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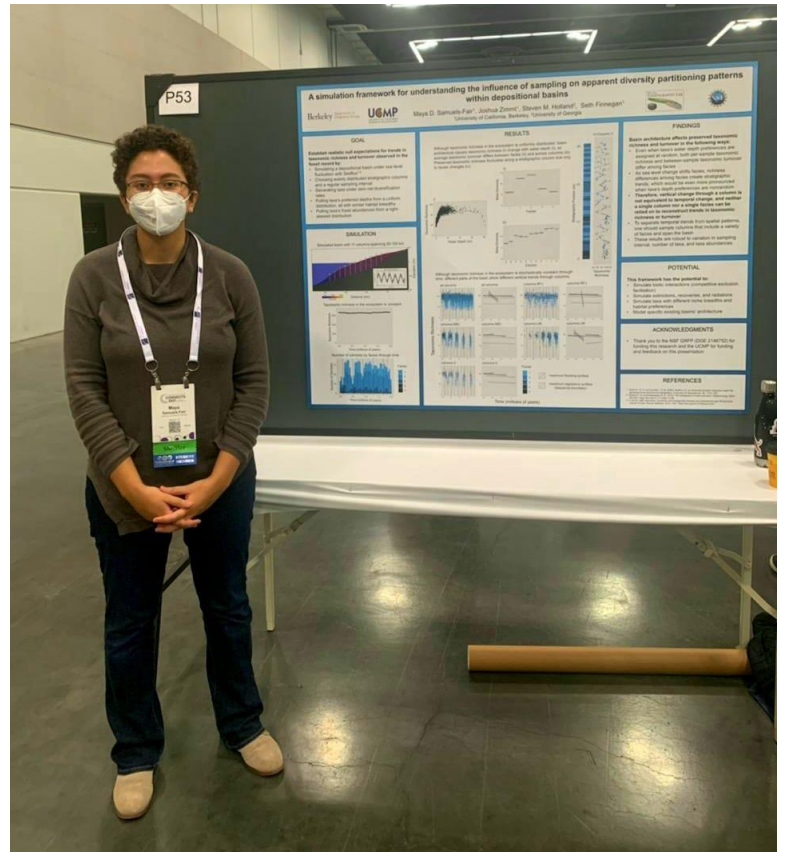
Comments regarding this Bulletin should be addressed to the IBA Secretary: catherine.reid@canterbury.ac.nz

Copies of the Bulletin are archived at the Natural History Museum London.

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

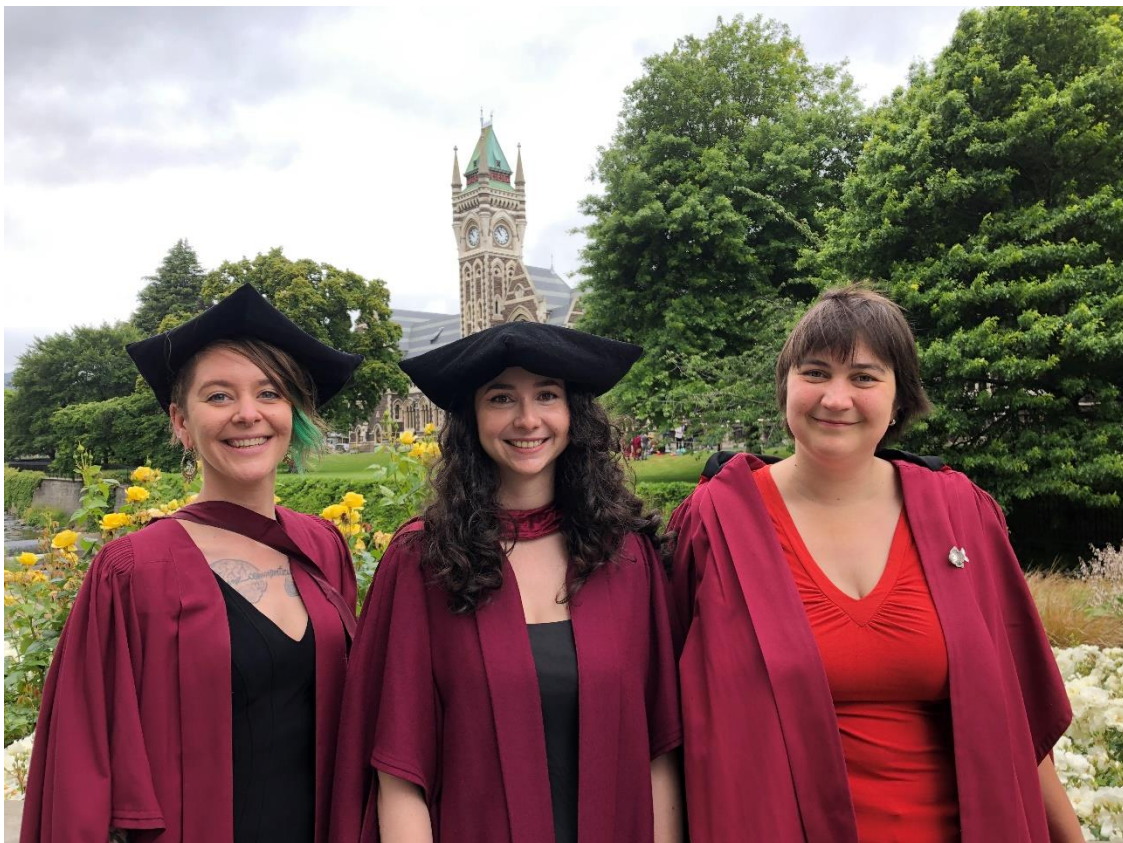
NEW MEMBERS

Maya Samuels-Fair - Maya is a second year PhD student in the Finnegan Paleobiology Lab at the University of California, Berkeley. She has long been interested in the ecology and evolution of life history traits like dispersal and fecundity. After studying life history in trees, microbes, ostracods, and foraminifera, she discovered what a great system bryozoans are for pursuing these kinds of research questions. She is particularly interested in variation in larval brooding and growth form in fossil bryozoans from the Cretaceous.



NEWS FROM THE MEMBERSHIP

Abby Smith – Congratulations to Hannah Mello, Katerina Achilleos and Yuta Tamberg who all graduated their PhDs from the University of Otago in December.



Andrew Ostrovsky - Last February Uliana Nekliudova successfully defended her PhD Thesis "Dynamics of sexual reproduction and embryonic incubation in marine bryozoans" at the Life Sciences Faculty, University of Vienna. Claus Nielsen was one of the external reviewers. Uliana now works as a bioengineer at a private company in St Petersburg, but still continues her work on cyclostome bryozoans.

Ekaterina Shevchenko and Ksenia Serova (whom you should remember from the Sopot IBA Larwood meetings) succeeded to get permanent positions (as technical staff on electron microscopy and junior scientist correspondingly) at the Zoological Institution of the Russian Academy of Sciences. Both also work as grant collaborators supported by the Russian Science Fund and the Russian Foundation for Basic Research and continue writing their PhD theses (on cheilostome oogenesis and neuro-muscular anatomy of polymorphism, correspondingly).

Vladimir Kutyumov and Elena Belikova recently gave their final reports based on the main results of their PhD theses (genomic and transcriptomic analysis of the modular growth in *Cristatella mucedo* and evolution of the myolaemate muscular system). They now both work as grant collaborators supported by the Russian Science Fund, and continue writing their dissertations at the St Petersburg State University.

Anna Kvach has got a PhD position at the St Petersburg State University, and works on the molecular aspects of the modular growth in fresh-water bryozoans.

Nadja Karagodina has got a PhD position at the St Petersburg State University, and works on the molecular and ultrastructural aspects of the bryozoan-procaryote symbiosis. Both, Anna and Nadja are supported by the Russian Science Fund.



