

Introduction

The Guide to the Natural Environments of Bratislava is a phase summarizing material from longer-term activities focused on topics related to the modified natural landscape, the concept of natural or urban environments, gardens, and parks. The collaboration with Peter Bartoš, particularly in developing his concept for the Bratislava Zoo, as well as visits to the Lamač area or his activism related to the Bratislava Old Town, had a significant influence.

The idea of actively modifying the landscape, cultivating, breeding, or farming encompasses a wide range of possibilities, many of which aim to improve the current state, while others are more invasive in relation to the natural state of the environment. Humans intrusively enter the process, disturbing the balance, and even influencing the very entity that is life itself.

Nature has been a human invention since antiquity, and since then, the evolution of our brain's physiology has stagnated. We have created our own culture as a species, *Homo sapiens*. We have codified anthropocentric methods. Prometheus is like the gods, one of them, and he will either conquer them or at least deceive them. Manipulating our surroundings is intrinsic to us.

Humans have always used nature for their benefit without much consideration. Since flexibility or adaptability is a sign of the strength of evolution, nature has been capable of responding and self-correcting. Balance. Perhaps it is the force of entropy, though our ability to comprehend disorder is questionable, or we could say it remains beyond our limits.

In addition to contemplating the landscape altered by humans, whether in a holistic view (P. Bartoš), i.e. possibilities for harmonious coexistence of humans, animals, and plants, or a more conflict-driven one which disrupts relationships in nature, such as the climate crisis, there is also the idea of nature as something invincible and capable of reinvention.

Jan Svěrák's student film *Ropáci* (The Oilers) is a fictional documentary about creatures who live off of our waste, or rather, our product which harms both us and all other organisms. This utopian story is becoming increasingly more believable. New observations, such as those of fungi or sponges, support this.

If we start paying more attention to these „guerrilla“ existences in our cities, we will find them in our immediate surroundings. Nature quietly finds its way to us and can utilize everything for the preservation of life. It mimics, adapts, and survives, which is why we cannot be surprised by new species that are more successful than we are.

Even here, in our urban biotope, there are many such species, adapting perfectly to the available conditions. The natural environments described in this publication are therefore not only those that use or simulate real natural habitats, but they also include urban environments—originally city spaces—that nature has adopted and learned to use to its advantage.



Huby na Panenskej – hrať sa s pôdou a pestovať

Creating for people. Changing the socio-spatial environment for the better – for example, transforming a forgotten basement into a piece of free, wild nature. Where a living, vital organism will feel at home. Like in an aquarium. Mushrooms as organisms that don't belong anywhere – neither among animals nor plants, although they bring benefits to each kingdom, and without them, nothing would work. Nothing! Absolutely nothing would be as we perceive it.

Mushroomarium – a small island of natural space in the city, where mushrooms will dominate as a result of the collaboration between human ingenuity and skill and the wide variety of beautiful mushrooms that will settle and embrace it as their own.

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LION'S MANE MUSHROOM (*Hericium erinaceus*)

Just by its appearance, this mushroom can be considered an intelligent nobleman in its family – its white, lion's mane-like growth, resembling coral, corresponds with its interior. Scientists see its potential for healing – repairing our damaged nerve connections, acting as an elixir that slows down aging, protecting our immunity and digestion, or accelerating wound healing. One must guard it in nature by law, although it can be beautifully cultivated. A true gem of nature, which may one day help combat the epidemic of mental illnesses, silently and stealthily spreading across the world. The sight of these mushrooms alone has a calming effect; you won't see so much beautiful, pure, concentrated white anywhere else in nature.





LEMON OYSTER MUSHROOM
(Pleurotus citrinopileatus)

This yellow beauty, constantly attracting attention along with its pink sister, captivates the eye of every mushroom lover and once again provides benefits to humans – a mushroom originating from the Far East, favoring warmth and humidity, it offers a high protein content, amino acids, and helps lower cholesterol, while increasing the body's resistance to infections. In addition to its health benefits, it has a lovely anise-like fragrance and competes for the top spots in beauty contests. It seems to disdain the kitchen – by cooking, it loses its natural beauty and transforms into a dull, colorless oyster mushroom. Why does it torture the senses of a gourmet in this way?!

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HEN OF THE WOODS
(Grifola frondosa) (Maitake)

You, who choose as your goal to find this mushroom in the wild, will wear out several pairs of shoes, and success is not guaranteed. A gourmet delicacy, an inconspicuous beauty, or perhaps the only mushroom that in ancient times was danced for in joy and weighed out in silver, gram for gram. Perhaps one day it will replace the boletus on the top of the mushrooms ladder. And the health benefits? The list is extensive – antioxidant, wound healer, tooth decay fighter, blood sugar regulator. However, as with all mushrooms – here too, we must face the truth and admit that we know almost nothing about them, and our knowledge is still very limited. What every grower definitely knows, however, is that maitake is a proud mushroom and does what it wants, often “giving up” in captivity – simply refusing to be told what to do...





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PINK OYSTER MUSHROOM
(Pleurotus djamor)

This cultivated beauty is said to come from somewhere in Thailand, which is why it needs warmth and humidity, just like in its homeland. Below 15 degrees Celsius, you won't be able to wake it up to life. While it awakens all the senses of the observer with its beauty, winning over the jury, its taste divides the audience of mushroom eaters – one half doesn't like it, the other seeks it out. The controversial smell of some strains of this beauty confuses the olfactory senses with a sweet note. Similar to its aniseed sister, further losses continue in the pot – it loses its unique color when cooked. However, on the shelf, it proudly stands out, and you won't pass it by without a silent or even loudly pronounced: "Yay!"



SHINY POLYPORE

(Ganoderma lucidum) (Reishi)

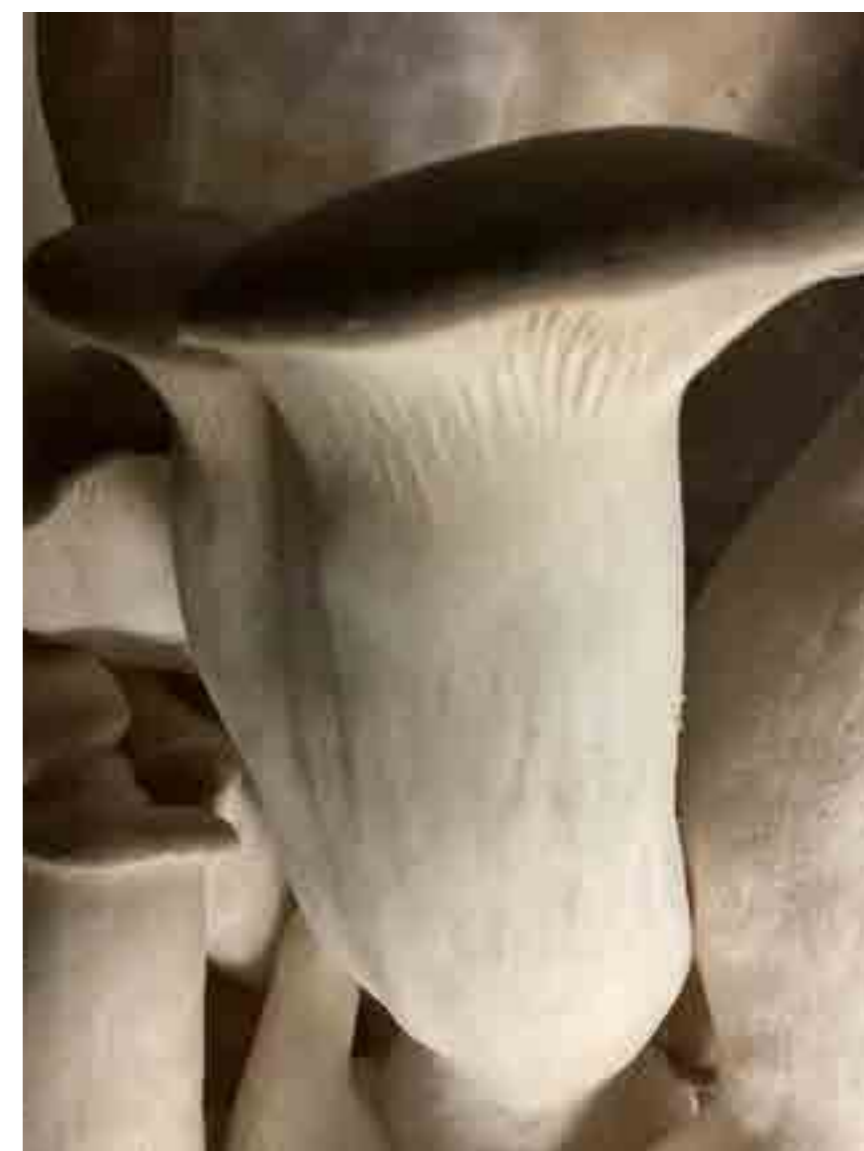
Is this a mushroom tree, a mushroom, animal or a mushroom plant? It's like a virus – its spores dust the space far and wide, it's like a tree – anyone who's held reishi in their hand couldn't decide whether they were holding a branch or a cork from a wine bottle. A mushroom surrounded by legends about its effects, passed down through oral tradition from the Far East like its spores – they are everywhere, in thick layers, painting the vast space brown in an instant. The list of its supposed health benefits includes the ability to save civilization – it detoxifies, aids digestion, reduces stress, revitalizes, boosts immunity, lowers blood sugar, and reduces cholesterol – it saves the heart and blood vessels. It means well for us, despite its bitter taste that will twist your mouth so much that you'll instinctively reach for some cane juice or Indian jaggery, dissolving a couple of teaspoons in your cup. The true shiny polypore is a phenomenal and mysterious immortal mushroom that must be revered.



