградов А.В., Кузьмина С.А. Кайнозойские Phylactolaemata и Eurystomata северо-востока Евразии и севера Америки. Современные и ископаемые. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 с. Книга посвящена палеоэнтомологу и палеолимнологу А.П.Расницыну].

ON THE METHOD OF COLLECTING FOSSIL STATOBLASTS IN CENOZOIC DEPOSITS OF BERINGIA

S.A. Kuzmina[1], A.V. Vinogradov[2]

1 - Borissiak Paleontological Institute, Russian Academy of Sciences, Moscow;

2 - Samara Regional Branch of Russian Ecological Academy

When collecting the material, the authors used standard methods of paleolimnological research developed by Soviet researchers in 1950 – 1986 (Vinogradov, Kuzmina, 2021).

The following method was also proposed for sampling from lake sediments (Francis, 2001). The wet sediment is placed in a 100 ml container. The volume can be increased if the concentration of organic residues in the rock is low. If carbonates are present in the rock, the precipitate is pre-soaked in a 10% hydrochloric acid HCl solution and left for several hours. The sample is then washed from the acid with distilled H_2O water through a nylon mesh. The washed sample is placed back into the container and a 5% solution of potassium alkali KOH is added, then heated for 15 minutes at the 15 minutes at a temperature of 85°C. This procedure cleans the sample from foreign organic matter. Next, the sample is washed again through a nylon mesh with distilled water. The sample processed in this way is suitable for obtaining not only phylactolaemate statoblasts, but also head capsules of chironomid larvae and other insects. In our case, when samples are taken from coastal cliffs and the main task is to obtain macrostates of insects, chemical processing of the sample is usually not carried out. Sometimes in the field, we soak hard clay in water with the addition of detergent or hydrogen peroxide, which helps to disintegrate the clumps that have stuck together. Usually, the washing of insects is carried out through a sieve with a mesh of 0.4 mm, while large statoblasts of C.mucedo come across. When we began to take samples of small invertebrates in order to study the remains of crustaceans (Kotov et al., 2019), the number of small statoblasts in them increased. When sampling small invertebrates in situ, the rock is washed through a sieve with a mesh of 0.2 mm, and thin-grained sediment layers are selected in the section. Sometimes it is easier to wash the rock through a nylon bag in the laboratory. The sampling of statoblasts takes place under a binocular microscope using a thin brush. Sometimes there are chitinous fragments of zooids, which are easily confused with plant detritus.

References

Francis D.R. Bryozoan statoblasts. – Smol J.P., Birks H.J.B., Last W.M. (eds.). Tracking environmental change using lake sediments. V.4: Zoological Indicators. Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001, P.105 – 123.

Kotov A.A., Kuzmina S.A, Frolova L.A., Zharov A.A., Neretina A.N, Smirnov N.N. Ephippia of the Daphniidae (Branchiopoda: Cladocera) in Late Caenozoic deposits: untapped source of information for palaeoenvironment reconstructions in the Northern Holarctic. – Invertebrate Zoology, 2019, №16,V.2, P. 183 – 199.

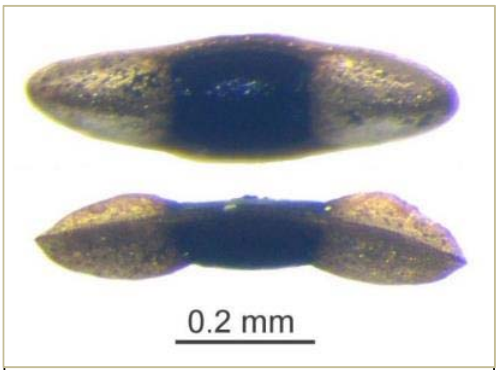
Vinogradov A.V., Kuzmina S.A. Cenozoic Phylactolaemata and Eurystomata of north-east of Eurasia and north of America. Modern and fossil. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 p. The book is dedicated to the paleoentomologist and paleolimnologist A.P.Rasnitsyn. In Russian. [Виноградов А.В., Кузьмина С.А. Кайнозойские Phylactolaemata и Eurystomata северо-востока Евразии и севера Америки. Современные и ископаемые. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2021: 160 с. Книга посвящена палеоэнтомологу и палеолимнологу А.П.Расницыну].

SERENDIPITY IN BRAZIL

Tim Wood, Wright State University, Ohio USA

Anyone who has ever worked on a biological survey knows that the results you get are often quite unexpected. You also realize that many significant discoveries are simply the product of random events.

Beth Okamura and I were reminded of these realities last August during an 8-day search for freshwater bryozoans in the Brazilian Pantanal. This is the world's largest tropical wetland, and we had anticipated many new species. What we found was a surprisingly low bryozoan diversity – just a few species that we had seen before. On the final day, as we were packing up, I noticed a chunk of rotting plastic foam that we had retrieved earlier in the week. Before tossing it in the trash I checked it over for any statoblasts that might still be clinging to it. There were several dozen, of which two were so distinctive it was obvious they had never before been described. And that is how we discovered two new bryozoan species in the Pantanal.



Statoblasts of *Tapajosella elongata*, dorsal view on top, lateral view below.

Previously, in January 2016, Beth had spent ten days in Brazil, mostly the Amazon Basin, searching for bryozoans. She came away with three new species, including one represented by highly unusual statoblasts. There were only three statoblasts, all found at a single site. Large, long, narrow, and oddly shaped, they were unlike anything either of us had seen before (see figure at left). What kind of colony would produce such floatoblasts, and why? There were no answers. Without ever seeing the colony we named the species *Tapajosella elongata*, and because the statoblasts were so unique we erected a new family, Tapajosellidae (Wood & Okamura, 2017).

In 2018 Beth and I were again in the Amazon, her second trip, my first. We were anxious to find living colonies of *Tapajosella*, but again all we found were a few of the distinctive statoblasts at a single site near Manaus. However, among the other 13 sites visited there were four

new species, two of which were encountered just once (Wood & Okamura, 2022). It would have been so easy to have missed these altogether, making us wonder how many other species had been missed simply by chance.
Our most recent trip to Brazil included seven days in the Amazon Basin near Santarém. At that time we recovered about a dozen *Tapajosell*a statoblasts at the mouth of a stream close to the airport. The colonies may have been further upstream, but we never found them.
If nothing else, the plastic foam and a haphazard selection of collecting sites suggest that many more bryozoan species remain hidden in the Amazon and elsewhere. It will take much more than a few quick trips to discover them all.

Tim Wood and Beth Okamura hunting bryozoans in the Brazilian Pantanal.

INTRODUCTION OF *PECTINATELLA MAGNIFICA* (PHYLACTOLAEMATA) IN FINNISH RESERVOIRS

Dr. A.V. Vinogradov

Finnish limnologist Sari Mitikka reported on the mass development of *Pectinatella magnifica* (Phylactolaemata) giant superzoaries in the reservoirs of Finland, which consist of more small zoariums, but are united not mechanically, but at the highest level of zoological integration. I advised her on the identification of the species and on its geographical distribution. *Pectinatella magnifica* is a North American introduced species in the reservoirs of Europe.