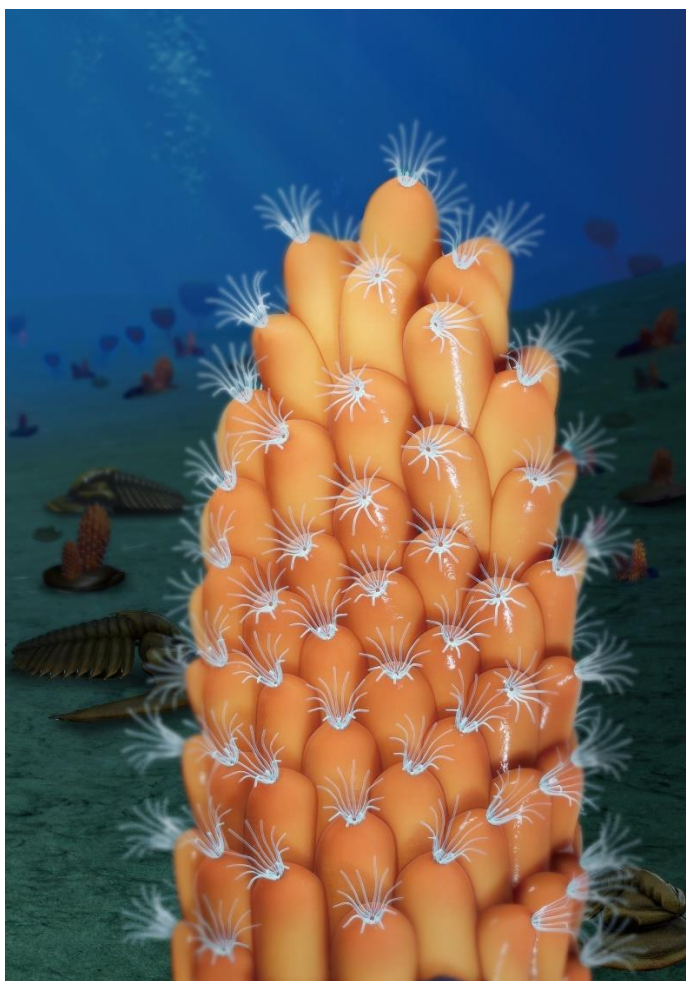
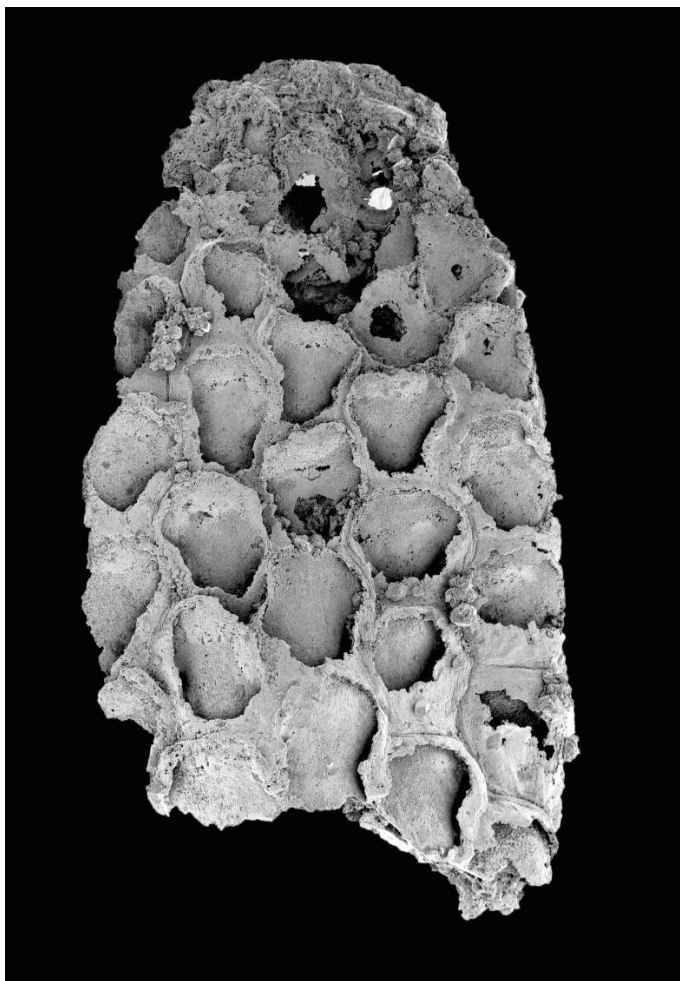
Ernie Gilmour - Amy Joy Hess successfully defended her Masters thesis entitled "Bryozoans of the Toroweap Formation (Permian) southern Nevada, USA." She has been working on this thesis with Ernie Gilmour and Mike Toma.

Mike and I have finally completed our manuscript on the tiny, tiny bryozoans of the Wargal Limestone (Permian), Salt Range, Pakistan. It will soon be on its way to a publisher. The next project is to finish the Treatise material on the timanodictids and girtyporids.

For the second time in two years we have had to move our lab and office activities to a new location. We downsized 50 percent during the first move two years ago and now have downsized 50 percent more of that 50 percent! Amazing how many rocks, peels, and photographs one can accumulate in 60 years. The bad news is that when the science building is remodeled, there won't be any space for emeriti professors.



Paul Taylor – You may already be aware of the Zhang et al. paper which recognises the first bryozoan fossil of Cambrian age, *Protomelission gatehousei*. Below are an SEM image of one of the specimens plus a reconstruction of how this ctenostome-like bryozoan may have looked on the Cambrian seafloor.



Zhang, Z., Zhang, Z., Ma, J., Taylor, P. D., Strotz, L. C., Jacquet, S. M., Skovsted, C. B., Chen, F., Han, J. & Brock, G. A. 2021. Fossil evidence unveils an early Cambrian origin for Bryozoa. *Nature*.

<https://doi.org/10.1038/s41586-021-04033-w>

Eds note - See also an article in The Conversation <https://theconversation.com/the-bryozoan-mystery-a-new-look-at-an-old-fossil-reveals-the-origin-of-these-tiny-coral-like-creatures-170261> Thanks to Phil Bock for the link



Conseulo Sendino - The second call of the Synthesys VA funding has rewarded the project led by Conseulo Sendino: 'Bryozoa Identification Tool (BIT) For Quaternary and Recent Mediterranean and North Atlantic Bryozoans'. The six museum participants (NHM-London, Hebrew University Jerusalem Museum, National Museum of Natural Sciences-Madrid, Naturkunde, Muséum National d'Histoire Naturelle-Paris and Naturhistorisches Museum-Vienna) will support bryozoan taxonomic identifications and climate change studies. All the specimen data and SEM images of the Quaternary and Recent bryozoans will be displayed in map view by each museum and also on the GBIF Website with all museums data.

Oscar Reverter-Gil and Javier Souto – On June 26, 2018 we donated our own collection of bryozoans to the Museum of Natural History of the University of Santiago de Compostela (Galicia, Spain). As some samples of Bryozoans were already stored at this Museum, now there are four different collections that contain Bryozoans: the collection of the "Santander Marine Biology Station", already cited by Barroso (1912); the "Marine Fauna of Galicia"; the Types Collection; and the General Collection of Bryozoa, which is by far the most extensive. In total, these collections contain 1065 samples of Bryozoa, preserved dry, in alcohol or even formaldehyde, corresponding to 241 species. A small part is exposed to the public, while most is deposited in the Museum's collection room. Each sample is properly documented with location, depth, date of collecting, collector, and bibliographic reference, if existing. The 98% of the samples come from Iberian waters, and more specifically 92% come from Galicia or Portugal (i.e., the west coast of the Iberian Peninsula). The 84% of the material has been cited in various scientific publications and the 13% has also been figured, making the collection an important reference material in Iberian waters. A quarter of the samples are also particularly relevant for different reasons: the collections house four holotypes and ten paratypes of six species; in addition, another 59 species are generally uncommon, or their material is the only Iberian or Spanish material currently preserved. All data on the collections at the MHN (USC) have been recently published (in Galician), in:

Reverter-Gil O. & Souto J. (2021b). As coleccións de Briozoos do Museo de Historia Natural da USC (The Bryozoan collections of the Museum of Natural History of the USC). *Nova Acta Científica Compostelana*, 28: 1-24. <https://revistas.usc.gal/index.php/nacc/article/view/7693>



An excel file of the collections is directly accessible through:

https://www.usc.gal/museohn/colecciones/fauna_marina.html



Biodiversity Heritage Library

To help with your image searching needs of the collections, BHL have released the following two training videos:

- [BHL Image Searching](#) (Duration: 16:53) - tips and tricks on how to search for plates and images in the BHL catalogue and their Flickr stream.
- [BHL Image Downloading](#) (Duration: 8:06)- guidance on how to download images in various resolutions from BHL.

These and other BHL training videos can be found in this [playlist](#). More training and guidance can be found in the [BHL FAQ page](#).