KING OYSTER MUSHROOM

(Pleurotus eryngii)

We're returning from the forest back to cellars, factories, and farms – you won't find the Queen in the forest, although it was bred from the forest oyster mushroom. It didn't inherit the persistence and adaptability from its parents; on the contrary, it's demanding in terms of its environment. In hot summers, bacteria are quick to enjoy it, and the growers will vainly wonder where they went wrong. The right temperature is vital as it only wants to grow in the cold, below 15 degrees Celsius; otherwise, it's not interested. Quality substrate is essential, and a healthy, clean environment is a must. But those fruiting bodies... beautiful, powerful, and stout, because such thick mushrooms are sought after by gourmets worldwide. Steaks, vegan replicas of scallops, oyster mushrooms scraped with a fork like pasta, or sliced thinly with a potato peeler into transparent strips have no competition in the kitchen. In the hands of a skilled cook, they are simply awe-some! King oyster mushrooms to every kitchen...



OYSTER MUSHROOM

(Pleurotus ostreatus)

A mushroom that is unfortunate because it's easy to grow. Straw, sawdust, toilet paper, or even a book – it'll take anything, and it will settle anywhere. It's not picky about conditions, just as long as it's cold enough. It can even withstand a bit of frost. After the first pause in November, when all mushrooms stop appearing in the forest, and most mushroom foragers close the season, the second phase begins – the oyster mushroom starts to grow. A smaller group of mushroom hunters moves alongside rivers and streams, heading straight for the fallen trees in the forests, looking for its habitat. Everyone's heard of beta-glucans, its miraculous abilities – it heals this, it heals that – it's just so healthy. Those who do not live near a river are condemned to buy it from the supermarket. And yet, it's such a beauty! It can sport all shades of metal – blue, purple, brown, or steel-gray; the white ones are Florida, the dark ones are Black Pearl. Blue King, when lit with bioluminescent light, turns into an inimitable turquoise charm from a fairy-tale world. The oyster mushroom is luxury goods, and believing in the real oyster mushroom is worth it...



TURKEY TAIL
(Trametes versicolor)

This mushroom is full of contradictions – a lazy creature in its simplicity and inconspicuousness, despite its name „versicolor (colorful), it doesn’t show off with a glamorous wardrobe like the amanitas. It can grow on any kind of wood, and you’ll often find it spreading its boring fan-shaped layers, resembling a turkey’s tail, from a decaying log. A boring mushroom, guarding all its treasures with its triviality. And yet it has more treasures than most others! People often pass it by, unnoticed, or dubbing it “inedible.” And yet, what a treasure of nature it is! It deserves to be the center of the universe, and all scientific studies are eager to decode its secret. Probably the most mysterious miracle among wood-decomposing fungi, it heals much and will heal even more...



EDIBLE WOOD EAR
(Lentinula edodes) (Shiitake)

Another wise wood-dweller that you won’t find in the wild in Slovakia. Only in growing tents and on inoculated logs. It’s said to be the second most popular and the third most widespread mushroom in the world. No wonder, considering its meaty and chewy texture, with a spotty cap resembling the red fly agaric, it’s destined to listen attentively to the sick person’s needs. It carries lentinan, a beta-glucan that, according to educated, wise heads, affects the body’s defensive shield. This hard worker delights every grower, as it’s not too picky about conditions. An aromatic mushroom of fantastic taste – useful in the kitchen everywhere, the dream of all vegans – fresh shiitake boldly replaces any meat, and without this wonderful mushroom, every Eastern dish is like a bride without a groom.



Parky a prostredia



Macrolepiota procera – Beďľa vysoká, 2024, Horský park, Bratislava, foto: Petra Feriancová

Janko Král Park, formerly called Städtischer Aupark (in German), is one of the oldest parks in Europe. Park is located in Bratislava's Petržalka borough in the northern part of Petržalka, bordered by the Danube in the north, the Old Bridge access road in the east, a main road in the south and the Nový Most access road in the west. The park is one of the oldest municipal parks in Europe. The statue of Janko Král is situated in the park. The park was established in 1774–76 with the intention of creating a park for the public. Under the influence of Baroque classicism, the walks were set up in the shape of an eight-leg star and trees were planted along them. Each allée was named after its corresponding species of tree (alder, maple, willow, etc.). The park attained its present-day shape in 1839, and was revamped in the 1970s.

The reconstruction of the Janko Král Park building is part of the city's so called medium scale investment actions, which the city has planned for the next period. Its implementation, which was preceded by a purchase from a private owner, follows the city's intention to return to its residents a space that should serve all visitors of the park (Janko Král Orchard).

The intention is to remove inappropriate elements became from the reconstruction in 90s (men's saloon) and to create a universal space that can easily be adapted to the development of the situation over time. The goal of the renovation was to bring a gentle solution from the point of view of implementation, as well as from the point of view of energy demand (low energy concept and recycling circuits).

The idea of the design is to restore the original character of the building (author Ferdinand Konček, 1982) based on the overhanging attic and the receding body of the object, alternating glazed fillings (in front towards the fountain) with a saw like receding solid part at the back. Inside we installed one column (to the place where the load bearing walls cross).

The material solution is based on the original architecture. The surfaces are a reminder of the service character of the building (ceramics and travertine) and flow smoothly from the exterior to the interior. We consider the reconstruction of the building as a contribution to how to deal with the cultural heritage of the socialist past, how to create impulses for the creation of public space in the city and how to connect the interior space, architecture, with its natural surroundings a reminder of the service character of the building (ceramics and travertine) and flow smoothly from the exterior to the interior.

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Horský Park in Bratislava's Old Town borough is one of the oldest public parks in Bratislava. It is one of the most valuable natural areas in close proximity to the city centre and is therefore protected by fourth degree protection. Its cultural and historical value is not much smaller though. Horský Park is an original work of landscape architecture with an obvious composition and intent. The Park includes a historic mountain lodge, which is an ever more sought after cultural and social centre. The Park is a popular spot for walks, relaxation, and sports.



The Slovak National Gallery (Slovak: Slovenská národná galéria, abbreviated SNG) is a network of galleries in Slovakia. It has its headquarters in Bratislava. The gallery was established by law on 29 July 1949. In Bratislava, it has its displays situated in Esterházy Palace (Esterházyho palác) and the Water Barracks (Vodné kasárne) which are adjacent to each other. The Esterházy Palace was reconstructed for the purposes of the gallery in the 1950s and a modern extension was added in the 1970s which was later reconstructed and an extension was built (1969-1977; designed by architect V. Dedecek).