This biogeographic and ecological information is interesting for Lake Saimaa and Finland. The complex ancient Lake Saimaa is the largest lake in Finland, with a total area of 4,400 sq. km, a depth of up to 84 m, located in the south of the country, connected with the ancient, connected with the ancient lake Baltika ("Baltic Sea"). The Vuoksa River flows from Saimaa, which flows into the ancient and large Lake Ladoga on the territory of Russia. *Pectinatella magnifica* (Phylactolaemata) is a supposed introducer from North America, its expansion has been observed in Europe from west to east during the 20th and 21st centuries. Various introducents have been noted in the continental reservoirs of southern Finland. This is biological pollution of the environment, it is facilitated by the construction of canals, shipping (including small) and other economic activities. "Invasions" is an incorrect term in ecology and should not be used instead of the long–known term "introduction".

Reference:

Vuorio K., Kanninen A., Mitikka S., Sarkkinen M., Hämäläinen H. Invasion of Finnish inland waters by the alien moss animal *Pectinatella magnifica* Leidy, 1851 and associated potential risks. – Management of Biological Invasions, 2018, vol.9, issue 1: 1 – 10.

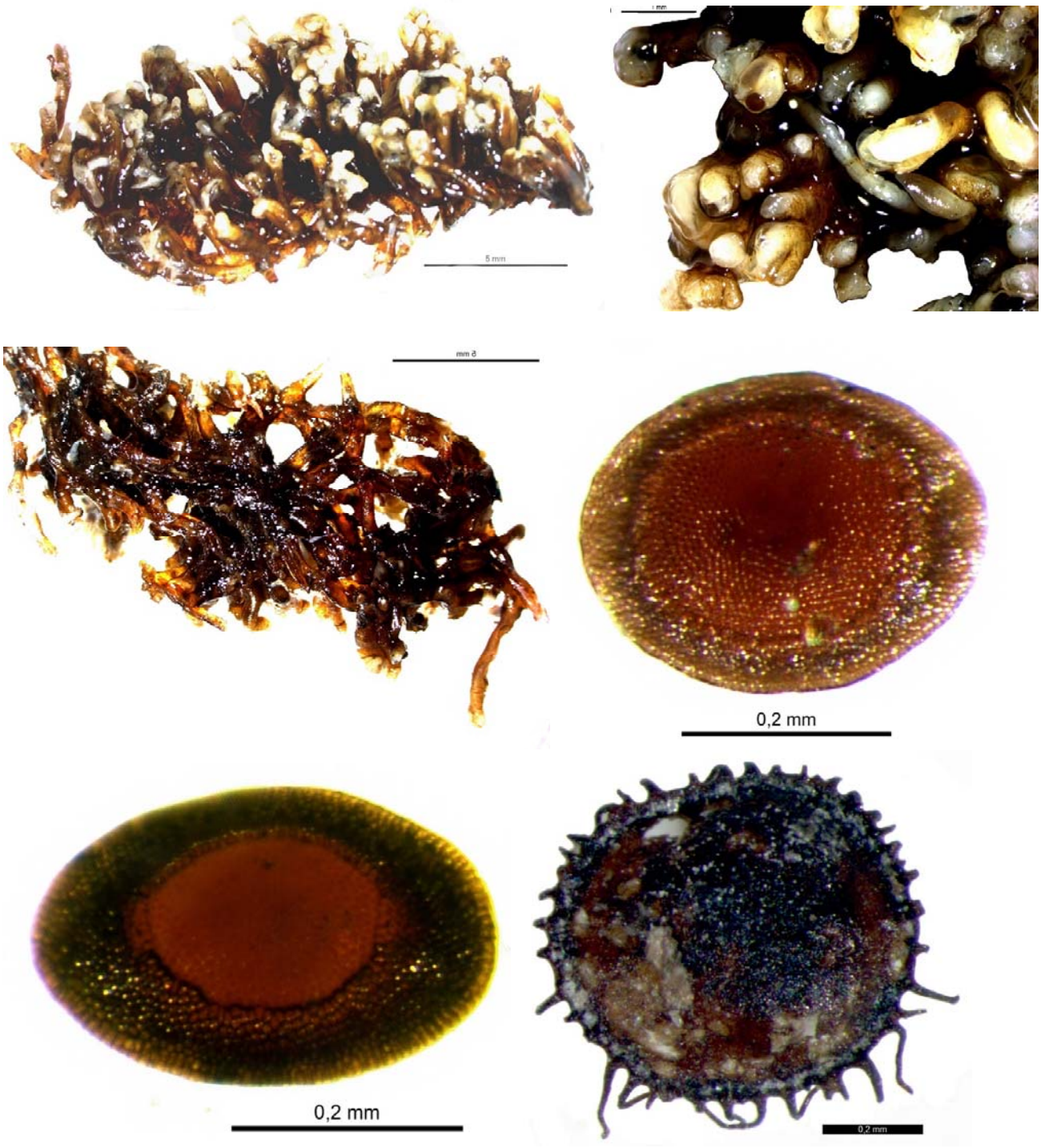
SPECIA AND ECOLOGICAL DIVERSITY OF PHYLACTOLAEMATA IN THE MOSCOW REGION

S.A. Kuzmina[1], A.V. Vinogradov[2]

1 - Borissiak Paleontological Institute, Russian Academy of Sciences, Moscow; 2 - Samara Regional Branch of Russian Ecological Academy

The Moscow region is part of the biogeographic Central subprovincion of the Volga-Ural province of the European-Siberian subdistrict of the Palearctic region in the center of the European part of Russia. Small reservoirs are common here – lakes (glacial, karst, floodplain), rivers, as well as swamps, springs, streams, temporary and artificial reservoirs (ponds, reservoirs and others). This is the area of the oldest research in Russia on phylactolematology and bryozoology of continental reservoirs (Vinogradov, 1990). Observations and research on their hydrobiology, ecology (including the protection of reservoirs and hydrobionts), paleolimnology, palaeontology continue. S.A.Kuzmina observed ecological diversity, A.V. Vinogradov determined samples; photo by S.A. Kuzmina.

Photo 1 – 4 : 1, North-west of the Moscow region, Istra district, near the village of Onufrievo, a pond in a country village. 2, Live colony on the crossbar of the platform, in the water; Plumatella fungosa*. 3-4,* Plumatella emarginata.



Photos 5-10. 5-7, Plumatella repens forma dumortieri. *8,* Plumatella repens *floatolast. 9,* Plumatella fungosa *floatolast. Transparent formations of blue-green algae were also present. Photo by S.A.Kuzmina, July, 2021. 10, A fossil statoblast of* Cristatella mucedo *from the Dmitrov peat quarry (Moscow region), found in clay of the Late Pleistocene; insect remains and crustacean ephippiums were also found here.*

References:

Vinogradov A.V. Addition to the fauna of modern mosses (Bryozoa, Phylactolaemata) Moscow region. – Zool. zh., 1990, No.69, v.7: 142 - 144. In Russian [Виноградов А.В. Дополнение к фауне современных мшанок (Bryozoa, Phylactolaemata) Подмосковья. – Зоол. ж., 1990, №69, в.7: 142 – 144].