Mary Spencer Jones

ARTICLES

FINDINGS OF FOSSIL STATOBLASTS PHYLACTOLAEMATA IN THE NORTH OF YAKUTIA (RUSSIA)

S.A. Kuzmina¹, A.V. Vinogradov²

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

The Republic of Yakutia (Sakha) is located in northeastern Russia and is comparable in size to 6 France, 12 Great Britain, half of continental Australia, surpasses Western Europe, Kazakhstan, Argentina. The natural conditions of Yakutia are very diverse, it is one of the richest regions of Russia and the world with water bodies, with numerous rivers, lakes, swamps and so on. Expedition work in the summer of 2021 was very difficult. Fossil statoblasts of Phylactolaemata, as our studies have shown, are widespread in Yakutia, from the Aldan River valley in the south to the Arctic Ocean coast in the north. S.A.Kuzmina found statoblasts (probably *Cristatella mucedo* Cuvier, 1798) in the Pleistocene sediments of the northern sections of Yakutia on the coast of the Arctic Ocean, but until 2019 they were ignored. Several species of freshwater and fossil Phylactolaemata were found at the North Pole of Cold; they were found on the Adycha River in the Yana River basin (Kuzmina, Izumova, Vinogradov, 2020). Fossil statoblasts of several species of Phylactolaemata were found in the valleys of the Lena and Aldan rivers (Kuzmina, Vinogradov, 2021). During the paleontological study of sediments in 2021 in the Undulung River basin, we found various fossil aquatic organisms, including statoblasts Phylactolaemata (S.A.Kuzmina reservoir, identified by A.V.Vinogradov). The Undulung River (Undyulyung, Yundyulyun; length 414 km) is the right tributary of the Lena River, flowing into it below and north of the Vilyui River, near the village of Zhigansk (on the left bank of the Lena; formerly a city); it is the basin of the lower reaches of the Lena River in central Yakutia.

Statoblasts were found only in two sections out of 9. Section No.3 of Holocene peat (sample Un-21-3-4m) is a 7 m high river cliff, located in a low terrace of the Undulung River. The sample was taken at the border of dark gray lake clay (at the base) and massive sedge peat in the form of a canopy on top. There are ice veins in the section. Section No.8 (sample Un-21-8-5m) is also located near the Undulung River, but its age is older, probably, the Late or Middle Pleistocene. The breed (probably paleo-soil) is a loess with the inclusion of twigs, grass and a large number of insects, mainly terrestrial. Above the loess horizon is a moraine (photo 1 - 3).

Both sections contain fossil statoblasts of various Phylactolaemata species. This is one of the northernmost finds of Phylactolaemata in continental Yakutia and Eurasia, in this case, in the form of fossil statoblasts *Plumatella repens* (Linnaeus, 1758) (photo 4: section Un-21-3-4m) and *Cristatella mucedo* Cuvier, 1798 (photo 5: section Un-21-8-5m; a group of *C. mucedo* statoblast valves attached to the substrate). Fossil statoblasts *P. repens* were found in Yakutia for the first time.

Photos by S.A.Kuzmina, September 2021.

This work was supported by the Russian Science Foundation grant No.21-17-00054.

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- Kuzmina S.A., Vinogradov A.V. Finding Phylactolaemata in the valley of the Aldan River (South Yakutia, Russia). - Bulletin IBA (International Bryozoology Association), 2021, July, v. 17, No. 2: 9.



Photo 1: Undulung river with forest fire smoke;

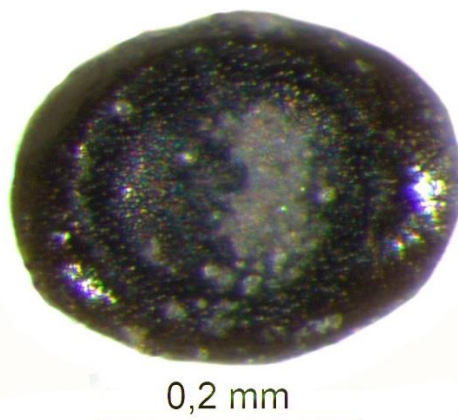


Photo 4: fossil statoblast *Plumatella repens*, sample Un-21-3-4m;



Photo 2: section 3, Holocene lake clay and peat;



Photo 3: section 8, Pleistocene loess and moraine strata;



Photo 5: a group of *Cristatella mucedo* fossil statoblast valves attached to the substrate, sample Un-21-8-5m.

FINDINGS OF FOSSIL STATOBLASTS *CRISTATELLA MUCEDO* CUVIER, 1798 IN THE VILYUI RIVER BASIN (CENTRAL YAKUTIA, RUSSIA)

S.A. Kuzmina¹, A.V. Vinogradov²

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

The Vilyui river is the largest left tributary of the Lena and one of the largest rivers in Russia, its length is 2650 km; flows in the north-east of Russia and Eurasia. During the summer expedition in 2021, we worked in the basin of the lower reaches of the Vilyui river, in the Vilyui region of central Yakutia (Sakha), above the village of Kyzyl-Syr on the Vilyui river, in the Kyzyl-Syr section (KS-21-1, 2, 3): 63,9° north latitude, 123,3° east longitude (photos 1 - 3). The first description of the section (KS-2) without a description of peat: A.A.Galanin, M.R.Pavlova (2018).



Photo 1: section KS-2, expedition camp;



Photo 2: the lower part of the KS-2 section with alluvial peat; Photo 3: section KS-1, lacustrine sediments with clay and peat;

The KS-2 section is composed mainly of aeolian sands; in the lower part, alluvial deposits are represented, including layers of plant residues (fragments of wood, branches of shrubs, grass, etc.). The cliff height is 33 m. Radiocarbon dating of plant remains gives dates from $44,2 \pm 1,8$ to $35,6 \pm 1,5$ thousand years (Galanin et al., 2015), which corresponds to the MIS3 interval (Karginsky peat, Karginsky interval) of the late Pleistocene. Another site (KS-1)

is located 2 km above the main site, it is a low terrace (about 4 m), a low river cliff, at the base of which a peat horizon emerges. Peat is composed of grasses, moss and ferruginous clay. Radiocarbon dating of peat indicates that this layer also belongs to MIS3 (A.A.Galanin, personal communication). When studying the sediments in various places, numerous fossil aquatic and terrestrial insects and other aquatic organisms were found, including Phylactolaemata statoblasts (collector S.A.Kuzmina, identified by A.V.Vinogradov).

Section KS-1 (sample KS-21-1-3) turned out to be the richest in terms of finds of statoblasts *Cristatella mucedo* Cuvier, 1798 and their accumulations. The Kyzyl-Syr section on the Vilyui river contains peat, which is about 36 thousand years old (late Pleistocene). This is sedge peat (*Carex*), with a high content of ferruginous clay, its origin is most likely of the lake. There are many aquatic organisms in peat. The plant remains include the seeds of sedge *Carex*, *Menyanthes trifoliata* L., 1753, Potamogetonaceae and a small amount of moss Bryophyta.

Fossil statoblasts *Cristatella mucedo* Cuvier, 1798 (Phylactolaemata), as our studies have shown, are widespread in Yakutia, from the Aldan river valley in the south to the Arctic Ocean coast in the north (Kuzmina, Izumova, Vinogradov, 2020; Kuzmina, Vinogradov, 2021). Recent *C. mucedo* in the form of numerous zoaria and statoblasts were previously found in the Vilyui river basin (Vinogradov, 1989, 2011, v. 1 - 2).

In this locality, statoblasts of *C. mucedo* were represented both as individual specimens and in groups, moreover, some groups had an ordered arrangement (attached to the plant substrate), while others formed clusters in the form of houses of caddisflies Trichoptera (photo 5 - 8). Larvae caddis flies that form small houses are aquatic organisms.



Photo 4 (left): fossil statoblast *Cristatella mucedo* Cuvier, 1798 from section KS-1 (sample KS-21-1-3); Photo 5 (right): accumulation of fossil *C. mucedo* statoblasts on the substrate from the KS-1 section (sample KS-21-1-3);



Photos 6 - 8: clusters of fossil statoblasts of *C. mucedo* in the form of caddisfly houses (Trichoptera) from section KS-1 (sample KS-21-1-3).