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Filtrative selfrenewing mimetic body



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Physalia physalis - Portuguese man o' war, 2010/ 2018, print on artificial silk. Significant Other 2019, Vienna photo: Significant Other

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At the very beginning, life began differently than through cell division and organization around the central nervous system. These forms of life expanded asymmetrically, similarly to trees or blood flow, finding efficient new short-cuts. Every single organism was unique and distinct; if one could even define an “individual organism”, as it was no simple matter determining where one body ended and another began.

Most of these primordial organisms are mere twigs on the tree of evolution. While many have perished, some still survive today largely unchanged, perhaps due to their perfection and resilience, and so well capable of surviving that they did not require significant further modification, and therefore we find them remaining almost unchanged. For example, certain types of cockroaches or sharks remain remarkably similar to their ancient ancestors. ... Similarly (Poriphera) continue to thrive. Sponges, exemplifying nature’s enduring designs, are essentially living filters; apart from suction and filtration, their porous bodies are capable of self-renewal through collagen production.

Medusae (cnidaria/ medusozoa) initially drifted as mere passive bodies in the water, until one took the (r)evolutionary leap to swim actively in search of prey. This decision, contrary to the gradual pace of instinctual change over generations, marked a pivotal evolutionary moment. Birds provide another example with their sudden shifts in migratory patterns.

Under stress, the jellyfish *Turritopsis* manages to return to its juvenile state, while *Hydra vulgaris* behaves like the mythical Hydra of Lerna even though Nature is not a human invention, as imagined by the Greeks, and the rest of the European civilisation. Limited as we are, we can only speak about Nature from our own anthropocentric experience as perceptually ill-equipped animals. We live, after all, in an imperfect body, and our perceptual faculties and natural defensive capacity fall short of what we can observe in other notably more perfect life forms. Humans perceive only a fraction of nature’s richness—much eludes our senses.

Originally, the World was also blind. Colors emerged as a means to make an impression, attract prey, for the purposes of nourishment and reproduction, to repel predators and rivals. Longer-term evolution therefore produces animals and plants into masters of mimicry, assuming deceptive forms to evade predators or blend seamlessly into their surroundings.

The praying mantis is the first animal which, in the context of sexual dimorphism, adapted because of prey and not because of reproduction. In contrast to males of the same genus, its evolutionary adaptation has been accomplished differently, basically to satisfy itself and its hunger. While the purpose of the male’s disguise is to conceal him, the female on the other hand camouflages herself as a large, enticing flower to lure prey. A further precedent is her capacity to mimic the entire flower, not just a part.

In the process of perfecting their self-defence, organisms also form a colony of bodies, creating a single organism. It is no longer one lone medusa — The Medusa (and which one would that be?) — making a decision, but rather a perfectly cooperating community such as the Portuguese man o’ war (*Physalia physalis*), which communally shares even individual organs, just as the three mythological Grey Sisters who shared one eye among themselves.

Fungi are also a perfectly organized unit, blurring the lines between individual and collective life forms. The ability to network their mycelia and communicate is worth following if we want to survive. We could also learn from their perfect symbiotic coexistence. Mushrooms form a separate group, and at the same time they use the virtuosity of both fauna and flora.

“We are inseparable from our companion species, and dependent on them for our survival. It is an illusion that we can detach ourselves, and keep only within the borders of our bodies, or retreat within the walls of our cities. Instead, what we can do, is to redefine ourselves with adaptable and soft boundaries. We can start to understand our evolution as a story of an ongoing cross-contamination, and our bodies as a site of nature in the past, present and future. As social beings as well as economic and ecological factors, we are inseparable from the world around us, and as such, our fate is bound to other living creatures.”*

Fungi are an incredibly broad category of organism with a variety of shapes, colors and structures. Often they are exactly what they seem to be, but they can also be deceptive, confusing the senses by forming colonies of moulds which create galaxies in Petri dishes or on a forgotten lemon in a fridge, mimicking flowers or submarine coral colonies.

Mimicry, and the similarity to submarine sponges and corals, which themselves form an elite group of animals disguised as plants, casts doubt on the biotope-based theories of influence. Corals/Cnidaria live in a sea that is truly remote from the native regions of the fungi. And therefore the environment or habitat that ordinarily forms the entire spectrum of qualities of organisms, from character to physiognomy, is suddenly failing.

The body as an organism, a living medium with its many strengths and vulnerabilities, determines our stay on earth. Body masking itself; body capable of change; body vulnerable, ageing and mortal. Useful to other bodies even in its demise. Body that may be conceived as clothing, hence it is temporary, and we choose it according to need. Just as the desert crab selects its refuge in an old shell that had been part of another living body, it’s final garment.

* Borbala Soós, Mushrooms on the Ruins, from text to an exhibition held at Nogueras Blanchard 2017



Pleurostus eryngii, *The Filtrative, Self-renewing, Mimetic Body*.
With Robert Zábajník 2024, photo: Ondřej Polák

Hymenopus coronatus – *Orchid mantis*, *The Filtrative, Self-renewing, Mimetic Body*. With Robert Zábajník 2024, photo: Tereza Kaburková
Pleurostus eryngii, *The Filtrative, Self-renewing, Mimetic Body*.
With Robert Zábajník 2024, photo: Ondřej Polák