HISTORY OF THE RUSSIAN ECOLOGICAL MOVEMENT AND A.A. KUBANIN

A.V. Vinogradov

At present, the public ecological, or green, movement is at the forefront of all social movements on the planet. But in Russia, as well as in the world, it has existed for at least 200 years and has a long history associated with the development of environmental protection, environmental culture and ethics. The main reasons for its occurrence are the increased anthropogenic pressure on the environment and the awareness of this in connection with an increase in the cultural and educational level of the population. The Russian environmental movement is part of the international one, but has its own specifics at each stage of historical development. In general, this process is similar to a family tree (phylogenesis). The mainstream, frontal radical, rearguard accompanying, politicized wing in the form of green parties stand out. The emergence of an opposing movement – gray and even eco-fascist – is noted. The ecological movement is an objective and progressive phenomenon. In Russia, it is currently going through difficult times, experiencing difficulties of a political and economic nature. This is a serious problem, but it is, according to the author, temporary difficulties. Many specialists in biological diversity, zoologists, botanists, and nature conservation specialists became leaders of the Soviet, then Russian and international environmental movement; among them are well-known bryozoologists A.A.Kubanin, A.V.Vinogradov (Vinogradov Anatoly Valentinovich, 2019, 2022), their colleagues and wives V.N.Kubanina, E.Yu.Vinogradova (Rigina) and others.

A.A.Kubanin was also an environmental activist. In his student years, he was an activist in the Nature Conservation Brigade (Druzhina) of the Faculty of Biology and Soil at Moscow State University (MGU). Since March 1970, together with S.I.Zabelin (later – the founder and leader of the International and Russian Social and Ecological Union - CoЭC - SEU), he became part of the headquarters of the Druzhina. Repeatedly participated in the detention of poachers, he was well aware of environmental legislation (Kubanin, 1977). In 1972, together with Svyatoslav Zabelin and Viktor Zubakin, he was elected an Honorary Member of the Druzhina. In 1973, he joined the Youth Council for the Protection of Nature of Moscow State University, formed on the initiative of S.Zabelin. In 1988, he participated in the creation of the first environmental association in the Primorsky region of Russia - the Society for Environmental Action. He entered the Council of the Society together with Yuri Kashuk, deputy of the regional council Anatoly Lebedev and doctor (medic) Lyudmila Khakimova. The Society was called upon to promote the environmentally sound development of energy and forest management in the region. He was one of the organizers of the International Socio-Ecological Union (CoЭC - SEU) in 1988, and later – the only representative of it in Primorye. Member of the Council of the International SEU. President of the public environmental organization "Eco-Logos" - Primorsky Regional Public Fund for the Promotion of Environmental Initiatives, created by him in 1995. Member of the Primorsky Regional Society of Technical Ecology (Vladivostok). Active environmentalist and human rights activist. Secretary of the Commission for Public Expertise of Nuclear Power Plants (Nuclear Power Plants) under the Society for the Study of the Amur region.
Andrei Anatolyevich Kubanin (July 15, 1949 - March 26, 1999) was born in Moscow, in the family of a well-known Moscow economist who was repressed and shot. From an early age he was interested in zoology, the sea, nature conservation. I went to the White Sea Biological Station of Moscow State University (BBS MGU) from the age of 14. He entered the biology and soil faculty of Moscow State University. Actively engaged in science, participated in the activities of the student squad for the protection of nature of Moscow State University (DOP MSU), and then the All-Union Movement of the DOP.

Andrei Kubanin went on expeditions to the Far East. He became interested in studying the marine fauna of the Sea of Japan. After graduating from the Faculty of Biology and Soil Sciences of Moscow State University named after M.V.Lomonosov, he became a marine zoologist, ecologist and bryozoologist, specialist in marine technical fouling and periphyton (natural fouling). He quickly gained all-Union and international fame among specialists, acquired a well-deserved authority. As a major bryozoologist, specialist in modern marine bryozoans of the Sea of Japan and the White Sea, he was included in the International Bryozoological Association (IBA). After graduating from Moscow State University, he joined the Institute of Marine Biology of the Far Eastern Scientific Center of the USSR Academy of Sciences (IBM Far Eastern Scientific Center of the USSR Academy of Sciences, then the Far Eastern Branch of the USSR Academy of Sciences). Having defended his dissertation, he became a candidate of biological sciences and, in fact, the main specialist in modern marine bryozoans of the Soviet (Russian) Far East.

A.A.Kubanin discovered and described a species of marine bryozoan Cryptosula zavjalovensis Kubanin, 1976, new to science, from the coast of Zavyalov Island in the Sea of Okhotsk. Then he described Amathia rudis Kubanin, 1992, Crassicaula Kubanin, 1992 (Amathia subgen.), Mimosella radicata Kubanin, 1992, Walkeria prorepens Kubanin, 1992. Later, he conducted a thorough revision of the higher taxa of Bryozoa and related groups, which proved to be one of the largest zoologists peace. In recognition of the high scientific merits of A.A.Kubanin and in memory of him,

colleagues named a new genus of marine bryozoans found in the middle Miocene of Japan, on the island of Hokkaido, Kubaninella (Grischenko, Mawatari, 2002; Grischenko, Gordon, Nojo, Kawamura, Kaneko, Mawatari, 2004), species Kubaninella relicta Grischenko, Mawatariruja, 2002. His scientific works on bryozoology are widely known (Kubanin, 1975, 1976, 1977, 1979, 1980, 1981, 1982, 1983, 1984, 1987, 19921, 1997, 1998, 2001; Gorin, Zvyagintsev, Kubanin, Mikhailov, 1980; Bagavaeva, Kubanin, Chaplygina, 1980; Bagavaeva, Kubanin, Chaplygina, 1984; Kubanin, Tarasova, 1985; Zevina, Karpov, Poltarukha, Chaplygina, Kubanin, Nikulina, Reznichenko, Soldatova, Tsikhon-Lukina, Roginskaya, 2004).

He taught at the Vladivostok State University of Economics and Service (VSUES). He was elected a deputy of the Vladivostok City Council of People's Deputies, deputy chairman of the Commission on Ecology and Rational Nature Management. This is the first democratically elected Council of Vladivostok, later dissolved. Actively participated in the creation of the first urban environmental program, conducted training seminars on ecology for various specialists and activists. In 1996, he retired from teaching for health reasons. He received a disability of the second group. In the hospital, I learned about the arrest of military journalist Grigory Pasko, who was persecuted for his environmental and human rights activities. He was the first to inform the whole world and Russia about G.Pasko's case. In the hospital, before a difficult operation, he gathered a meeting of lawyers, biologists, journalists about the arrest, and after leaving the hospital, he threw all his strength into protecting the rights of G.Pasko, contacted environmentalists around the world, with the Committee for his protection. At the same time, he himself was exposed to similar risks and dangers. It was called "the center for organizing a campaign in defense of the Vladivostok military journalist". He continued to fight for the freedom of G.Pasko even being seriously ill (and won). Andrei died on March 26, 1999. He died in the hospital, during a planned inpatient examination, and nothing foreshadowed such a tragic end. His death was unexpected, quick and strange. He did not celebrate his 50th birthday, did not see his grandchildren (although he later became a grandfather). In October 1999, the US PEN Center presented well-known public environmentalists, military journalists A.Nikitin and G.Pasko with the "Freedom To Write Awards" for "heroism in informing the world" about the problems of nuclear danger in Russia. This is a great personal merit of Andrei Kubanin.