It is recognized that the selection of building material is typical for different taxa of caddisflies. It is known that caddisflies can use the statoblasts of Phylactolaemata as a building material. In the basin of the middle reaches of the Vilyui river, A.V. Vinogradov (1989, 2011, v. 1 - 2) found statoblasts of *C. mucedo* and their separate valves attached to the houses of modern caddisflies *Athripsodes annulicornis* extracted from the digestive tract of fishes lenok *Brachymystax lenok* and eletz *Leuciscus leuciscus*. Similar finds were made in water bodies of northern Transbaikalia in Buryatia (Russia), in the Vitim river basin (length 1837 km, right tributary of the Lena river in its upper reaches) [Vinogradov, 1989, 2011, v. 1 - 2]. In lake Busani, statoblasts of *C. mucedo* and their fragments were abundant in the benthos; they were also found in caddisfly houses, and some houses of recent caddis larvae were composed of statoblasts of *C. mucedo*. Similar houses have been found in more ancient fossil material (Vinogradov, 1995, 1996). Similar houses of caddisflies, composed of modern statoblasts of *Lophopodella carteri* (Hyatt, 1866), were found in North America, in lake Michigan (Bushnell, 1966). In the Pleistocene of Yakutia, houses of caddis flies from statoblasts were found for the first time.

Photos by S.A. Kuzmina, September 2021. This work was supported by the Russian Science Foundation grant No.21-17-00054.

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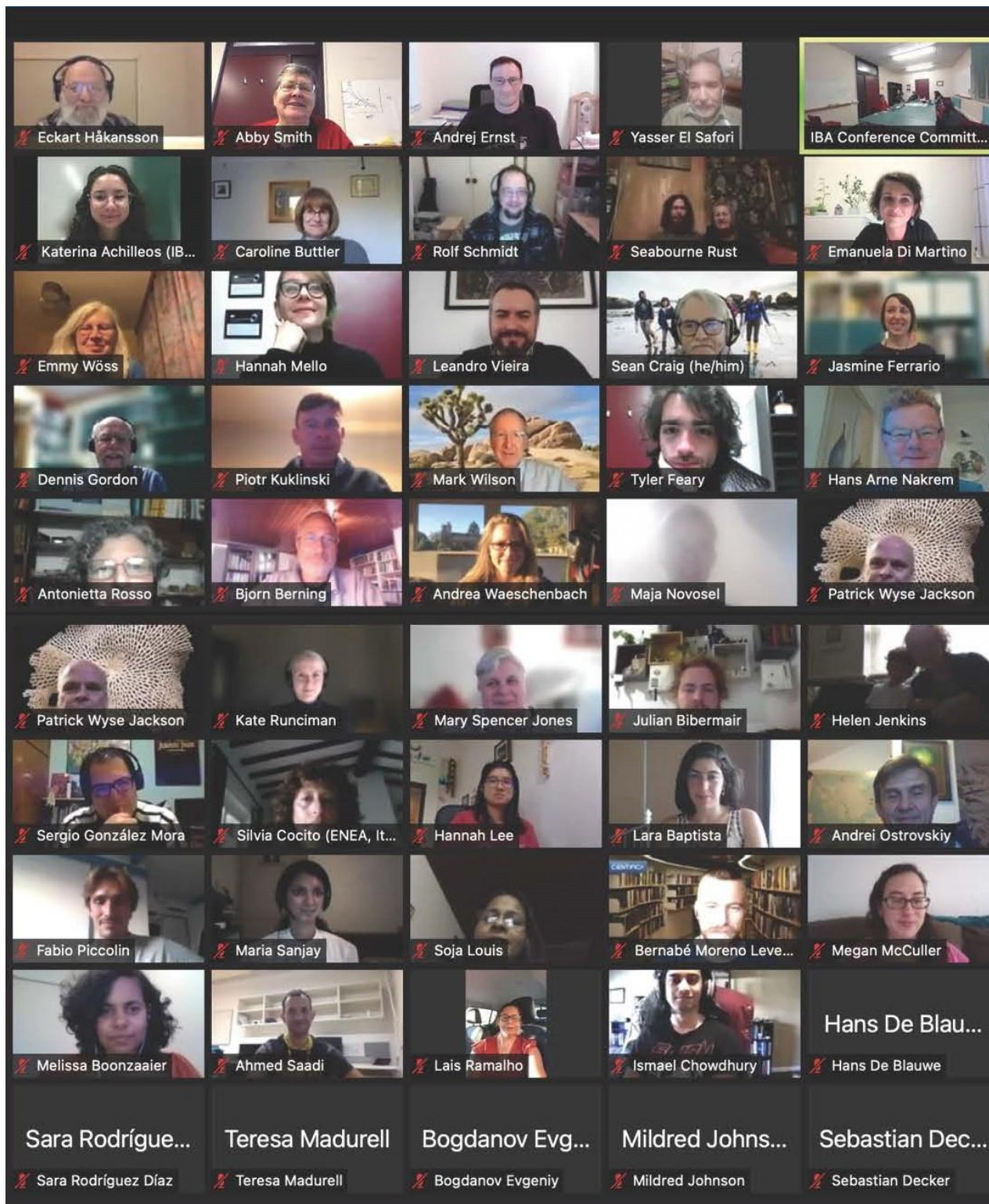
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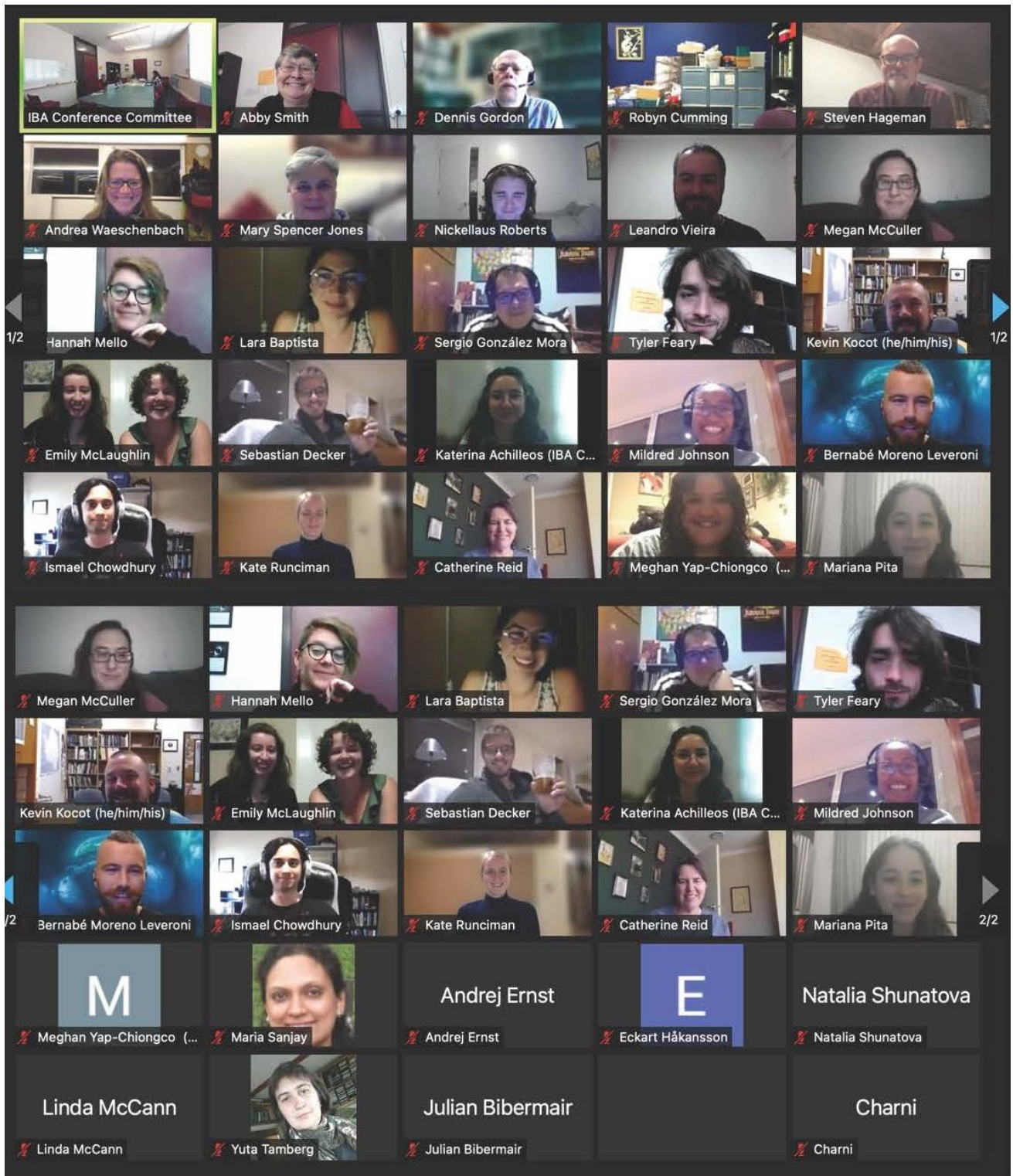
MEETING REPORTS

INTERNATIONAL BRYOZOLOGY ASSOCIATION 17TH LARWOOD & 10TH AUSTRALARWOOD

On-Line Conference Hosted at the University of Otago, Dunedin, New Zealand
29-30 September 2021



“Conference Photo” -- Many of the almost 80 scientists that attended from 23 countries, *continued overpage*



Many thanks to the organising committee of Abby Smith, Peter Batson, Yuta Tamberg, Hannah Mello, Katerina Achilleos and Tyler Feary!

