BIOTOPIA

Exhibition
18.06 — 27.11.22

le pavillon

→ Visitor's guide

Biotopia, a contraction of Biotope and Utopia, plunges us into the universe of the living beings that populate our planet. The exhibition brings together nearly 30 artists, designers, researchers, women, men and people who question the central position of humans in the world. Biotopia proposes shifting our points of view, immersing ourselves in the heart of non-human societies and opening ourselves up to the diversity of ways of being.

Our body is composed of 90% bacteria; we live in symbiosis with populations of microorganisms that live in the smallest corners of our morphology. Since the discoveries of the famous microbiologist Lynn Margulis, we now know that the evolution of life stems from symbiosis and interdependence rather than competition between the best individuals. Through an exploration of the living, Biotopia tells us how these animal, plant and mineral societies can teach us to live better together and create more environmentally friendly technologies.

How can we recreate utopia faced with the predicted impasses of a world that we no longer know how to conceive? How can we live together? What is at stake, recalls biologist and thinker Donna Haraway, is the survival of the innumerable ways of living and becoming with each other on this earth.

01 Zimoun CH

25 woodworms, 2009
Wood, microphone, sound system.

In *25 woodworms*, sound artist Zimoun captures the sounds emitted by 25 woodworms encased in a piece of bark. Using a simple device, a microphone placed above the bark, the artist makes the invisible presence of the living creatures audible to the human ear.

The sound produced seems to follow its own swarm logic, but this is just an impression because it is actually random. Only animals like termites and ants follow their own logic; woodworms do not adopt this behaviour. Each one emits a unique sound sequence that is born purely of the moment. In *25 woodworms*, some 20 individual sounds reveal themselves to us.

02 Cindy Coutant FR

Télédésir, 2019
Video (26 min).

Part animal documentary, part erotic film and part science fiction film, Cindy Coutant's high definition camera follows the (fictional) day of a group of snails. The gastropods, the stars of this short film, are bathed in a light that is sometimes pink, sometimes blue. From sunrise to sunset, the snails advance in a slow ascent, out of time and following the Earth's axis. *Télédésir*, a thirty-minute film, follows their nonchalant rhythm and love-making.

The animal reproduction takes on a theatrical, even supernatural dimension, enhanced by the soundtrack of Théo Pozoga, a musician and DJ also known as "Strip Steve".

03 Thomas Thwaites GB

Goatman (A holiday from being human), 2015
Photographs, 75x58cm, dibond print.
Prototypes of goat and skeleton. Wood, metal, fibreglass, fabric, leather.

Thomas Thwaites is a British designer who, through the creation of his objects, explores the psychological and social impact of technologies. For over a year, he conducted research to prepare himself to spend three days living like a goat in the Swiss Alps. He built an exoskeleton to adapt his bipedal body to that of a quadruped, and created a prosthetic artificial stomach to allow him to feed on grass, just like a goat. For several days he lived among the herd, observing distinctions in the natural world that he had not previously perceived, and observ ing the world from new perspectives, in a desire to step out of himself and distance himself from an anthropocentric vision.

04 Pepa Ivanova BE

Decay, 2018
Living sculpture. Glass, Gelrite, unstabilised natural dyes.

Decay is the name given to the research conducted by the artist and researcher Pepa Ivanova, in collaboration with the Laboratorium KASK (Ghent), on the behavioural characteristics of dyes.

The artist uses a gelling agent, Gelrite, produced from microbial fermentation. Gelrite has brighter optical properties than its better known counterpart, Agar. In *Decay*, Pepa Ivanova injects dyes into the gel solution, which is encapsulated in glass. The gel solution's transparency allows both light and heat to interact with the dyes, while the gel, with its porous structure, allows the dyes to mix over time. All these interactions and components make for a living sculpture in continuous transformation.

This project was co-produced by KIKK with the support of the Cellule Arts Numériques of the Wallonia-Brussels Federation.

05 Ani Liu US

Kisses from the future, 2015-2017

Petri dish, custom molded LB Agar, micro-organisms cultured from a kiss.