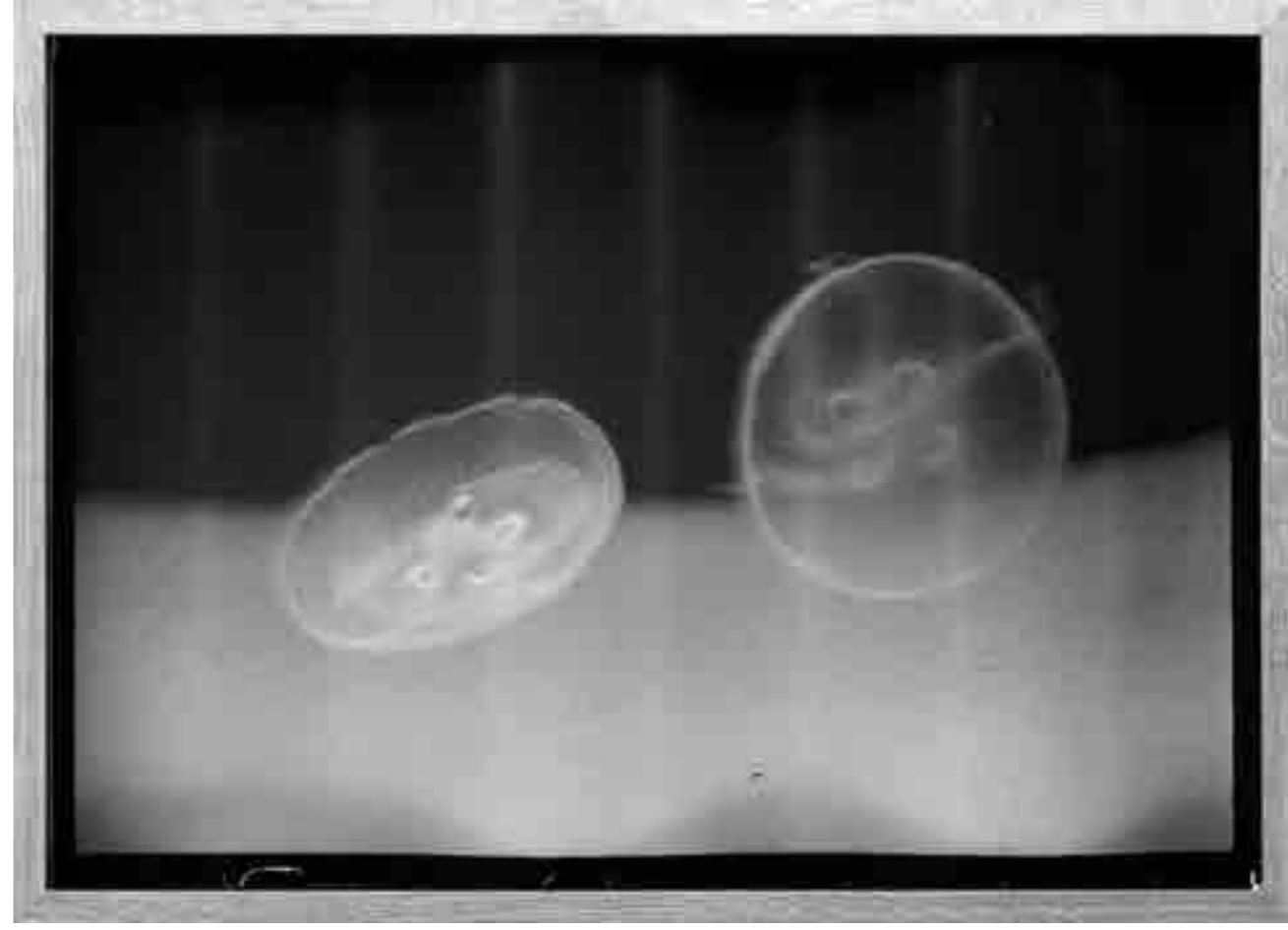


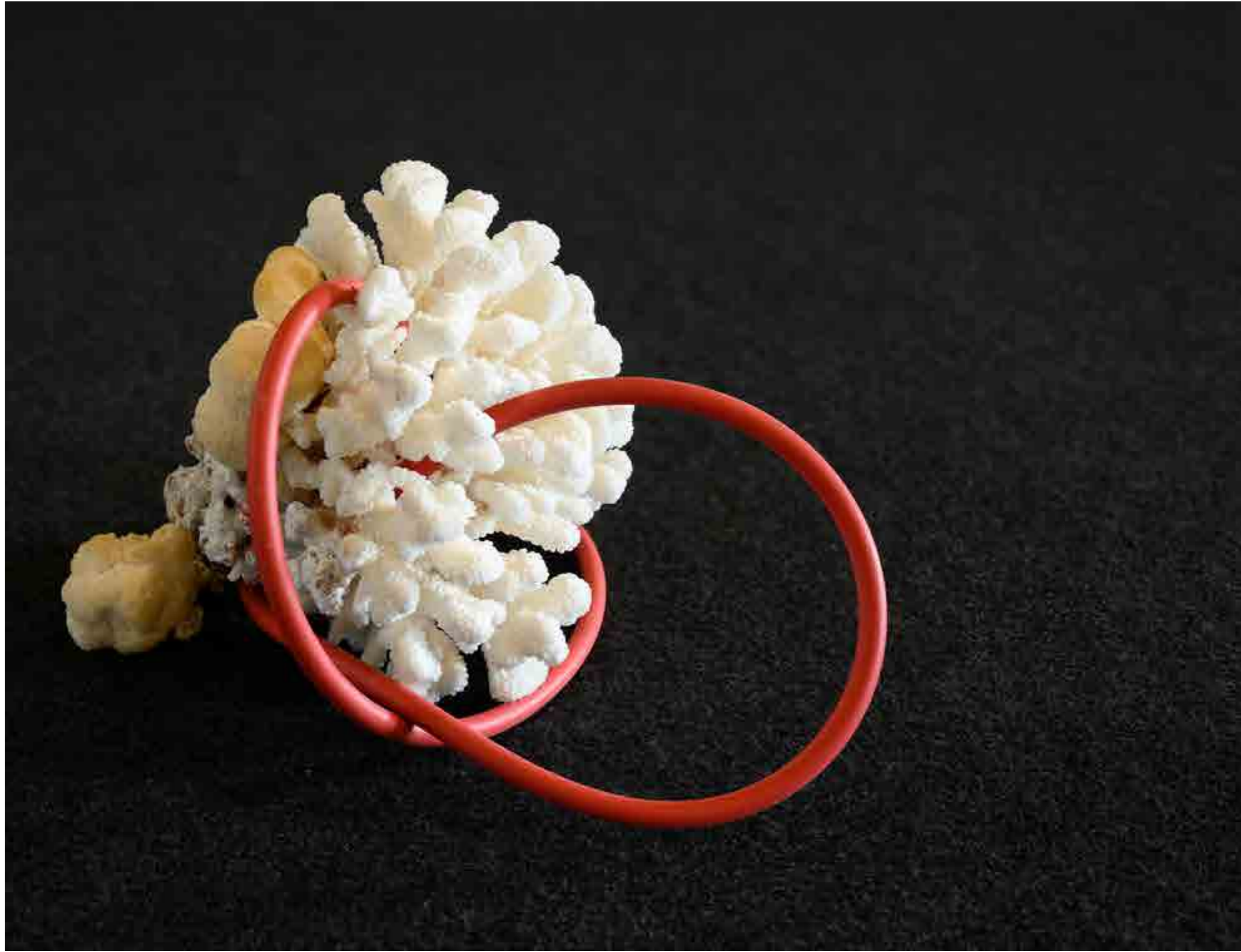
Phylum Cnidaria, from the series of Antigones Eyes, Hand made photograph on baryta paper from negative, 55, 0 x 105, 0 cm

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Phylum Cnidaria, from the series of Antigones Eyes, Hand made photograph on baryta paper from negative, 55, 0 x 105, 0 cm

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Pleurostus eryngii, The Filtrative, Self-renewing, Mimetic Body.
With Robert Zábajník 2024, photo: Ondřej Polák

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Diana, Villa d'Este 2020, photo Petra Feriancová

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Sponges and mushrooms

Špongie boli pravdepodobne prvou skupinou živočíchov, ktorá sa odčlenila z evolučného stromu a možno ju vnímať ako spoločného predka všetkých zvierat či prvých živočíchov, ktoré sa rozmnožovali sexuálne.

Huby sú prastaré organizmy, ktoré žili už pred najmenej 1,2 až 1,5 miliardami rokov. Najstaršie huby bývali vo vode. Špongie sú mnohobunkové organizmy ako aj väčšina húb je mnohobunková.



Pleurotus ostreatus and *Herpolitha Linax*,
photo: Ondřej Polák



Bunky v tele huby sa môžu pohybovať; niekoľko buniek sa môže dokonca zmeniť z jedného typu bunky na iný. Špongie sú jediné živočíchy, ktoré neorozúje ich bunkový rozklad, dokážu sa vyslovene znova poskladať.

Medzi bunkami v každom mycéliu pulzuje prúd chemikálií, živín a elektrických impulzov. Ich pohyby slúžia na to, aby informovali celok o dianí a koordinovali akcie v rámci siete.

Mnohé morské špongie vykopávajú povrch koralov a mäkkýšov, čo niekedy spôsobuje značnú degradáciu útesov. Špongia si hľadá ochranu tak, že sa vnára do tvrdých štruktúr, ktoré postupne eroduje. Aj tento proces má niektoré priaznivé účinky, je napríklad dôležitou súčasťou recyklácie vápnika.

Huby vytvárajú pôdu rozkladom mŕtvych rastlín a živočíchov na živiny, ktoré môžu využiť nové rastliny. Niektoré huby pomáhajú rastlinám rásť uvoľňovaním základných rastlinných živín v pôde, ako je dusík, fosfor a draslík. Iné huby produkujú chemikálie, ktoré chránia rastliny pred škodlivými baktériami alebo hmyzom.



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Untitled, 2017, *Mushrooms on the ruins*, photo: Marko Horban

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Macropleiata proceru, 2024, photo: Petra Feriancová



Hýfy húb tvoria mycélium, ktoré spája stromy a rastliny v podzemnej hubovej ceste – celolesnej komunikačnej sieti – prenášajú živiny a vysielajú signály o nebezpečenstve.

Bunky špongií vykonávajú všetky funkcie, ktoré vykonávajú orgány u vyšších živočíchov. Väčšina špongií funguje ako komíny: nasávajú vodu dole a vypudzujú ju z okula hore. Špongie môžu kontrolovať tok vody rôznymi kombináciami úplného alebo čiastočného uzavretia oscula a ostie. Špongie využívajú pohyb vody okolo nich, pretože voda prináša potravu, kyslík a gaméty od iných zvierat.