Anatoly Vinogradov had a lot to do with Andrei Kubanin (Vinogradov, 2012). First, the subject of research is bryozoology. Secondly, the supervisor, Doctor of Biological Sciences G.B.Zevina. Thirdly, the social environmental movement. Both of them were interested in the White Sea, they were there, but separately, they have publications about bryozoans of this region (Kubanin, 1981; Vinogradov, 2005). They met many times – both in Moscow and at many meetings on nature protection (at the Zvenigorod Biological Station of Moscow State University in the Moscow region; in the city of Kirov; in the village of Solotcha, near Ryazan; in the Samarskaya Luka National Park [Fedorov, Vinogradov, 1991]); at the conference "Days of the Volga" in Nizhny Novgorod). A.Vinogradov was visiting A.Kubanin in Moscow, and A.Kubanin was visiting A.Vinogradov in Samara. Andrey Kubanin was the first representative of the International Socio-Ecological Union (СоЭС - SEU) in Primorye, and Anatoly Vinogradov – the SEU coordinator in Middle Siberia, in the Krasnoyarsk region; A.Kubanin was a member of the Council of the International SEU, and A.Vinogradov was a member of the Russian Council of the SEU. They were constantly in friendly and scientific correspondence, helping each other. Both are widely known for their work in the field of bryozoology.

References (translation, in English):

Bagavaeva E.V., Kubanin A.A., Chaplygina S.F. The introduction of some animals into the northwestern part of the Sea of Japan with the help of ships. – Problems of marine biogeography. Vladivostok, DVNTs AN SSSR, 1980: 8 – 9. In Russian.

Vinogradov A.V. Bryozoa in continental water bodies of the Lapland province. – News of the Samara Scientific Center of the Russian Academy of Sciences, Samara, 2005, v.7, No. 1: 230 - 241. In Russian.

Vinogradov A.V. A word about Andrey Anatolyevich Kubanin (on the occasion of his 60th birthday). - In the book: Vinogradov A.V. History of the Russian ecological movement. The main stages of socio-ecological evolution over 200 years of Russian history. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 491 – 494. In Russian.

Vinogradov A.V. A word about Andrei Anatolyevich Kubanin. – Proceedings of the Samara regional branch of the Russian Ecological Academy, v.2, part 2, v.2. Social aspects of humanitarian and applied ecology. Collective monograph. Saarbruecken - Samara - Moscow. Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 138 - 148. Editors-compilers A.V.Vinogradov, E.Yu.Rigina (Vinogradova). In Russian.

Vinogradov A.V. Specialization "teacher-ecologist". Handbook on Pedagogy for Universities. – Deutschland, Saarbrucken, Lambert Academic Publishing, 2017: 230 p. The book is dedicated to the teacher and psychologist A.P.Nechaev. In Russian.

Vinogradov Anatoly Valentinovich. – Famous scientists: encyclopedia. - Moscow, Publishing House of the Academy of Natural Sciences, 2019, vol. 15: 551 p. Ed. M.Yu.Ledvanova, N.Yu.Stukova; ISBN 978-5-91327-595-0. [p.106 - 111]. In Russian.

Vinogradov Anatoly Valentinovich. - Who's who in the Samara region - 2021. Encyclopedic edition. Samara, PRINT-RU LLC, 2022, v.4 (128 p.): 30. Ed. Yu.V.Erugin. In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). Ecological culture of the Samara region. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.1. Collective monograph, Moscow - Samara, publishing house of the Samara State University of Architecture and Civil Engineering, 2008: 424 p. Editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). and etc. In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). Social aspects of humanitarian and applied ecology. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.2, part 1. Collective monograph, Saarbrücken - Samara - Moscow. Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 700 pp.; editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). Social aspects of humanitarian and applied ecology. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.2, part 2, v.1. Collective monograph. Saarbruecken - Samara - Moscow. Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 368 pp.; editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). Social aspects of humanitarian and applied ecology. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.2, part 2, v.2. Collective monograph. Saarbruecken - Samara - Moscow. Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 368 pp.; editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). The potential of ecological ethics and aesthetics. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.3, part 1. Collective monograph dedicated to the 15th anniversary of the Samara regional branch of the Russian Ecological Academy. Saarbruecken - Samara - Moscow. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 700 pp.; editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). In Russian.

Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). The potential of ecological ethics and aesthetics. Proceedings of the Samara regional branch of the Russian Ecological Academy, v.3, part 2. Collective monograph dedicated to the 15th anniversary of the Samara regional branch of the Russian Ecological Academy. Saarbruecken - Samara - Moscow. – Deutschland, Saarbrucken, Lambert Academic Publishing (LAP), 2012: 700 pp.; editors-compilers and authors Vinogradov A.V., Vinogradova E.Yu. (Rigina E.Yu.). In Russian.

Gorin A.N., Zvyagintsev A.Yu., Kubanin A.A., Mikhailov S.R. Some aspects of the study of fouling in the Far Eastern seas. – Ecology of fouling in the Pacific Northwest. Vladivostok, DVNTs AN SSSR, 1980: 5 – 16. In Russian.

Zevina G.B., Karpov V.A., Poltarukha O.P., Chaplygina S.F., Kubanin A.A., Nikulina E.A., Reznichenko O.G., Soldatova I.N., Tsikhon-Lukina E.A., Roginskaya I.S. Catalog of fouling fauna in the World Ocean. Volume 1. Barnacles, hydroids, bryozoans, mollusks. 2004. 219 p. ISBN 5-87317-166-1. In Russian.

Kubanin A.A. A brief guide to bryozoans in the shallow waters of the White Sea. – Moscow, Lomonosov Moscow State University (MSU), biol. fak., 1975 (manuscript). Zevina G.B. – scientific supervisor. In Russian.

Kubanin A.A. Bryozoans are invaders in the Peter the Great Bay of the Sea of Japan. – Biology of the shelf. Vladivostok, 1975: 89 - 90. In Russian.

Kubanin A.A. Bryozoans of the order Cheilostomata of the Peter the Great Bay, Sea of Japan. – Fouling in the Sea of Japan and the Sea of Okhotsk. Vladivostok, Far Eastern Scientific Center of the Academy of Sciences of the USSR (Far Eastern Scientific Center of the Academy of Sciences of the USSR), 1975, vol.3, pp. 108 – 136. In Russian.