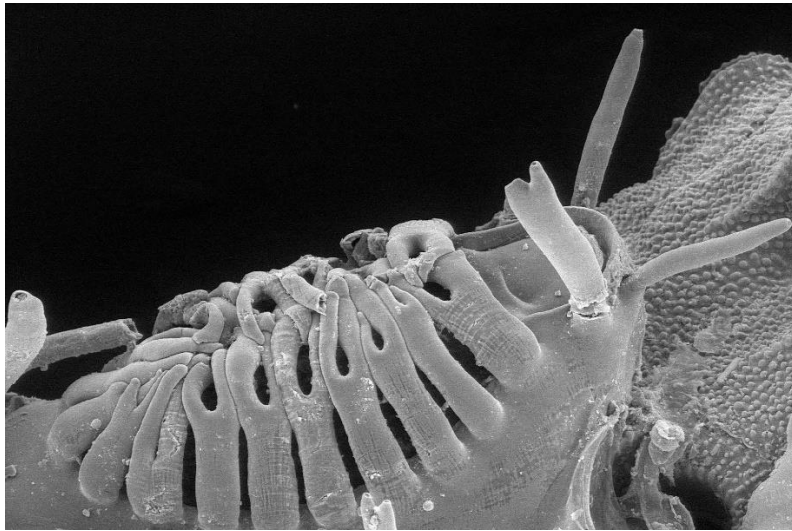
Student prizes

Best Talk – Peter Batson, *Best Talk runner-up* – Sebastian Decker

Best Poster – Nadezhda Karagodina, *Best Poster runner-up* – Evgeniy Bogdanov

Congratulations!!!!

Photo-competition



WINNER - Hans De Blauwe "*Klugerella antarctica* relaxing in the Scanning Electron Microscope"



RUNNER-UP – Sebastian Decker "*Flustra* sp.? from the Red Sea Dahab"



MEETING ANNOUNCEMENTS

THE 2022 IBA MEETING – HOUSTON TEXAS

Planning for the 2022 IBA meeting in Houston, Texas is well underway, hosted by Penny Morris. Details will be available in early January – keep an eye out for the email.



IN MEMORIUM

MICHEL VIGNEAUX 1921-2021)

Died at the age of 101 years, born in the north of France (Noyon), formerly mathematician, Michel Vigneaux settled in Bordeaux for familial reasons in 1940, following in this city his university studies, but in natural sciences, and upholds his doctorate thesis in 1949, intitled : "Bryozoaires Néogènes du Bassin d'Aquitaine". It is a voluminous memoir making still reference, founded on the paleontological material existing in the substrate where the town was built, and in which he established peculiarly two new families, Chorizoporidae and Watersiporidae. He became then quickly professor in the university of Bordeaux, after the tragic and premature death of the eminent geologist Fernand Daguin.

He founded in the university, with the help of CNRS, the "Institut de Géologie du Bassin d'Aquitaine", a fundamental and applied scientific structure, having various vocations : coordination of a regional geologic guide-book, exploration of the geological bottoms of the bay of Biscay, collecting of water-sources, regional distribution of waters, management of the reconstruction of the ancient quarters of Bordeaux (edified on a buggy area), marine and coastal geological researches, sedimentology of the Aquitanian region. So, he entrusts the care to follow his studies on the Bryozoa to two of his former students, Monique Labracherie and Jeannine Prudhomme. He was also the near scientific conciliator of Jacques Chaban-Delmas, mayor of the city of Bordeaux and then French Prime Minister, by other way promoted general in the Resistance by the president Charles de Gaulle himself.

He was during many years director of the Museum of Natural History of Bordeaux. I was inexpectably present by in 1964, by accident, when Chaban-Delmas visited this Museum recently restored, escorted friendly by Vigneaux. Member of the Academy of Sciences, Belles-Lettres and Arts of Bordeaux, he came to the reunions driving his own car to the age of 95 years, collecting on his journey some of his colleagues, younger but not in so good health of himself, up to the moment where he was victim of a cerebral vascular accident, and keeping from it some sequelles. During a lot of months, I was his " belated student" : between the end of my first doctorate thesis on the meiobenthos (Bordeaux, 1967) and my departure to Paris (beginning 1968) to founder the sub-department of the Bryozoa in the Museum National of Natural History (and to prepare, in one of it laboratories, a second thesis, on the development of these organisms) ; so I profited a little of his culture and of his teachings on his privilegeous biological material, having to become also the mine three months later. I was impressed by the scientific and literary qualities of his lectures.

Jean-Loup d'Hondt

OPPORTUNITIES

PHD OPPORTUNITY UNIVERSITY OF OTAGO, DUNEDIN, NEW ZEALAND BRYOZOANS THAT WALK?!?

A functional and biogeographic study of the New Zealand Otionellidae

Bryozoans in the genus *Otionellina* form small (1-10 mm in diameter), free-living, disc-shaped colonies (about the size and shape of a lentil). Together with a group of similar-looking genera, their mode of life is quite atypical of their phylum. Unlike most bryozoans, they live unattached on unconsolidated sea-floor sediments. It is not going too far to say that this group is ecologically unique. Nor is it overstating the position to say we know almost nothing about how they live.



Various living Otionellina specimens from southern New Zealand, scale in mm.

Bryozoan larvae typically attach themselves to a substrate suitable to support the colony through life. In strong contrast, *Otionellina* and other free-living taxa either attach to a single sand grain before metamorphosis, or they go through metamorphosis without the support of even the smallest substrate – in both cases growing on to form “free-living” colonies. Among the normal feeding zooids, there are regularly dispersed vibracula, heterozooids with modified, whisker-like opercula, which have been observed to facilitate motility in a few free-living taxa. When mature, colonies are assumed to reproduce sexually, but most taxa also have the capacity to regenerate new colonies from fragments, raising interesting questions about genetic longevity and mortality. Free-living colonies appear to be the only bryozoan colonial growth habit that is deterministic, in that they grow to a particular size. At least, as far as we know.

Much of what we know or have inferred about this group of bryozoans comes from fossils and preserved material. With access to wild populations of *Otionellina* around southern New Zealand, we aim to establish this genus as a key model for the understanding of the whole group of highly unusual bryozoans. We are therefore looking for a PhD student with wide-ranging interests to examine and monitor live populations with a view to answering some of the critical questions about how they live:

- What is their life-cycle/breeding cycle? When do they spawn, and can we make them spawn in the lab (and if we can, can we make them settle and grow)? Do they have distinct male and female zooids (as in other free-living groups)?
- What is the proportion of colonies that result from larvae, and what proportion from asexual reproduction? Does that vary over time and space?...and species? Why?
- What is the degree to which living populations are connected? How far can a larva swim? How long before it settles? What are the genetic relationships among individuals that live near each other, and how are they different from more distant populations?
- Do they all move? If so, how? Is how they move related to their morphology? And more importantly – why? Towards a food source? Towards conspecific colonies? Up through sediment? Down into sediment? Away from light?
- If we do find that they respond to particular stimuli – how do they do that? What sensory cells/organs do they use?