Huby produkujú molekuly, ktoré ľudia stále nedokážu reprodukovať v laboratóriu a zdieľajú s ľuďmi viac DNA než rastliny. Huby aj ľudia ukladajú energiu uhľohydrátov ako glykogén, zatiaľ čo rastliny používajú na ukladanie energie škrob. Huby aj hmyz používajú polysacharid chitín na stavbu bunkových stien, zatiaľ čo rastliny používajú celulózu. A huby, podobne ako ľudia, produkujú vitamín D, keď sú vystavené slnečnému žiareniu.

Ľudský aj hovädzí kolagén je široko používaný ako dermálne výplne na liečbu vrások a starnutia pokožky. Kolagén je dominantnou zložkou kostrovej matrice morskej huby a je hlavnou bielkovinovou zložkou extracelulárnej matrice kosti.

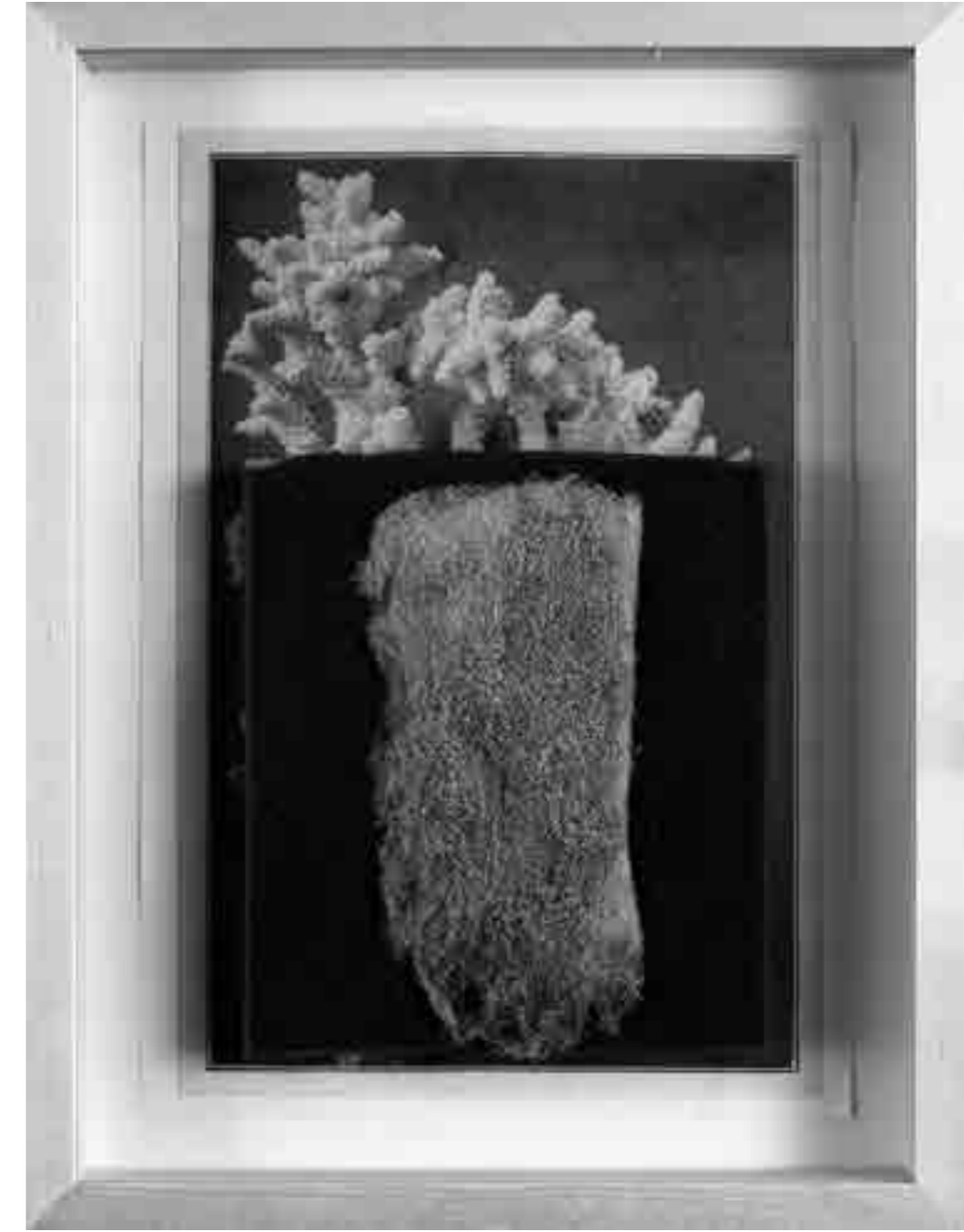
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Sarcophyton trocheliophorum, from the series of *Antigones Eyes*, 2009–2017.
Hand made photograph on baryta paper from negative, 55, 0 x 105,0 cm

Phylum Porifera, 2014, Collage 35 x 28 cm



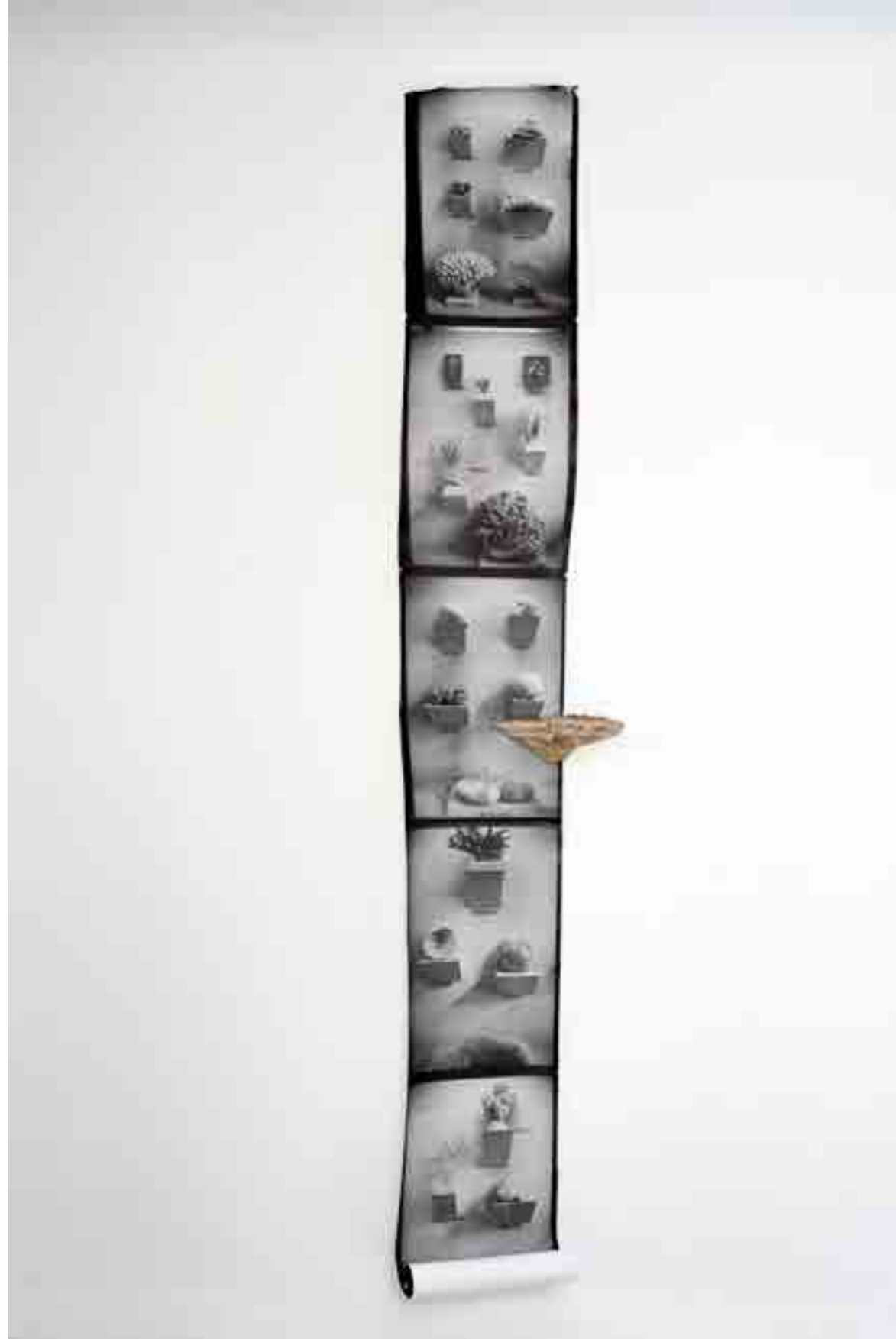


Použitie špongií na báze kolagénu ako lešenia v tkanivovom inžinierstve má množstvo výhod. Špongie modelujú systémy na štúdium posunu od nesmrteľných k odumierajúcim somatickým bunkám: telomerázovú aktivitu v somatických bunkách. Špongie predstavujú najnižší kmeň metazoa, ktorý sa vyznačuje výraznou plasticitou pri určovaní bunkových línií.