Kubanin A.A. Bryozoans of the littoral of Zavyalov Island (Sea of Okhotsk). - Biology of the sea. 1976, No.1: 30 - 35. In Russian.

Kubanin A.A. Life forms of modern bryozoans. – Questions of morphology, terminology, ecology and stages of development of fossil and modern bryozoans. Moscow, Paleontol. inst. Acad. Sciences of the USSR (PIN AN SSSR), 1976: 68 - 73. In Russian.

Kubanin A.A. Species composition of bryozoans from the fouling of vessels of various navigation regimes. – Biology of the sea. 1977, No. 6: 63 - 69. In Russian.

Kubanin A.A. A new invader in the Sea of Japan is the bryozoan Conopeum tubigerum (Bryozoa, Cheilostomata). – Zool. Zh., 1977, v.56, v.2: 313 - 315. In Russian.

Kubanin A.A. Actual problems of organizing small forms of the reserve fund. – Nature protection and rational use of natural resources of the Moscow region. Moscow, MFGO USSR, 1977: 121 - 124. In Russian.

Kubanin A.A. Bryozoans fouling vessels of the Pacific Northwest. – Pacific. scientific Assoc., 14th Pacific Science Congress, Marine Science Committee, Section Marine Biology. Moscow - Khabarovsk, 1979: 84 - 85. In Russian.

Kubanin A.A. 5th All-Union colloquium on fossil and modern bryozoans. - Biology of the sea, 1980, No.2: 81 - 83. In Russian.

Kubanin A.A. Geographic distribution of bryozoans found in marine fouling. – Ecology of fouling in the Pacific Northwest. Rep. ed. V.A.Kudryashov. Vladivostok, DVNTs AN SSSR, 1980: 109 - 140. In Russian.

Kubanin A.A. Bryozoa. – A.D. Naumov, A.V. Olenev. Zoological excursions on the White Sea. Leningrad, ed. Leningrad State University (LSU), 1981: 113 - 119, tab. 37 - 40. In Russian.

Kubanin A.A. Species composition of marine bryozoans in fouling. – Fouling and biocorrosion in the aquatic environment. Rep. ed. O.G.Reznichenko, I.V.Starostin. Moscow, Nauka, 1981: 18 – 39. In Russian.

Kubanin A.A. Preliminary list of animal fouling species for port, coastal and long-distance navigation vessels of the Far East basin. Type Bryozoa. – Fouling organisms of the Far Eastern seas. Vladivostok, DVNTs AN SSSR, 1981: 147 - 150. In Russian.

Kubanin A.A. On the use of the term "cosmopolitan" in marine biogeography. – Biology of shelf zones of the World Ocean. Vladivostok, Far Eastern Scientific Center of the Academy of Sciences of the USSR, 1982, part 1: 38 - 39. In Russian.

Kubanin A.A. On the position of bryozoans in the system of the animal world. – 6th Conf. by isp. and modern bryozoans. Perm, 1983: 29 - 32. In Russian.
Kubanin A.A. On the names of higher taxa of bryozoans and phoronids. – 6th Conf. by isp. and modern bryozoans. Perm, 1983: 33 - 35. In Russian.
Kubanin A.A. Bryozoans fouling ships in the northwestern part of the Sea of Japan. – Abstract of the dissertation for the degree of candidate of biological sciences (03.00.08), version 1, Vladivostok, 1983: 24 p. In Russian.
Kubanin A.A. Marine bryozoans (class Gymnolaemata) and their participation in ship fouling in the northwestern part of the Sea of Japan. – Abstract of the dissertation for the degree of candidate of biological sciences (03.00.08), version 2, Vladivostok, 1984: 23 p. In Russian.
Kubanin A.A. Type Bryozoa. Preliminary list of invertebrate animals of the littoral of the Far Eastern State Marine Reserve. – Studies of the littoral of the Far Eastern Marine Reserve and adjacent areas. Vladivostok, 1987: 121 - 122. In Russian.
Kubanin A.A. Bryozoa fouling of ships of coastal and port navigation in the northwestern part of the Sea of Japan. – Biological studies of benthos and fouling in the Sea of Japan. Vladivostok, 1991: 120 - 136. In Russian.
Kubanin A.A. New species of bryozoans (Gymnolaemata, Ctenostomata) from the Sea of Japan. – Zool. Zh., 1992, v.71, v.10: 19 - 31. In Russian.
Kubanin A.A. Phyllum Tentaculata, subphyllum Bryozoa. – Kusakin O.G., Ivanova M.B., Tsurpalo A.P. List of species of animals, plants and fungi in the littoral of the Far Eastern seas of Russia. Vladivostok, Dalnauka, 1997: 119 - 125. In Russian.
Kubanin A.A. Phyllum Bryozoa. – Adrianov A.V., Kusakin O.G. Taxonomic catalog of the biota of Peter the Great Bay, Sea of Japan. Vladivostok, Dalnauka, 1998: 300 - 306. In Russian.
Kubanin A.A. On some questions of the nomenclature of higher taxa on the example of bryozoans. Basic principles. – Paleont. Zh., 2001, No.2: 50 - 59. In Russian.
Kubanin A.A. Analysis of the main principles of the nomenclature of higher taxa on the example of Bryozoa. – Paleont. Zh., 2001, 35 (2): 157 - 165. In Russian.
Kubanin A.A., Tarasova N.A. To the fauna of bryozoans of the order Cheilostomida in the sublittoral of Moneron Island. – Benthos of the shelf of Moneron Island. Vladivostok, ed. DVNTs AN SSSR, 1985: 102 – 113. In Russian.
Fedorov A.V., Vinogradov A.V. Meeting of the expanded Council of the Social and Ecological Union. – Samarskaya Luka. Bulletin. Samara, 1991, No.1: 236 - 237. In Russian.
Shtilmark F.R. Feedback on the abstract of the dissertation of A.V.Vinogradov for the degree of candidate of biological sciences "Bryozoans of the continental water bodies of the USSR (modern and fossil)". – Samarskaya Luka. Bulletin. Samara, 1991, No.1: 227 - 228. In Russian.
Bagavaeva E.V., Kubanin A.A., Chaplygina S.F. Role of the Ships in Invasion of Hydrocoles, Polychaetes and Bryozoans into the Sea of Japan. – Biol. Morya, 1984, no.2, pp. 19 – 26.
Grischenko A.V., Gordon D.P., Nojo A., Kawamura M., Kaneko N., Mawatari S.F. New cheilostome bryozoans from the Middle Miocene of Hokkaido, Japan, and first fossil occurrences of Kubaninella and Hayamiellina gen. nov. – Paleontological Research, 2004, t.8 (3): 167 - 179.
Grischenko A.V., Mawatari S.F. Kubaninella: a new genus of Adeonidae (Bryozoa: Cheilostomata) from the Western Kamchatka shelf of the Sea of Okhotsk. – Bryozoan Studies 2001, Proceedings of the 12th International Bryozoology Association Conference, 2002: 125 - 130.