The bacteria that live on our body outnumber your own cells. While we have 23,000 genes, our microbiome can contain up to 2 million unique bacterial genes. There is a lot of emerging research on the role of all the microorganisms cohabit our body and personal traits, such as mood, behavior and health. These findings unseat our relationship with notions of identity and genetic determinism; do I exhibit certain traits because of genes I inherited, because of the environment I was raised in, or because of the biome I have acquired through a lifetime of kissing and touching?

Kisses from the Future consists of a series of self portraits exploring a decentralized identity composed of the multi-species constellation that is a microbiome. This project examines the impact of microorganisms living in the body that impact mood and behavior- elements that we typically associate with a sense of "self", but is co-made with other species.

06 Aki Inomata JP

"Why Not Hand Over a "Shelter" to Hermit Crabs?", 2009

Installation with live hermit crabs, resin shelters, sea water, aquariums.

Japanese artist Aki Inomata draws a parallel between the behaviour of hermit crabs that change their shell when they get too big or are simply chased away by another species, and that of humans and their migratory movements.

The artist started with shells used by hermit crabs, which she scanned to reproduce an exact copy with the addition of urban landscapes, all 3D printed.

For both Aki Inomata and Thomas Thwaites, their work is an exploration and displacement of our perception of others and ourselves by observing the living.

07 Collectif Muesli BE

Peintures indisciplinées, 2020-2022

Humidity indicator, water, various materials (aluminium plate, fabric scraps, found fabric, silk, viscose), 40x30cm (4), 280x210cm, 48x30cm.

The obsession of the Brussels-based collective Muesli, composed of artists Louis Darcel, Hannah De Corte and João Freitas, is to create an 'ideal' material: a material-work in perpetual evolution, constantly reacting to its environment and its many constitutive elements. It is an unpredictable surface that never looks the same. Paints are hygrosensitive (they react to changes in the amount of water in the air and therefore undergo visible changes in colour and texture).

This work was conducted and co-produced as part of the "Imagining Ecological Futures" residency organised by the KIKK, the Goethe-Institut in Brussels and the Centre Culturel de Namur/Les Abattoirs de Bomel.

08 Agnes Meyer-Brandis DE

One Tree ID - How to Become a Tree for Another Tree, 2019

Perfume, tree (Pinus pinea), special furniture and electronics, VOC measuring system, hoses, web platform.

One Tree ID condenses the identity of a specific tree into a complex scent that can be worn by human visitors so they can be part of the tree's environmental communication system.

The work is based on the fact that plants emit and communicate through volatile organic compounds (VOCs), which are gases and molecules that contribute to cloud formation and that we recognise as the scent of a forest. Each tree generates its own cloud.

By applying the scent to themselves, a person can not only invisibly carry the characteristics of the tree, they can also use parts of its communication system and potentially have a conversation with the tree.

With support from: Dr Marie-Laure Fauconnier, Laboratory of Chemistry of Natural Molecules University of Liège, Stiftung Kunstfonds and the Tree nursery De Bruyn. In collaboration with Marc vom Ende, senior perfumer/Symrise AG.

09 Thijs Biersteker NL

Econtinuum, 2020

Sculpture: 3D printed recycled plastics (rPETg) manually sculpted by hand.
Software: custom code, Touchdesigner, Linguistic A.i system, self learning algorithm.
Hardware: Microsoft Azure Kinect, Air monitoring system (VOC, C02, moist, temperature), microphones, two projectors 15.000 lumen.

Econtinuum invites us to dive into the ecosystem of trees. This work is a collaboration between the artist Thijs Biersteker and the Italian botanist Stefano Mancuso. Before our eyes, it creates a conversation between two trees as it might happen underground, showing how the two species can warn each other of danger, how they share nutrients and how they learn from each other. As visitors enter the system, they realise that the roots respond to their presence and learn from their habits, forming a futuristic ecosystem of shared knowledge.