Alexander Fleming nám ukázal cestu k beta-laktámovým antibiotikám obsahujúcim plesň Penicillium. Následné objavy okrem samotného penicylínu zahŕňali alameticín, afidikolín, brefeldín A, cefalosporín, cerulenín, citromycín, eopenifeldín, fumagilín, fusafungín, kyselinu fusidovú, kyselinu helvolovú, kyselinu itakonovú, MTsporin B, kyselinu nigrinovú, verrukarín A, vermikulín a mnohé ďalšie.

Niektoré kalcifikované demošpongie rastú len o 0,2 mm (0,0079 palca) za rok a ak je táto rýchlosť konštantná, vzorky široké 1 m (3,3 stopy) musia byť staré asi 5 000 rokov. Morské huby alebo poriferany, patriace do kmeňa Porifera, sú vodné živočíchy kolagénového pôvodu, ktoré sa živia cez filter a vykazujú štruktúru, ktorá napodobňuje spongióznu architektúru kostného tkaniva.

Hrúb je dužinatá, výtrusná plodnica huby, ktorý dorastá nad zemou, na pôde alebo na zdroji potravy. Dictyophora indusiata je považovaná za jeden z najrýchlejšie rastúcich organizmov na svete. Čoskoro po pretrhnutí vonkajšieho obalu sa stonka predĺži a čiapočka sa zväčší do plnej veľkosti. Celý tento proces môže skutočne prebehnúť cez noc!

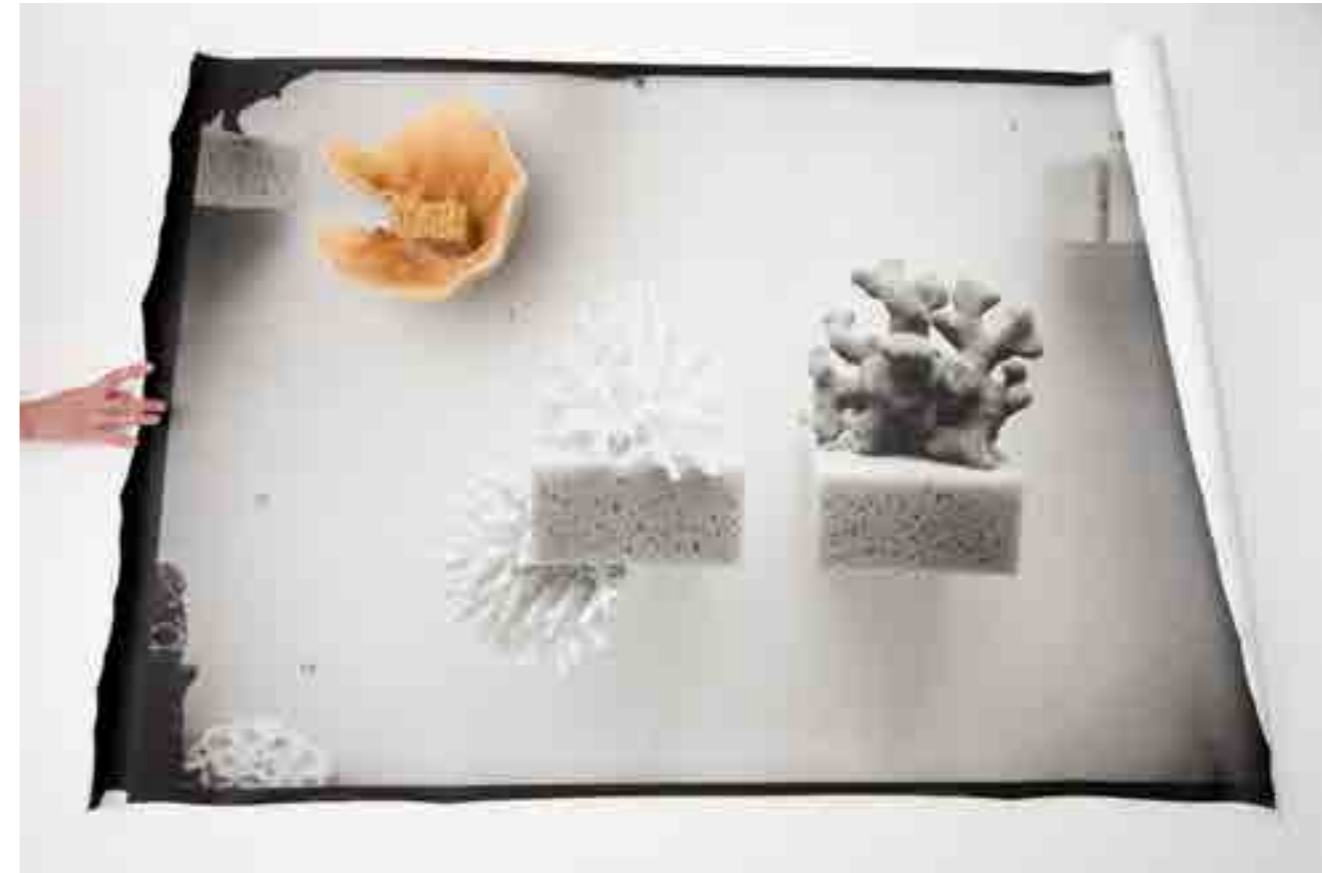


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Fomitopsis betulina, from the series of *Antigones Eyes*, 2009–2016, Mushrooms on the ruins, Hand made photograph on baryta paper from negative, 500 x 58 cm, photo: Marko Horban

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Fomitopsis betulina, from the series of *Antigones Eyes*, 2009–2016, Mushrooms on the ruins, Hand made photograph on baryta paper from negative, 500 x 58 cm, photo: Marko Horban



Niektoré huby sú jedovaté z rovnakého dôvodu, ako bývajú jedovaté rastliny – aby sa chránili pred zjedením, a aby sa mohli rozmnožovať. Ostatné huby používajú opačnú stratégiu. Potrebujú zvieratá, aby ich jedli, a tak siali cez ich trus. Ďalšie huby majú zas úplne iné plány a používajú rôzne stratégie.

Mnohé špongie obsahujú jedovaté látky, pravdepodobne na odradenie predátorov.

Niektoré iné morské živočíchy využívajú túto vlastnosť špongií umiestnením dospelých špongií na svoje vlastné telá, kde sa prichytávajú, ďalej rastú a chránia svojho hostiteľa. Špongie sú buď radiálne symetrické alebo asymetrické. Živá špongia dokáže zmeniť tvar svojho tela.

V neskorej ordovickej ére si huby vytvorili symbiotický vzťah s pečevníkmi, najstaršími rastlinami. Pomohli rastlinám presunúť sa z týchto okrajových častí pri vode do veľkých lesov a celých ekosystémov – zmenili tak zloženie atmosféry. Huby udržujú lesy pri živote.