REPORT: AUSTRALARWOOD XI: ADVENTURES IN SOUTHERN HEMISPHERE BRYOZOOLOGY

12-14 February 2023, Portobello Marine Lab, Dunedin, NZ

Peter Batson

In mid-February 2023 bryozoologists from Norway, Australia, Italy, New Zealand and the United Kingdom assembled for the eleventh AustraLarwood conference in summery Dunedin. This was the first AustraLarwood since 2021 and the first in-person Larwood-type meeting since the beginning of the Covid Pandemic. Most of the eight presentations covered Southern Hemisphere topics, with talks on taxonomic diversity and new taxa, polar bioconstructional taxa, and palaeobiology and evolution.

Our icebreaker on Sunday night was an enjoyable wine-tasting event based on a broad selection of New Zealand wines presented by Hamish Spencer, followed by a fine Italian banquet at one of Dunedin's most popular restaurants.

AustraLarwood wine-tasting event with Hamish Spencer

On Monday morning, after a tour of the Portobello Marine Lab and New Zealand Marine Studies Centre, we assembled for some formal talks. Chiara Lombardi presented an update on her studies of Antarctic bioconstructional bryozoans from her in-situ study in Terra Nova Bay in the Ross Sea. Abby Smith gave a talk entitled "Losing The Unknown: Distribution patterns of shelf bryozoans around Southern Aotearoa New Zealand". Lee Hsiang Liow updated the audience on five years of trying to turn bryozoans into "the *Drosophila* of macroevolution."

Eckart Håkansson spoke about novel free-living bryozoans preserved in the fossil record of Western Australia. Katerina Achilleos presented a talk on bryozoans from taphonomic amphoras. Paul Taylor introduced the diversity of cyclostome 'by-catch' collected from the Pleistocene of the Whanganui Basin during the WABO project. Dennis Gordon addressed: the taxonomic diversity of *Beania* (Cheilostomata: Beaniidae) in New Zealand. Peter Batson presented on a new hornerid species with reproductively induced skeletal plasticity.

The conference also included a poster session. Tyler Feary presented a poster on bryozoan diversity of Otago Harbour. Similarly, Chiara Lombardi presented a poster on bioconstructional organisms from the Ross Sea under climate change. Emanuela Di Martino and Yuta Tamberg were present but did not give talks. We were delighted to have joining us Daphne Lee and Jeffrey Robinson (usually found talking about brachiopods).

After the formalities, the participants enjoyed an afternoon sorting through freshly-collected Otago shelf bryozoan material. There was much chatting and catching up around the microscopes. During the afternoon we voted on best presentation and gave the prize to Peter Batson. Some partners joined us for the Conference Dinner at 1908 Café.

Participant photo from this year's AustraLarwood – Front row – Daphne Lee (Otago Emeritus Professor), Katerina Achilleos, Emmanuela Di Martino, Lee Hsiang Liow , Tyler Feary, Abby Smith. Back row – unknown participant, Dennis Gordon, Eckart Hakansson, Paul Taylor, Peter Batson, Yuta Tamberg, Chiara Lombardi, unknown.

A day-long conference field trip was offered on Tuesday. The group travelled to the coast of North Otago, where we were delighted to meet up with Catherine Reid. Participants encountered seals, sea lions and penguins, as well as the famed Moeraki boulders, large spherical concretions on the shoreline. Both fossil and living bryozoans were collected.

Eds note – see Chiara Lombardo article for further comments and photo of the field trip.

IN MEMORIAM

YVONNE BONE

Photo – Joachim Scholz

Rolf Schmidt - As an undergraduate student at Adelaide University in the early 1990s, Yvonne was one of our sedimentology lecturers. But of course everyone knew her as the Bryozoa Lady, because she managed to insert them into any topic. I admit, I did not see their appeal at the time.

While subsequently doing my Honours project, I quickly became envious of my fellow students who had Yvonne as their supervisor. She fostered a very collegial and cooperative dynamic in her group, with weekly meetings where everyone she supervised and worked with got together to discuss what they were doing, and could get feedback and advice from all the others. Meanwhile, I would get the occasional one-on-one with my very self-important old professor, only to have him attack my thesis in the end during my defence as if he'd never read it before.

Then, just before the end of Honours year, Yvonne walked into our office unannounced, said my fellow students had told her I was a good scientist, which is why she asked if I wanted to do a PhD with her; and when I said "yes" she simply said "welcome to the group" and walked back out (at least that is how my stunned brain decided to remember it). And that is how I stumbled into the world of Bryozoa – which turned out to be at least as friendly and supportive as Yvonne herself, and just for that I will be eternally grateful to her.

I couldn't help feel sometimes that she had one of the strongest examples of willpower I knew. From defying doctors who told her in her youth she wouldn't live more than a few more years due to her post-polio symptoms, to defying patronising attitudes within academia, she calmly (mostly) stuck to her guns and achieved a lot. I certainly learned more than just how to identify bryozoans from her. She left the world a better place than she found it.

Dennis Gordon - My first interactions with Yvonne were in 1988. She was collecting taxonomic literature to help her identify the many bryozoans of the southern Australian shelf, as background for a study of diagenesis of the carbonate-rich sediments there, and I sent her two monographs on New Zealand bryozoans, published in 1984 and 1986. In May 1992, she invited me to participate in a cruise on RV Franklin (which I was unable to accept) and in that letter she mentioned that, even though she had never smoked, she had been battling lung cancer and had had one lung removed,

thereby precluding further diving. She also mentioned in that letter "what a pleasure" it was, as examiner, to read Abby Smith's PhD thesis while she was recuperating and that she was looking forward to a visit from Roger Cuffey the following month. No question that bryozoology and bryozoologists enhance well-being! In my response, along with commiserations and encouragement, I wrote: "Last week I went to Hamilton and stayed with Cam Nelson [Abby's supervisor] and his wife for a couple of days during the occasion of Abby Smith's thesis defence. We all enjoyed the oral (even Abby!), which went predictably well and resulted in the PhD. I'm happy to say that Abby will be able to make it to Swansea, which will be good exposure to the organisation."

Yvonne herself did not get to Swansea but we were able to meet the following year, in December, when she came to Wellington. She made an instant impression with her winning smile and cheerful countenance and she and my wife Brenda got on very well. I recall an animated discussion at our house of their sharing a like for the 1993 movie The Piano, recalling many of the outstanding scenes. In the meantime, I had had occasion to review a manuscript for Sedimentary Geology written by Yvonne and Noel James. I recommended publication after minor revision, but in my review I noted I was unhappy with a section on colony morphotypes, which I thought was no particular improvement over terms previously used by Cam Nelson. One of my specific objections was their substituting the term 'free-living' for discoidal lunulitiform colonies with 'vagrant'. In response, Yvonne wrote to the journal editor: "Yes, 'free-living' … promotes gales of laughter from First Year students (!) and so we have used the term 'vagrant' with a short explanation for the rationale." I thought this was very funny but still wonder how vagrant (with its own connotations) is any improvement over free-living. Does this reflect cultural differences between Australians and New Zealanders?