About us

The Department of Marine Science at Otago offers the southern hemisphere's only truly interdisciplinary marine programme. We are located on the east coast of the South Island in New Zealand, within a day's sail of the subtropical convergence. With five vessels, three field stations, exceptional integration across marine researchers in 14 departments, and an active outreach programme, Otago is the perfect place to start your research career. For more info: www.otago.ac.nz/marinescience



Our temperate carbonate research lab, especially focused on bryozoans, is led by Professor Abby Smith. Students in her research group are working on local bryozoan faunas, growth and calcification in southern temperate invertebrates, skeletal carbonate mineralogy, and calcification responses to ocean acidification.

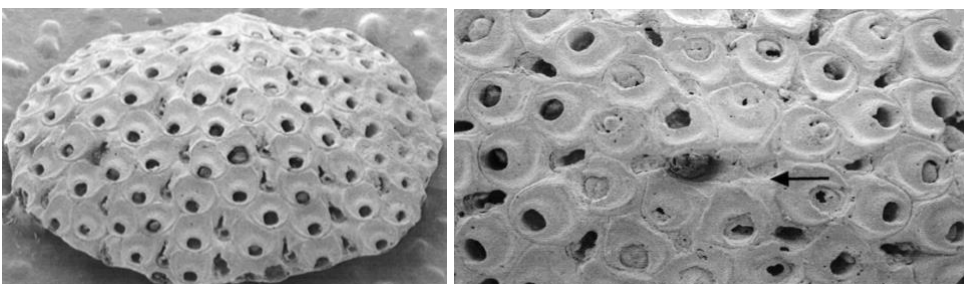
Our free-living expert on the project is Prof Eckart Håkansson, Honorary Research Fellow at the University of Western Australia. He has 50 years of experience in geology and paleontology with a strong focus on bryozoans and a lifetime of field work in Europe, the Americas, Australia and New Zealand. His extensive experience, especially with free-living bryozoans, will be invaluable.

About You

A suitable PhD student would have research experience (MSc thesis or Honours dissertation) in marine and/or biological sciences. Experience with marine invertebrate culture, population genetics, histology or development would be helpful. A publication or two would be excellent.

The successful applicant will be eligible for a University of Otago PhD Scholarship, currently valued at \$27,000 NZD tax-free annually for three years, with tuition fees also covered. This is an acceptable wage and allows our students to live in Dunedin. Field and lab research costs will be funded from within the Department of Marine Science.

There is no closing date for the position, but we hope to fill it sometime in 2022 (as the New Zealand borders open). For more information, and to start the process, please contact Abby Smith abby.smith@otago.ac.nz.



Otionellina sp. from Otago Shelf. Whole colony is 6 mm across. (Steger & Smith 2005)

Send it on

Please pass this information around your networks. We look forward to hearing from some excellent candidates!

BOOKS

CENOZOIC PHYLACTOLAEMATA AND EURYSTOMATA OF NORTH-EAST OF EURASIA AND NORTH OF AMERICA. MODERN AND FOSSIL

A.V. Vinogradov¹, S.A. Kuzmina²

1 - Samara Regional Branch of Russian Ecological Academy;

2 - Borissiak Paleontological Institute, Russian Academy of Sciences, Moscow

The book is dedicated to the doctor of biological sciences A.P. Rasnitsyn, the classic of entomology, paleontology and paleoentomology, evolutionist, taxonomist, paleoecologist, paleolimnologist. The book is jubilee in connection with the 85th anniversary of A.P. Rasnitsyn and personal anniversaries of the authors of the book.

The formation of the fauna and flora of hydrobionts of continental water bodies of Beringia on the border of two biogeographic regions (Palaeartic and Nearctic) is of considerable scientific interest. The concept of "Beringia" in biogeography of land and biogeography of land water bodies (continental water bodies) is considered. This vast area with water area is located in the northeast of Eurasia and north of America. Taking into account the poor knowledge of continental water bodies in the Phylactolaemata and Bryozoa (Eurystomata, Ctenostomida) regions, the authors carried out phylactolaematological and bryozoological studies devoted to recent and fossil representatives of these groups.

Shown is the level of achievements of Soviet and Russian scientists in the field of study of Phylactolaemata and Bryozoa of land water bodies (mainly the works of A.V. Vinogradov): in taxonomy (description of the phylum Phylactolaemata and other taxa), ecology, global faunistics, global biogeography of land water bodies, regional studies, paleontology; the possibility of preserving statoblasts of Phylactolaemata in sediments and the great antiquity of their recent genera and species have been proved; the importance of the morphometric approach in the study of Phylactolaemata (first of all, according to the parameters of statoblasts) is noted. A.V. Vinogradov's classification of the phylum Phylactolaemata is quite correct and can be considered advanced and reliable. The emerging reports of "new" species of Phylactolaemata based on molecular studies and minor differences, with incomplete compliance with the International Code of Zoological Nomenclature, should be viewed critically as speculative. DNA barcoding is only one of the signs, not an absolute sign for taxonomy, especially for such peculiar creatures as Phylactolaemata, and even more so for fossil objects. The description of new taxa by barcoding is usually not done, but is used to identify relationships.

It should be noted the high level of innovation of this study, many of the findings were made for the first time. Specimens of Phylactolaemata and Eurystomata (Ctenostomida) were found in continental water bodies, and fossil remains of Phylactolaemata in the form of statoblasts and fragments of the zoaria Ctenostomida were found in sections of northeast of Eurasia and northwest of North America. Recent findings include: in the basin of the Vilyui River (left tributary of the Lena) – *Fredericella sultana sultana*, *Plumatella fruticosa*, *Hyalinella punctata*, *Cristatella mucedo* (Phylactolaemata) and one species of Eurystomata (Ctenostomida) – *Paludicella articulata*; in the Lena floodplain near Yakutsk – *H. punctata*; at the North Pole of Cold, in the oxbow of the Yana river, near the village of Batagay – *P. repens*.

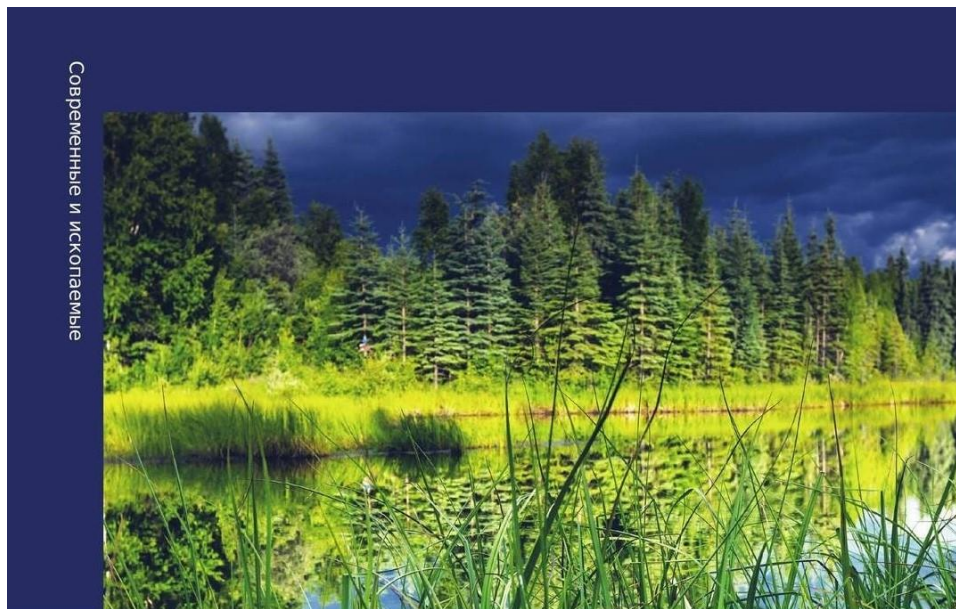
Fossil statoblasts of Phylactolaemata were found in the Late Cenozoic sediments of northeast of Eurasia and north of America. *C. mucedo* statoblasts are more common (larger and easier to identify). Subfossil zoaria of *P. fruticosa* with statoblasts, its individual statoblasts, and zoaria of *Paludicella articulata* were recorded in the Vilyui basin; at the North Pole of Cold, in the section on the Adycha River (the right tributary of the Yana River), fossil statoblasts *C. mucedo* were found; fossil statoblasts *C. mucedo* and *P. fungosa* were found in sections in the valley of the Aldan River (right tributary of the Lena River). Fossil statoblasts *F. sultana* and *C. mucedo* were found in sections in the Upper Liard and Yukon river basins in northwestern Canada.