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Porifera 2022, Tranzit, Bratislava, photo: Adam Šakový



Phylum Cnidaria 2014, photo: Fondazione Morra Greco, Naples

Mykorózna sieť (známa aj ako spoločná podzemná sieť nachádzajúca sa v lesoch a iných rastlinných spoločenstvách, vytvorená hýfami mykoróznych húb spájajúcich sa s koreňmi rastlín. Táto sieť spája jednotlivé rastliny dohromady. Tieto vzťahy sú najčastejšie vzájomné, z čoho profitujú obaja partneri, a vyťah môže byť súčinný ale aj parazitický a jedno partnerstvo sa môže v rôznych časoch meniť medzi ktorýmkoľvek z troch partnerov tohto symbiotického vzťahu.

Špongie sú známe mnohými spoluprácami s inými organizmami. Boli zaznamenané symbiotické vzťahy s baktériami alebo riasami, v ktorých špongia poskytuje svojmu symbiontovi podporu a ochranu a symbiont poskytuje špongii potravu.

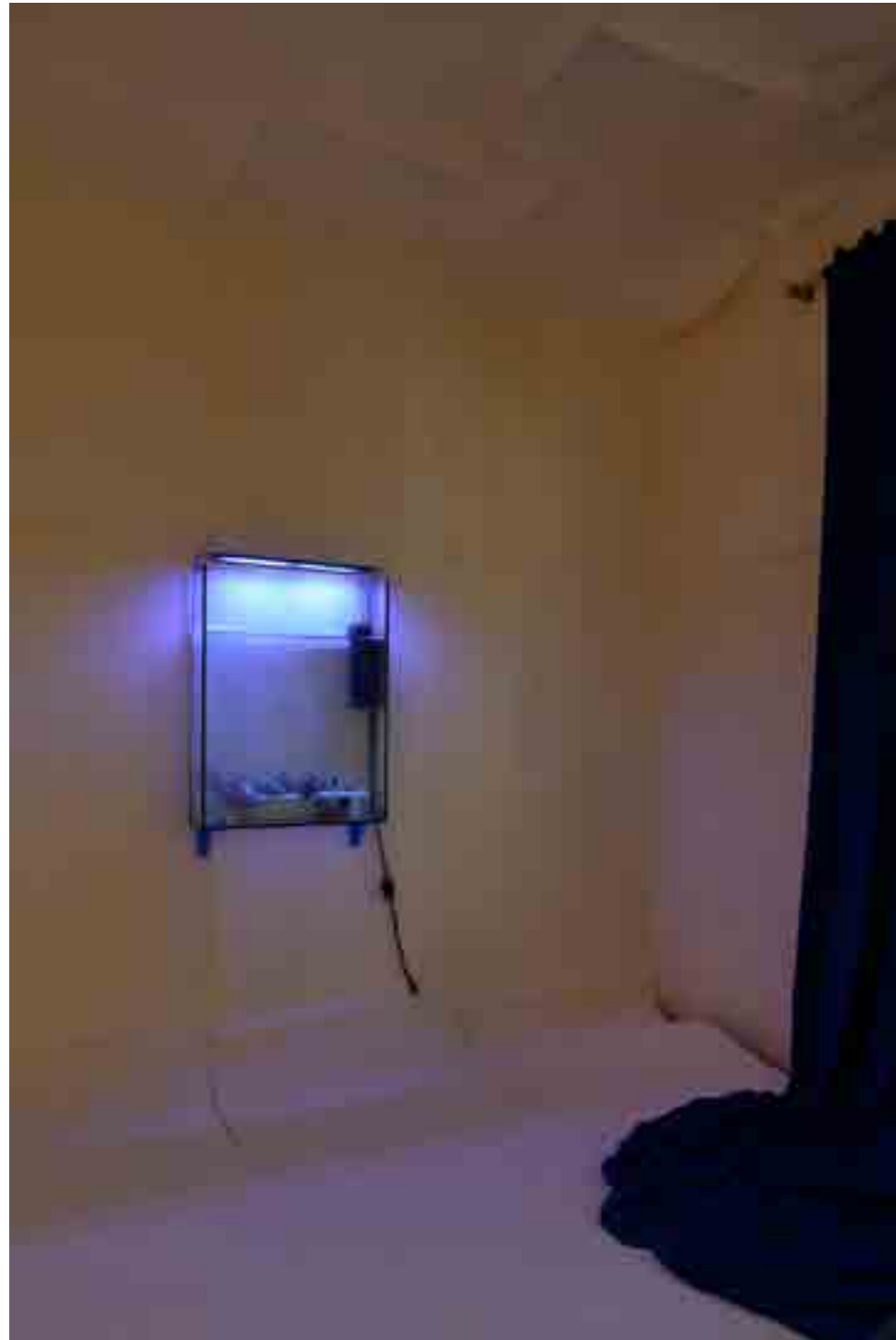
Nová štúdia na Tel Avivskej univerzite zistila, že špongie v Ejlatskom zálive vyvinuli originálny spôsob, ako udržať predátorov mimo rizika. Vedci zistili, že špongie obsahujú bezprecedentnú koncentráciu vysoko toxického minerálu molybdén (Mo). Okrem toho identifikovali baktériu, ktorá umožňuje špongiám uchovávať tieto vysoké koncentrácie tohto drahého kovu, a rozlíšili symbiózu medzi týmito dvoma organizmami.

/20.8.2024

V špongiách sa tiež našli tri rody húb *Aspergillus*, *Penicillium* a *Eupenicillium*, ktoré možno klasifikovať ako „špongióvi internisti“. Plesňové rody, ako sú *Ampelomyces*, *Tubercularia* a *Clasoprorium*, ktoré boli identifikované vo viac ako jednej hubke, možno nazvať „špongióvymi spolupracovníkmi“. Špongie sú dokonalé a budú osídľovať svetové oceány dlhšie, ako ľudia osídľujú Zem.

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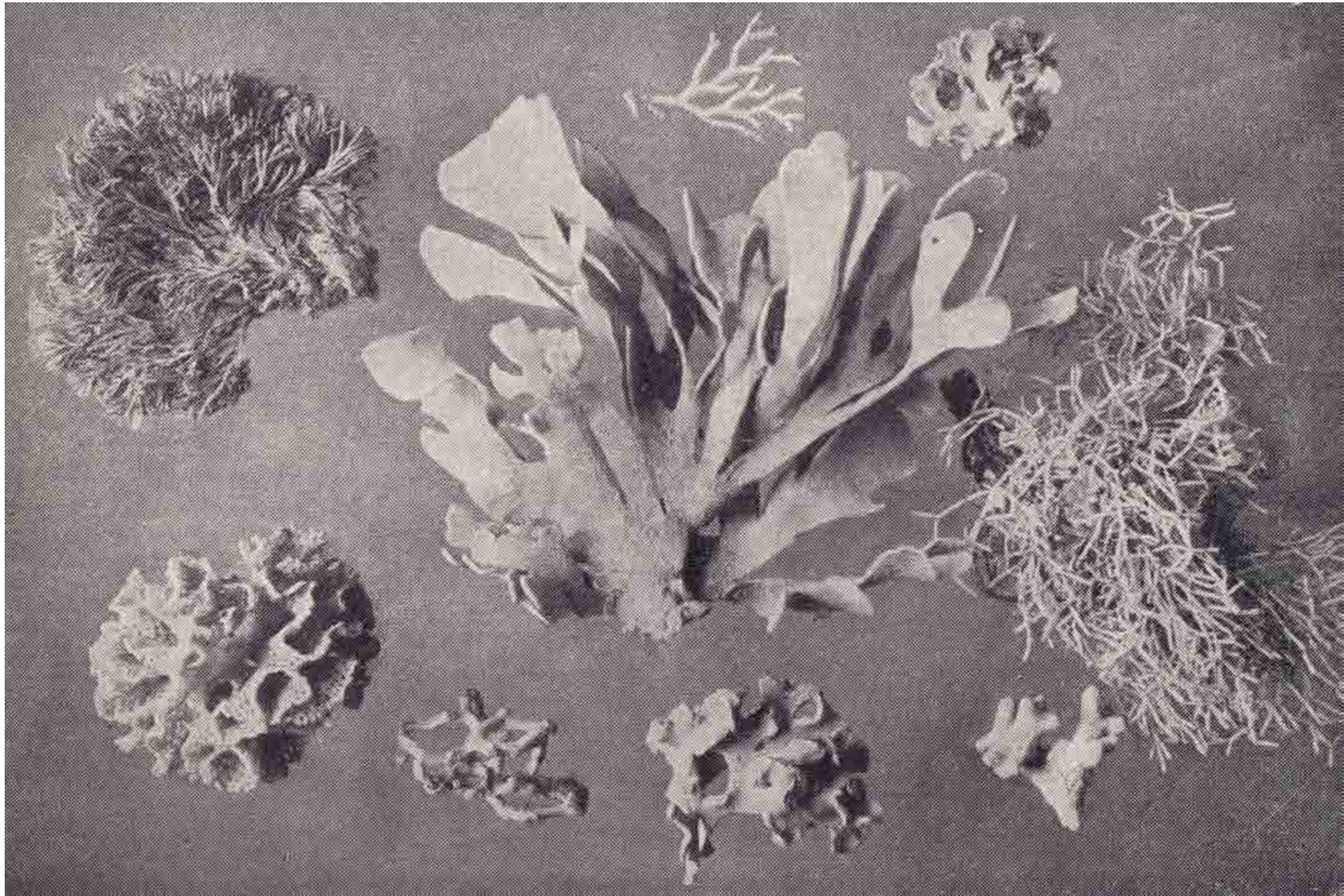
47