Yvonne returned to Wellington for the 10th IBA Conference in early 1995. There, she contributed to a presentation by Steve Hageman (co-authored also by Brian McGowran and Noel James) on the "Bryozoan species distributions on the cool-water Lacepede Shelf, southern Australia". For a number of years afterwards Yvonne sent an enjoyably chatty Christmas letter, sharing news about new students (including Rolf Schmidt), travels, her dog (English Springer Spaniel), significant family happenings and her many grandchildren. In 1999 she mentioned experiencing Post-polio Syndrome, and consequent lack of energy. She really enjoyed her garden and, notwithstanding reduced strength and mobility, kept up with that. We met up again in 2001 at the 12th conference in Dublin where she gave a presentation (co-authored by Noel James) on "Bryozoans from temperate Pleistocene deep-water mounds, Great Australian Bight.' In January 2002 she took early retirement, one month after being promoted to Associate Professor. She was tickled pink by the promotion but thoroughly enjoyed the freedom that retirement offered, including doing science at her own pace. In 2004 she travelled to the 13th IBA Conference in Concepción and in 2010 to the 15th conference in Kiel.

In her 2002 Christmas letter she had mentioned her 86-year-old mother's advancing Alzheimers among some of the challenges she faced, noting, with concern for herself, that her mother was the third of her siblings to succumb to Alzheimers. Her concern was prescient and her own cognitive decline was beginning to be manifested in some of her writings post-2015. Notwithstanding this challenge, she battled on with her scientific contributions as long as she was able. Our last correspondence was an email exchange on 27 July 2016 concerning her contributions to volume 1 of CSIRO's Australian Bryozoa, which I was editing at the time. With Noel James's help, Yvonne's lovely chapter, "Modern and Cenozoic bryozoan colony classification schemes" was published in 2018. She also contributed to the first chapter in the volume, "Introducing bryozoans." And that was not the end of it. In 2021 Springer published the superb lavishly illustrated James and Bone e-book "Biogenic Sedimentary Rocks in a Cold Cenozoic Ocean: Neritic Southern Australia." Well done Yvonne! She consistently modelled enthusiasm and cheerfulness in the face of adversity and will be truly missed!

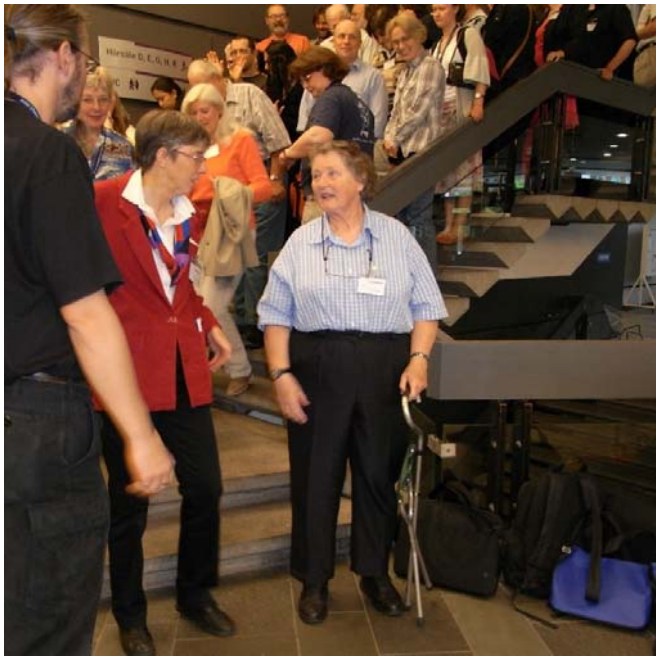
Catherine Reid – I first met Yvonne in about 2003, after I had finished my PhD, but as that was on Permian taxonomy and I heard Yvonne was retiring I had never directly contacted her previously about bryozoans. After meeting I realised that retirement meant sod all. At the time I was doing a postdoc in petroleum exploration and a bit lost as to what I would do next and how I would be able to continue with bryozoans which I certainly wanted to do. Yvonne lit a fire under me and gave me the energy and confidence to apply for funding for bryozoan research and to keep going where I wanted to go. The funding application wasn't successful but I felt like I had support and a direction again. I ended up doing a second post-doc with Yvonne's long-time collaborator Noel James and then continuing to work with Noel and Yvonne on carbonate sedimentology projects once I returned to New Zealand – Kaikoura in 2010 and Southern Australia in 2011. Yvonne's physical health placed some restrictions on what she could do in the field but it also meant

when we got back to base at the end of the day the previous days samples had been dealt with and fresh questions on what we had found were ready. I had the pleasure several times of staying with Yvonne in Adelaide, meeting her various canine friends and enjoying working under the shade of her verandah during summer with a view of the garden (and consumption of the garden!).

I remember Yvonne not only for her love of bryozoans but her exceptionally generous spirit and support of others. This support is made more significant by the challenges she herself faced – these were never a problem but something to be dealt with so you could do what you wanted to do.

Joachim Scholz (in photos)



From the Kiel IBA conference 2010

BOOKS

BRYOZOAN STUDIES 2022

The conference proceedings from the Dublin IBA meeting held in August last year will soon be published by A.A. Balkema. Edited by Marcus Key, Joanne Porter and Patrick Wyse Jackson, it contains 19 papers.

One copy will be sent to each of the attending delegates (in-person or virtual) as part of their registration, while additional copies will be available for sale at €70/£61/$75 (postage free).

Members who were unable to attend or who wish to purchase a second copy for themselves or their institution are asked to contact Patrick Wyse Jackson (wysjcknp@tcd.ie) who will issue an invoice and provide details for the electronic transfer of the fee.

Contents

ANNALS OF BRYOZOOLOGY 7

In 2002 the first the series *Annals of Bryozoology* edited by Patrick Wyse Jackson and Mary Spencer Jones was published following the Dublin 2001 IBA conference. Since then a further five volumes have been published, and the seventh will soon appear in printed format. Electronic copies of all of the volumes are available at http://bryozoa.net/annals/index.html.

If you would like to obtain a printed copy of volume 7 please let Patrick Wyse Jackson (wysjcknp@tcd.ie) know as soon as possible. These will be distributed for free, but donations to the IBA student travel fund would be welcomed.

If anyone wants copies of volumes 1 to 6 please also let Patrick know.

Contents

UPCOMING MEETINGS

GSA CONNECTS 2023, PITTSBURGH

Lee Hsiang Liow is hosting a GSA Topical Session, "Better Together: Coloniality as a Way of Life and of Generating New Tools and Insights across Fields," in the technical program during GSA Connects 2023 meeting in Pittsburgh, Pennsylvania. The electronic abstracts submission form opens around the first of May.