The system is equipped with two sensors. Each one represents a tree and captures data on humidity, pressure, temperature, CO2 and the level of volatile organic compounds (VOCs) present in the exhibition space. These sensors are combined with artificial intelligence that mimics inter-tree communication from a large network of scientific data.

10 Maria Boto & Heleen Sintobin BE
(Laboratorium KASK)

Ecology of Colour, 2022

Colour palette made from porcelain pieces coloured with melanin nanostructures, presented with insects (beetles and butterflies) that naturally show these colours.

In living creatures, colours derive from pigments and structures. Structural colouration produces colour by microscopically structured surfaces in layers fine enough to interfere with visible light. Structural colours are responsible for butterflies colours, bird feathers, iridescence in e.g. beetles. By light interaction, the natural colour palette obtained is wider than the one obtained from pigments.

Ecology of Colour analyses structural colours found in nature. Structural colours are obtained from biological nanostructures that can interfere with light. These structures are often constructed from simple biological building blocks, such as cellulose, chitin, keratin and melanin. They are biomaterials that are common in nature, biodegradable and non-toxic. Using nanotechnology, Laboratorium cultivates an ecological and sustainable colour palette of structural colours.

11 Remix el Barrio ES

Squeeze the Orange, 2020-2022

Designers: Elisenda Jacquemot Caldes, Susana Jurado Gavino, Nuria Bonet Roca
Partenaires: Restaurant Market Fresh C, Manufacture uina, Connect Hort

The purpose of *Squeeze the Orange* is to make a waterproof bioplastic from orange peels for the manufacture of clothing and accessories for the fashion industry, fully biodegradable or compostable. The collaborators have investigated orange waste to design a material that can be used by all Fashion Designers.

Remix El Barrio is a collective of designers who develop projects from food scraps using artisanal techniques and digital production.

Winner of the S+T+ARTS prize 2021

12 Remix el Barrio ES

Biopantone, 2019

Designer: Anastasia Pistofidou
Partenaires: Fabtextiles, Fabricademy, Fab lab Barcelona, IAAC

Biopantone is a collaborative artwork that was created within the context of learning textile dyeing and pigment extraction techniques and processes. Combining basic chemistry education and textile crafts, it represents a color palette and the beauty of nature based on ancient and artisan techniques using organic materials, food waste, flowers and roots.

13 Anne Marie Maes BE

The Transparent Beehive, 2014
Observation hive made of plexiglas, wood, aluminium and steel.

The Transparent Beehive is a living sculpture in the form of an observation hive. Inside is a colony of live bees that has access to the outside world through a plexiglas pipe.

The hive was inspired by the work of Swiss entomologist Francis Huber (1750-1831), who made many discoveries about bees, including the "book hive", a multi-frame hive design that can be opened like the pages of a book.

The artist has appropriated this concept by adding sensors to each frame to collect the vibrations of the insects. The different sounds captured are then amplified by a sound system that plays the real activity of the bees, which are visible in front of us thanks to a structure made entirely of transparent plexiglas.

14 PermaFungi BE

PerMateria, 2016
Lampshade, insulating panel and packaging made from mycelium.

Permafungi is a social cooperative based in Brussels that recycles urban waste - coffee grounds - to grow oyster mushrooms. Part of the residue of these cultures is also used to create a material capable of replacing plastic, i.e. myco-material.

This material produces ten times less carbon dioxide (CO_2) and uses about eight times less energy than the production of polystyrene foam. Made by hand without artificial processes, the mushroom material remains totally natural. Its qualities in terms of strength, impermeability and fire resistance are useful for creating quality products that are compostable.

15 Audrey Speyer BE
(PuriFungi)

Myco-cendrier, 2019
Bio-ashtrays made of cigarette butts treated with mushrooms.

In Belgium, there is currently no technique for recycling cigarette butts, which are one of the most common forms of waste in our environment. According to the WHO, the amount of this waste by weight is 175,200 tons per year. They are non-biodegradable and a single cigarette butt contains more than 4,000 different pollutants capable of polluting 500 litres of water alone.