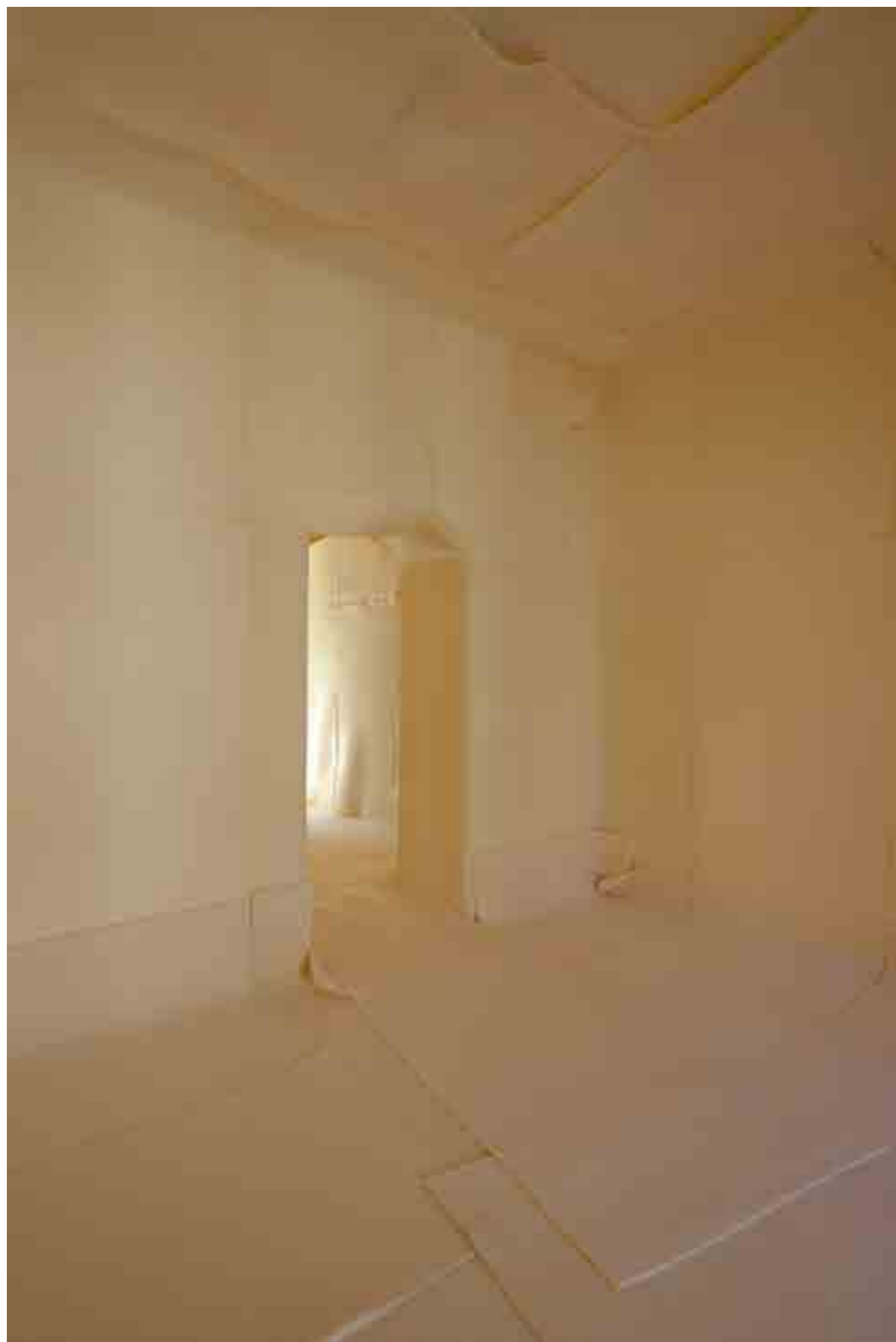


Phylum Porifera, 2021, Zahorian Van Espen, Praha, photo: Ondřej Polák

Sarcophyton glaucum neon, 2021, photo: Petra Feriancová







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Phylum Porifera, 2021, Zahrortian Van Espen, Praha, photo: Ondřej Polák

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Ropáci je český fiktivní dokument režiséra Jana Svěráka z roku 1988. Sleduje zoológa a biochemika, kteří sa spolu s kameramanom a filmárom vydávajú na ropné pole, aby pozorovali a študovali nepolapiteľných živočíchov živiacich sa ropou.

V Clevelande huby žerú celé domy: Ako sa huby dajú použiť na čistenie znečistenia. Mesto Cleveland čelí epidémii opustených domov. Rozpadajúce sa domy sa rátať na tisíce. Tieto schátrané štruktúry sú prešpikované toxínmi ako olovo a schátrané do bodu, z ktorého niet návratu. A ak zbúranie a bezpečná likvidácia odpadu jedného takéhoto domu znie sklúčujúco, predstavte si ich tisíce. "Všetok materiál z demolácií – klince, podlahy, celulózoová hmota [hlavná konštrukčná zložka rastlín] a dokonca aj veci ako stropné dlaždice a asfaltový materiál, ako sú strešné šindle, môžu byť primiešané do substrátu, ktorý je potom vhodný pre pestovanie húb"

Ukázalo sa, že huby degradujú zložité polyméry a sú považované za dobrých kandidátov na bioremediáciu (znižovanie biologických znečisťujúcich látok) plastov. Preto sa na skrining vybralo 18 kmeňov húb a sledovala sa ich schopnosť degradovať polyuretán (PU), polyetylén (PE) a gumu z pneumatík.

Vedci objavili možný nový nástroj na riešenie rastúceho problému plastového znečistenia vo svetových oceánoch. Nedávno zverejnená štúdia medzinárodného konzorcia výskumníkov podrobne opisuje morskú hubu s názvom *Parengyodontium album*, ktorá žije na plastovom odpade v oceáne. Huba je schopná rozložiť častice polyetylénu – najrozšírenejší komerčný plast v oceáne – akonáhle je plast vystavený ultrafialovému svetlu. Tím tiež zistil, koľko času potrebuje huba na to, aby vykonala svoju prácu.



„Špongie dokážu rozložiť zložité materiály vyrobené z uhlíka. Morských húb je veľké množstvo, takže je pravdepodobné, že okrem štyroch doteraz identifikovaných druhov prispievajú k degradácii plastov aj iné druhy. Stále existuje veľa otázok o dynamike toho, ako dochádza k degradácii plastov v hlbších vrstvách,“ uviedla vedúca autorka štúdie Annika Vaksmaa z Kráľovského holandského inštitútu pre výskum mora.“

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