The doubtful occurrence of *P. fungosa*, *P. repens* and *P. emarginata* in the region needed confirmation; primarily in the northern regions. The authors confirmed the finding of *P. repens* (in the northern area) and *P. fungosa* (in the southern area). The region is inhabited by representatives of two species Bryozoa (Ctenostomida). Research is ongoing.

Comparing the living conditions and composition of hydrobiota in ancient and modern water bodies, one can notice some similarity of ancient water bodies of northeast of Eurasia and northwest of America with modern steppe lakes of northern Kazakhstan and some forest water bodies of northern Transbaikalia in Buryatia (Russia), in the Vitim

river basin (the right tributary of the Lena in its upper reaches). In the modern steppe lakes of northern Kazakhstan and forest water bodies of the Tsipo-Tsipikan (Baunt) system in northern Transbaikalia in Buryatia, Phylactolaemata and freshwater Bryozoa (Ctenostomida) are represented. In one of the Baunt lakes, lake Busani, the bryozoan *P. articulata* dominated; statoblasts of phylactolaemata *C. mucedo* and their fragments were numerous; zoaria *P. repens* have also been found. *F. sultana*, *P. repens*, *C. mucedo*, *P. articulata* were recorded in several Baunt water bodies.

The book contains numerous photo illustrations showing various water bodies of the studied region and their inhabitants, as well as geological sections and paleontological finds.



Современные и ископаемые

Анатолий Валентинович Виноградов
Светлана Александровна Кузьмина

Кайнозойские Phylactolaemata и Eurystomata

северо-востока Евразии и севера Америки

Виноградов, Кузьмина

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Cover: Lake Serenity in the tundra of Alaska, United States of America.
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THE TENTH ANNIVERSARY OF THE MONOGRAPH BY A.V. VINOGRADOV "LOST WORLDS AND THEIR INHABITANTS"

Vinogradov A.V. Lost worlds and their inhabitants. – Saarbrucken, Lambert Academic Publishing (LAP), 2011, vol. 1 - 3. The book is dedicated to the main teachers, biologists L.P.Molodova, G.B.Zevina, I.P.Morozova, Ya.I.Starobogatov. In Russian. [Виноградов А.В. Затерянные миры и их обитатели. – Saarbrucken, Lambert Academic Publishing (LAP), 2011, т.1 - 3. Книга посвящена основным учителям, биологам Л.П.Молодовой, Г.Б.Зевинной, И.П.Морозовой, Я.И.Старобогатову]

The genre of A.V.Vinogradov's book "Lost Worlds and Their Inhabitants" (in three volumes) is popular science. This, of course, is not only a scientific study, but also a work of fiction, a popular science study by a qualified biologist, zoologist, paleontologist and an experienced journalist, carried out at the intersection of many disciplines, presented in a vivid language accessible to a wide range of readers. First of all, this is a book about the protection of wildlife, the need to preserve and study it. The book continues the traditions of the genre in which famous naturalist writers worked, among them V.A.Obruchev, I.A.Efremov, I.I.Akimushkin, B.F.Porshnev, V.B.Sapunov, D.Yu.Bayanov, V.Tan-Bogoraz, M.A.Bulgakov, B.Heuvelmans, A.Sanderson, Herbert Wells, Jules Verne, Arthur Conan Doyle, E.Burroughs, R.Kipling, Jack London and many others. The book is dedicated to mythobiology, a scientific direction that searches for mysterious, secretive creatures. It constantly interests people, is often used in literature and cinematography. This is a whole trend in art. Its history goes back to the works of A.S.Pushkin, P.P.Bazhov, P.P.Ershov and other authors based on folklore, which, as it turned out, did not arise out of nowhere and is not fiction; the folklore of many peoples is based on real biological and anthropological prototypes. A.V.Vinogradov's book is largely autobiographical and is a definite result of the author's journalistic and scientific activities.

A.V.Vinogradov, a specialist in aquatic organisms, paid attention in the book to Bryozoa and Phylactolaemata as a new phylum of invertebrates described by him. He told why, when and how he chose this scientific direction (bryozoology, and later on phylactolaematology). For him, the active phase of scientific activity began in the first year of the Faculty of Chemistry and Biology of the Samara (formerly Kuibyshev) University in 1973, but this was a continuation of his school interest. He had to study all six volumes "Lives of Animals" («Жизнь животных» in Russian) and many other books, he lived in nature for a long time, observed and studied it, developed actively, mentally and physically. Having opted for Bryozoa, he made a presentation on this group at the first scientific student conference, in his first year. In 2004, the author proved that the freshwater class Phylactolaemata is an independent new phylum. The same was the case with Pogonophora, which A.V.Ivanov separated from the marine Annelida, proving their independence in the rank of phylum; before that, Pogonophora had been known to science for more than half a century. And the description of the Pogonophora phylum became a zoological sensation of the 20th century. A.V.Vinogradov speaks warmly of his main teachers (zoologist L.P.Molodova, zoologists, paleontologists and bryozoologists G.B.Zevina, I.P.Morozova, zoologist and biogeographer Ya.I.Starobogatov), dedicated his book to them. The author of the book, as a participant in the events, shows the history of the development of bryozoology in the Soviet Union and the leading role of the Bryozoa cabinet of the Bryozoa and Anthozoa laboratory of the Paleontological Institute of the USSR Academy of Sciences (now PIN RAS) under the leadership of Doctor of Biological Sciences I.P.Morozova, which became recognized in the country and world focal point for bryozoological research and held All-Union meetings on Bryozoa (in the broadest sense). A.V.Vinogradov talks about his research on the recent and fossil Phylactolaemata and Bryozoa of the continental water bodies of the Soviet Union. The book contains one of the earliest versions of the poem by A.V.Vinogradov "Poem about bryozoans".

The author of the book reports that Bryozoa and Phylactolaemata have played a role not only in basic science, but also in culture. Additional research, especially museum collections, helps to resolve many unclear questions that, over time, become mythical and significantly distort our understanding of the group as a whole. In this regard, the author examines in detail the publication of the famous zoologist N.Annandale in 1915 about the Phylactolaemata of the Eruslan River in the Saratov region of Russia. Chinese paleontologists described objects similar to the marine Bryozoa found in the Lower Cambrian deposits, but Russian experts on fossil marine bryozoans, under the guidance of Doctor of Biological Sciences I.P.Morozova, concluded that this was not Bryozoa. A very exotic theory describing the emergence of the mythical group Semibryozoa. The group of fossil marine bryozoans, described under the name Palaeocyphonautidea, found in the Triassic deposits of Spain, probably belongs to the same category. Many problematic groups are known in paleontology (A.V.Vinogradov writes about them in detail in his book). Many famous scientists and writers paid attention to Bryozoa (Polyzoa). While still young, Charles Darwin first described the larvae of sea bryozoans and their movement, and later he collected collections of bryozoans during his historical voyage on

the ship "Beagle", and they are kept in the British Museum. In rare cases, Bryozoa are shown in popular science and fiction: G.B.Adamov "The Secret of Two Oceans" («Тайна двух океанов», 1986, in Russian), V.G.Bogorov "Life of the Sea" («Жизнь моря», 1954, in Russian). In even rarer cases, they are depicted in popular scientific and fiction literature Phylactolaemata: V.Bragin "In the Land of Dense Herbs" («В Стране Дремучих Трав», 1992, in Russian), Hans Scherfig "Pond" («Пруд», 1978, translated into Russian from Danish). Bryozoa, Spongia, Anthozoa, Hydroidea used to be united in the Zoophyta group. The German Philosopher F.Engels in his classical works «Dialectics of Nature» and «Anti-Duhrings» («Диалектика природы», «Антидюринг», in Russian) considers zoophytes as a remarkable group of living beings, but the information he uses is significantly outdated. The famous French writer Jules Verne also paid attention to zoophytes in his fascinating science fiction novel "20 thousand leagues under the sea" ("80 thousand kilometers under the sea") [«20 тысяч лье под водой» и «80 тысяч километров под водой» in Russian]. Russian writer S.T.Aksakov in his memoirs "Childhood years of Bagrov the grandson" («Детские годы Баргова-внука», in Russian) writes how he found fossilized remains of Paleozoic marine fauna on the Belaya River in the Volga-Ural interfluvium, most likely the remains of Anthozoa or Bryozoa colonies (but to identify them right he couldn't).