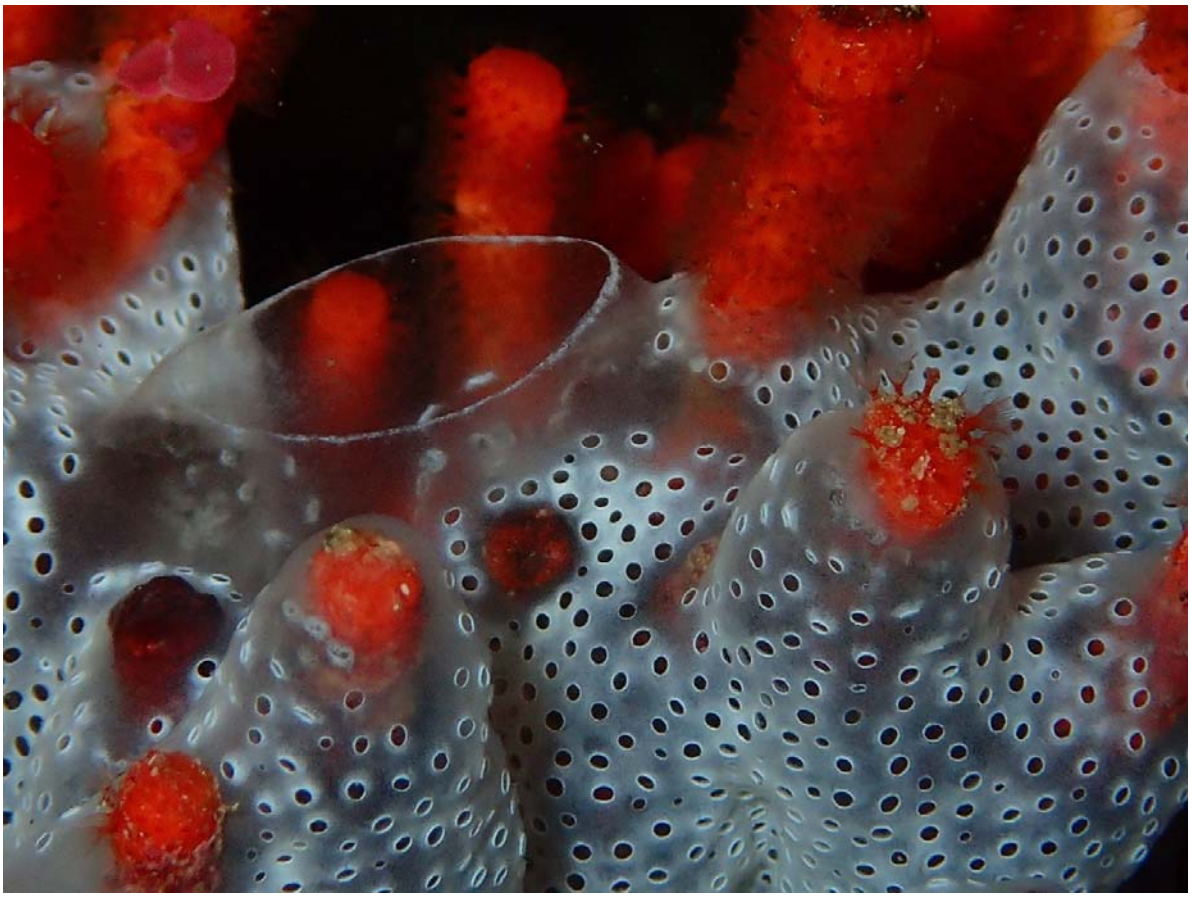
All technical sessions (poster and oral) will be in-person only at GSA Connects 2023; however, oral presentations in topical sessions, discipline sessions, Pardee Keynote sessions, Noontime Lectures, and the Presidential Address will be recorded and available for on-demand viewing after the meeting.

IMPORTANT NOTE: An oral session is viable when there are at least 12 oral abstracts submissions populating it. Any oral session attracting less than six oral abstracts submissions will automatically be cancelled. If you want bryozoans at GSA submit an abstract!

PHOTO CORNER

PHOTOS FROM TITOUAN SEIMANDI – MEDITERRANEAN BRYOZOANS

Here are some pictures from the Mediterranean sea, taken this season in the bay of Marseille. When bryozoans and sponges intertwine, it produces pretty things ... Nice association for the false coral (*Myriapora truncata*) which doesn't seem to dislike it !



RECENT PUBLICATIONS

The following list includes bryozoan related works either published since the previous issue of the *IBA Bulletin* as sent in to the editor. As always, members are encouraged to support future compilations by continuing to send complete citations to the IBA secretary at any time. Accuracy of your citation is assured if sent in bibliographic format, if re-drafting is required by the editor accuracy is not guaranteed! Reprints will be gratefully received by the IBA archivist, Mary Spencer Jones.

Batson, P.B., Tamberg, Y., Taylor, P.D. 2022. Composite branch construction by dual autozooidal budding modes in hornerids (Bryozoa: Cyclostomatida). Journal of Morphology 283: 783-804. DOI 10.1002/jmor.21469

Denisenko N.V. 2022. Species richness and distribution patterns of bryozoans of the Arctic region: list of the bryozoan fauna. In: P.N. Wyse Jackson & M.E. Spencer Jones (eds) Annals of bryozoology, 7.Aspects of the history of research on bryozoans. International Bryozoology Association, Dublin. P.121-143.

Gontar V.I 2022. Bryozoans as Biological Indicators and Their Role in Arctic Research/ ISSN 0031-0301, Paleontological Journal, 2022, Vol. 56, No. 7, pp. 797–807.

Hondt, J.-L. d' (2022). Ile de la Réunion (374) : Liste complémentaire des Bryozoaires (New data concerning the Bryozoa from the Reunion island (Indian Ocean)). Bull. Soc. linn. Bordeaux, 157, N. S. 50 (2/4) : 272-274.

Negrini, M., Batson, P.B., Smith, A.M., Smith, S.A.F., Prior, D.J., Henry, H., Li, K.C., Tamberg, Y. 2022. Understanding the crystallographic and nanomechanical properties of bryozoans. *Journal of Structural Biology* 214, 107882, 2022. DOI 10.1016/j.jsb.2022.107882

Nimbalkar, N.D., Wood, T.S., & Chondekar. R.P. 2022. Description of *Varunella coronifera* in India (Bryozoa, Phylactolaemata). Records of the Zoological Survey of India 122(3): 287-290.

Onishi T, Hiruta S, Kajihara H, Dick MH (2023) The Bryozoan *Cauloramphus magnus* (Cheilostomata:Calloporidae) in northern Japan includes multiple, co-occurring cryptic species. Zoological Science 40: 1-14 (Released online Feb. 2023; print version June 2023).

Smith, A.M., Batson, P.B., Achilleos, K., Tamberg, Y. 2022. Collecting and culturing bryozoans for regenerative studies. Chapter 8 in: Blanchoud, S. and Galliot, B. (eds), Whole Body Regeneration, *Methods in Molecular Biology*, Springer, pp 151-177, 2022. DOI: 10.1007/978-1-0176-2171-4_8

Tamberg, Y., Batson, P.B., Smith, A.M. 2022. The epithelial layers of the body wall in hornerid bryozoans (Stenolaemata: Cyclostomatida). Journal of Morphology 283: 406-427. DOI 10.102/jmor.21451