Faced with this challenge, Audrey Speyer created PuriFungi, a start-up and project to clean up cigarette butts using mushrooms. The enzymes secreted by the mycelium are able to degrade the pollutants contained in the butt. At the end of the process, Audrey transforms them into bio-ashtrays.

16 Remix el Barrio ES

KOFI, 2020-2022

Designer : Dihue Miguens
Partenaire : Nomad coffee

The process of roasting coffee beans separates the bean from its shell, generating waste that can be used as a raw material. Since the shells are thin layers with a high cellulose content, they allow the creation of light, thin materials. In this case, the coffee husks are immersed in water with natural binders and transformed into paper that can be used as a poster or packaging.

17 Remix el Barrio ES

REolivar, 2020-2022

Designers : Silvana Catazine and Josean Vilar, Naifactory
Partenaires : Micronized vegetables, Graneria del Poblenou, Neighbors pits

A new line of circular materials that use olive pits as a base. This is how *REolivar* was born, an organic, biodegradable, reusable, tremendously versatile biomaterial with enormous aesthetic potential. The appearance of the biomaterial can range from transparent to solid wood-like, and it is available in different colors thanks to a dyeing process that uses only natural sources, such as turmeric and indigo.

18 Remix el Barrio ES

En(des)uso, 2020-2022

Designer : Lara Campos
Partenaire : Little Fern Café

From two lines of research (Resin and Ceggmica) with different binder biopolymers and their respective applications, a series of

design pieces emerged inspired by a future without oppression of biodiversity. Also, the reuse of the involved materials is proposed, since they can be ground and molded again to mutate into new objects, before returning to earth.

19 Teresa van Dongen NL

Biolume, 2021

Lamp made of wrought iron, brass, glass, liquid with electro-active bacteria.

Biolume is a lamp that lights up thanks to the living. Geobacter is one of those bacteria that has appeared to be indispensable for our ecosystem. Approx. 30 years ago scientists discovered a microbe that was purifying the water while continuously excreting electrons to its surrounding. In other words, it was cleaning up while producing energy. Teresa van Dongen has been exploring these specific organisms since 2016 together with the CMET (Center For Microbial Ecology and Technology) at Ghent University as a means to generate electricity for human use. *Biolume* is a special project created with this technology.

Biolume was created for a Dutch old ruin in South Limburg, *Slot Schaesberg*. The design, production technique and functionality were inspired on the cultural heritage of lighting in the castle (1571-1733).

20 Guillian Graves & Michka Mélo FR (Big Bang Project)

Nautile, 2012

Electric kettle, technical ceramic.

The design of the *Nautile* kettle is inspired by the nautilus, the animal capable of precisely managing the volume of water it needs, as well as by termites, toucans and polar bears for their ability to regulate their temperature. Based on these four inspirations, an internal mechanism controls the desired water temperature. It allows the user to select an optimal temperature for their drink while saving energy.

The shapes, materials, structure, internal mechanisms and manufacturing process of this electric and combustion kettle have been inspired by nature to minimise its energy consumption, which is responsible for 80% of its environmental impact.

21 Silk Lab US
(Tufts University)

Living Materials
Samples of materials from silkworm production.

Based in Boston, Silk Lab investigates materials at the interface between technology and life sciences, with a particular focus on the possibilities offered by silkworm production.

Silk is a natural biodegradable and biocompatible biopolymer produced by spiders and caterpillars. It comes in the form of cocoons made by silkworms such as the *Bombyx mori* species studied by the laboratory. Their cocoons created during breeding are composed of a single silk thread with a length of up to one kilometre.

Thanks to its unique properties, *Bombyx mori* silk fibroin has become ubiquitous in applications ranging from biomedical devices to optics and electronics, while also having potential as a functional material for architecture and design.

22 Ohme & Aiko Design BE
in collaboration with Karine Van Doninck and her research team (ULB/UNamur)

Rotifer (a)live, 2022
Installation, wood, acrylic glass, tulle fabrics, diverse materials. Projection, video, microscopy, rhodoid & paper prints, 3D print, laboratory glassware & equipment.