Artistic creativity embraced not only bryozoans, but also bryozoologists. The science fiction story of the famous Russian-Ukrainian writer M.A.Bulgakov «Fatal Eggs» («Роковые яйца», in Russian) depicts professor Persikov as an employee of the Moscow Zoological Institute on Herzen Street. This character shows an employee of the Moscow State University and the Zoological Museum on Herzen Street (now Bolshaya Nikitskaya Street) G.G.Abrikosov, a classic of bryozoology and phylactolaematology, the largest Russian and Soviet bryozoologist (the words "абрикос" and "персик" in Russian mean similar fruits apricot and peach). It was he who wrote the summaries of Bryozoa, Brachiopoda, Phoronida and Kamptozoa in the multivolume Soviet edition «Life of Animals» («Жизнь животных», 1968). The creative association "Lad" in 1992 created a feature film "Fatal Eggs" («Роковые яйца», in Russian). Professor Persikov was played by the famous actor Yuri Yakovlev. In another scientifically-fantastic film of 1988 directed by V.V.Bortko, based on the story of M.A.Bulgakov "Heart of a Dog" («Собачье сердце», in Russian), professor Preobrazhensky introduces a colleague as professor Persikov (in fact, this is a character from another story by M.A.Bulgakov "Fatal eggs" - «Роковые яйца»). Here in the role of N.N.Persikov – actor Roman Tkachuk. In this regard, A.V.Vinogradov, who has an extraordinary sense of humor, recalls a popular Soviet song "I will walk along Abrikosov, turn to Grape" («Пройду по Абрикосовой, сверну на Виноградную» in Russian, that is, «I will walk along Abrikosovaya Street, turn onto Vinogradnaya Street»), since his surname also contains the fruit "grapes" ("виноград" in Russian) [jokingly, he calls it the anthem of bryozoologists and phylactolaematologists]. He added that his colleagues were Izumova (two ladies) and Yablokov, also with fruit surnames (from "raisins" and "apple" - "изюм" and "яблоко" in Russian).

The famous Russian and Soviet bryozoologist, classic, G.A.Kluge also got into fiction and more than once. Writer Zinaida Richter, who visited Murmansk in the early 1920s, writes about him in one of her books; writer G.V.Metelsky wrote in 1978 that professor Kluge, head of the Murmansk Biological Station, wore a marine raincoat over a leather vest for 16 years all year round. And the writer Pavel Nizovoy (Тупиков), author of popular science books on natural science, writer and journalist, immortalized G.A.Kluge in his novel "Ocean" («Океан», 1930, 1933, in Russian).

A rare fact of the use of the scientific names Phylactolaemata in toponymy is known. Hydrobiologist V.M.Rylov (В.М.Рылов, in Russian) investigated ponds in the vicinity of Peterhof (Petrodvorets), not far from Petersburg. He named them Cristatella pond and Plumatella pond, respectively, by the presence of Cristatella mucedo and Plumatella fungosa in significant quantities. The word "Bryozoa" is used by ichthyologists in the name of the sea fish Bryozoichtys lysimus (Jordan, Snider, 1903), up to 12 cm long, living in the coastal waters of the Japanese, Okhotsk and Bering seas. Along the upper surface of the head to the dorsal fin, skin appendages grow, the impression is that the fish has overgrown with bryozoa.

The Russian word "мшанки", akin to the word "moss", used to designate Bryozoa, is also used in Russian botany (for herbaceous plants of the genus Sagina) and in Russian mythology associated with German and English folklore (where "мшанки" are anthropomorphic female creatures dressed in moss outfits). Germanic and Russian folklore preserve the memory of extremely similar furry (moss) maidens and men (obviously, this is the memory of wild people who lived next to our ancestors). A connoisseur of Slavic traditions, naturalist and philologist V.I. Dahl, in his dictionary, says that a flywheel is a person who has overgrown with hair. Russians have long known "mokhovitsa" (моховица) – a freshwater invertebrate, similar to a sponge, overgrowing piles in water, scientifically, Alcyonella, now Plumatella fungosa. V.I.Dahl also reported some forgotten Russian concepts close to the words "мшанка" and "мох": "мшанка" – moss, which bees love; "Moshnikov nest", "Moshnichy bormot", "Small Omshanik", "mrshenka" – a cellar for food products, wintering of bees, a warm log house over a spring, over a well.

The book by A.V.Vinogradov also speaks about the biogeography of water bodies of land and about innovations in this scientific direction. In the same 2011, A.V.Vinogradov published his monograph "Phylactolaemata and Bryozoa of continental reservoirs of Eurasia" (in two volumes); it was his 2003 Ph.D. thesis project (Doctor of Biological Sciences).

Ekaterina Yu. Vinogradova, biologist, philosopher (Samara, Russia)

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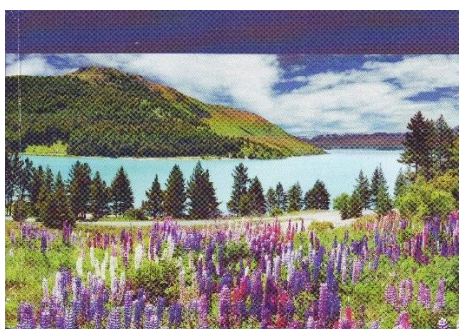
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Анатолий Валентинович Виноградов

Затерянные миры и их обитатели

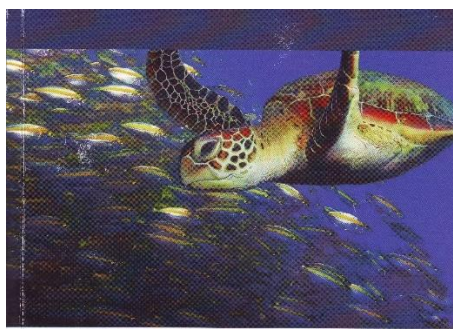
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На пути к открытиям в зоологии, ботанике,
антропологии



SONG

AN ANTHEM OF RESEARCHERS OF BRYOZOA AND PHYLACTOLAEMATA OF CONTINENTAL WATER BODIES.

ПРОЙДУ ПО АБРИКОСОВОЙ

Песня

Автор и исполнитель Юрий Антонов

Есть улицы центральные, высокие и важные
С витринами зеркальными, с гирляндами огней
А мне милей бесшумные, милей одноэтажные
От их названий ласковых становится светлей.

Пройду по Абрикосовой, сверну на Виноградную
И на Тенистой улице я постою в тени
Вишнёвые, Грушёвые, Зелёные, Прохладные
Как будто в детство давнее ведут меня они.

И, может, на Сиреневой, а может, на Каштановой
А не на этих улочках, тогда на Луговой
С любовью встречу первую, нежданной,
нежданною
И вновь к пробитой полночи я буду сам не свой.

Пройду по Абрикосовой, сверну на Виноградную
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А мне милей бесшумные, милей одноэтажные
От их названий ласковых становится светлей.

Пройду по Абрикосовой, сверну на Виноградную
И на Тенистой улице я постою в тени
Вишнёвые, Грушёвые, Зелёные, Прохладные
Как будто в детство давнее ведут меня они.

I will walk through the Apricot

Song

Author and singer Yuri Antonov

There are streets central, high and important
With storefronts mirror , with garlands of lights
And dearer to me silent , mile - storey
From their names becomes lighter affectionate.

Coming in Apricot, take the Grape
And I'll stand Shady street in the shade
Cherry, Pear, Green, Cool
As if in a long-standing childhood lead me they.

And maybe on Wisteria, and maybe to the Chestnut
And not on these streets, then on Meadow
Love meeting of the first, unexpectedly,
unexpectedly
And again, to a broken midnight I will not himself.

Coming in Apricot, take the Grape
And I'll stand Shady street in the shade
Cherry, Pear, Green, Cool
As if in a long-standing childhood lead me they.

There are streets central, high and important
With storefronts mirror, with garlands of lights
And dearer to me silent, mile - storey
From their names becomes lighter affectionate.

Coming in Apricot, take the Grape
And I'll stand Shady street in the shade
Cherry, Pear, Green, Cool
As if in a long-standing childhood lead me they.



Юрий Антонов -
Пройду по Абрико

MP3 recording supplied by Anatoli
Vinogradov (click to play/attached to email)

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.

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