Rotifers are fascinating multicellular animals evolving on Earth for more than sixty million years. Though smaller than a millimeter, they represent a scandal in evolutionary biology: asexual females clone themselves without any intervention of males. Moreover, these microscopic animals, among the smallest on

earth, are extremely stress tolerant. They can resist to various stresses such as desiccation, radiation and freezing.

Rotifer (a)live provides insight into the fascinating science and findings that researchers gathered on rotifers. Shaped as an oversized scientific set-up, this installation takes the visitor on a journey into the world of a biological research lab and also shows the high-tech aerospace modules that transported rotifers back and forth to the International Space Station (ISS), as part of the European Space Agency project "Rotifers In SpacE (RISE)", which proposes rotifers as a new model system for space research.

www.ohme.be/studio/rotifer-alive/

23 Lia Giraud FR

Photosynthèse, Installation Algægraphique, 2021

Video film, sound diffusion, pvc structure and photobioreactors.

What happens when our forgotten urban waste resurfaces? Presented as a «photographic inventory of the invisible», Lia Giraud's *Photosynthesis* project focuses on the thousands of objects fished out of the port of Marseille by the MerTerre association between 2016 and 2020.

The installation consists of a tubular structure that houses six bioreactors in which microalgae cultures are developed day after day.

The projected film shows the procedural revelation of these objects/images through a process called algaeography. These microalgae, usually used as a marker of pollution, are substituted here for photographic silver grains to reveal an image that has come to life.

24 Aki Inomata JP

Think Evolution #1 :
Kiku-ishi (Ammonite), 2016-2017
Video (2 min).

After thriving for 300 million years, ammonites disappeared when the dinosaurs became extinct 66 million years ago. Based on shell structure and fossils, it is assumed that the ammonite is closely related to squid and octopus. Octopuses lost their shells during evolution but are known to use tools such as coconut and bivalve shells to protect their soft bodies. Inspired by this evolutionary story, artist and designer Aki Inomata reproduced an ammonite shell and put it in contact with an octopus. Mersi, the animal chosen for this experiment, was placed in an aquarium with an ammonite shell made using 3D scanning and printing techniques, and only took a few minutes to settle in.

25 Antoine Bertin FR

Conversation métabolite, 2022
Installation for ultra-directional speaker reflexive surface and planktonic conversations.

Coccolithophores are nano-planktonic plants; a single drop of ocean contains thousands of these organisms that we cannot perceive with our senses. And yet, by harvesting sunlight, phytoplankton produce 60% of the oxygen we breathe, even more than terrestrial forests.

In this installation, artist Antoine Bertin is particularly interested in the semiochemical study of plankton, that is to say in their language. Throughout their flowering, which can last several weeks, coccolithophores exchange chemical words called “metabolites”. The artist followed scientists studying coccolithophores during an expedition to South America. The concentrations of metabolites measured during the expedition have been translated into sounds so that visitors can immerse themselves in the conversations of a form of aquatic and plant intelligence.

BIOTOPIA

Welcome to the Playground.

Here you will discover an interactive space dedicated to play and experimentation where you are encouraged to have fun. A window into the benefits of technology in terms of creativity, accessible to everyone from 7 to 777 years old.

playground.

→

26 Design I/O US

Field, 2018
8000 lumen projectors, sensoren, computer, custom C++ software using openFrameworks.

Field is a dynamic and ever-changing interactive ecosystem where visitors can transform and pollinate the environment using their bodies.

27 Philip Schuette DE

SUN, 2017
LED screen, tracker, computer, balloon.

SUN transforms one of nature's most publicised phenomena - the rising and setting of the sun - into a fun sensory experience.

28 Tim Knapen BE

Godmode - Works of fiction, 2007-2022
Mac mini, projector, USB camera, various equipment, custom electronics, old photocopier.

Godmode is an interactive installation that allows visitors to play God by giving life to any creature they draw.

29 Camille Scherrer FR

In The Wood, 2011
Mac mini, Kinect, Projector.

In the Wood offers the poetic experience of becoming an animal as a shadow projected onto the wall.

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