

# **ALCHIMIA NOVA**

selected portfolio  
annemarie maes



## ***Sensitive Skins*** 2016

The Laboratory for Form and Matter is my artistic research project at the intersection of biology, ecology and contemporary culture.

The research is fed by my interest in bacteria as a medium for artistic expression and by a certain fascination for natural structures and organic processes at microscopic level, such as swarm intelligence, the collaboration in bee colonies and the strength of fungi networks.

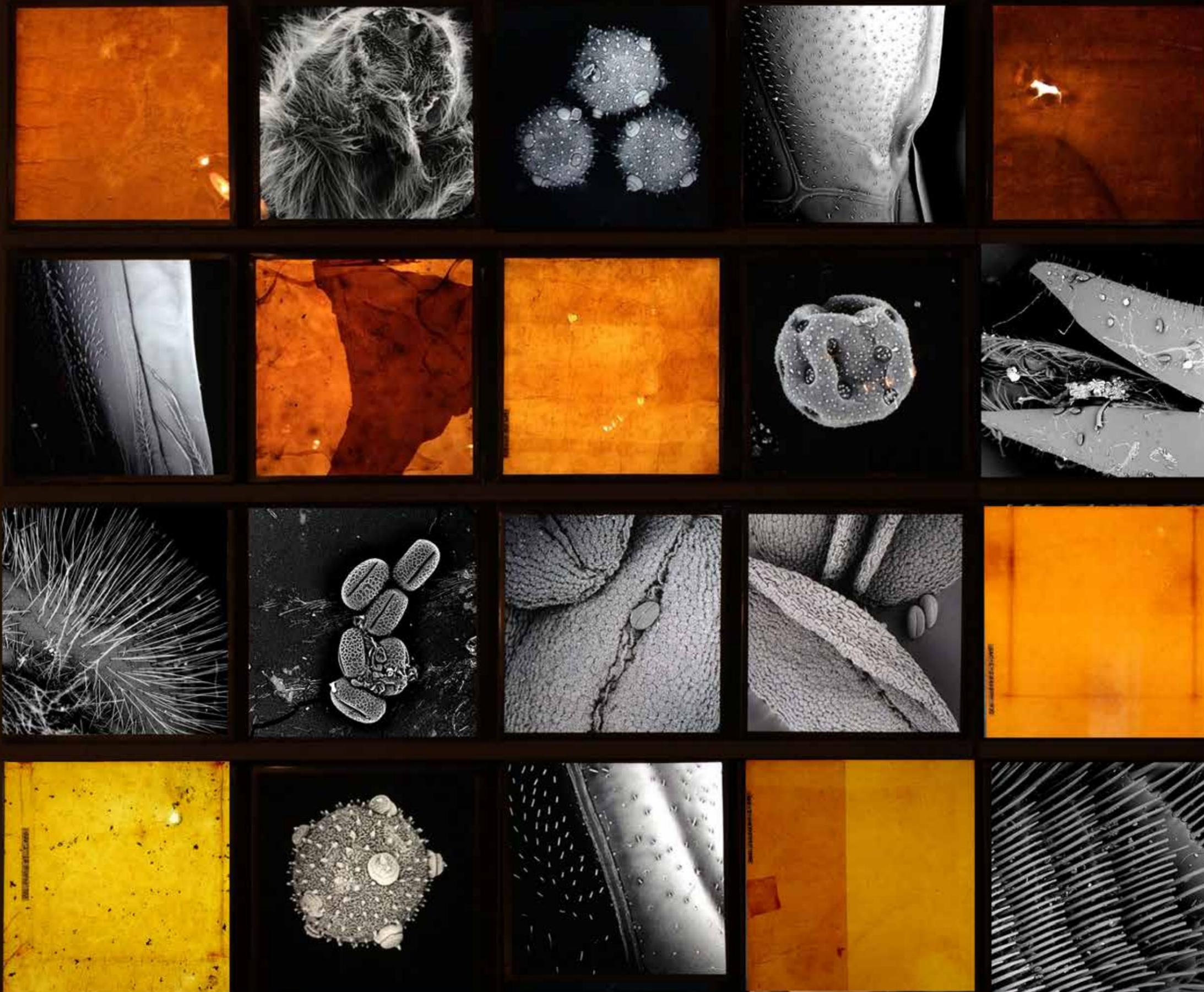
The artistic precipitation of this research crystallizes in the creation of objects that concretize my experiments with new organic materials. The installation '**Sensitive Skins**' displays a selection of bacterial grown skins in different colors. All fabrics are dyed with vegetable matter.



## ***Alchimia Nova*** 2019

I am exploring the possibilities of microalgae as pollution cleaners. Microalgae and cyanobacteria are the precursors of the chloroplasts in green plants. With the help of solar energy they absorb the CO<sub>2</sub> in the air and they give us clean O<sub>2</sub> (oxygen) in return. In the '**Alchimia Nova**' project I am culturing living algae in a bottle that can easily be worn on the body as a jewel. With their reverse metabolism, the microalgae are complementary to our human metabolism. In a symbiotic action, the human and microalgae create a favorable and balanced environment for both.

Synechocystis sp. bacteria with nutrient medium in a small borosilicate glass bottle, 10cm x 6cm x 4cm. Lightmicroscope photograph of Spirogyra bacteria. Presented in luxury transparent box, 20cm x 20cm x 8cm.



## ***Alien Intelligence II*** 2019

'Alien Intelligence II' focuses on my research where I study the relation between honeybees, bacteria and the urban environment.

It is a composition with 20 lightboxes (26cm x 26cm x 10cm each) containing black/white micrographs of pollen grains and honey bee parts, mixed with colourful cellulose fabrics that are grown by bacteria and colored with vegetal dyes.

All samples of bees (wings, tongue, eye, fur hairs, ...) and pollen grains (mint, courgette, sunflower, borage, ...) were collected in my urban rooftop garden/lab.

The pigments used for coloring the microbial cellulose fabrics are extracted from the same plants as the ones on which the bees were foraging.

Composition with 20 lightboxes, 26cm x 26cm x 10cm each, dimensions variable. (Here 140cm x 115cm). White brushed metal, duratrans prints, plexiglass and led lights.



## ***L'Origine du Monde*** 2020

**'L'Origine du Monde'** is an artistic representation of research into the possibilities of cyanobacteria and micro-algae as source for renewable energy and novel biodegradable materials.

The installation shows a strongly enlarged bacterial chain made from glass cells. Every cell is filled with cyanobacteria producing realtime photosynthesis.

Together they form a complex microbial population that communicates via quorum sensing and cleans the air from CO<sub>2</sub> whilst producing biopolymers.



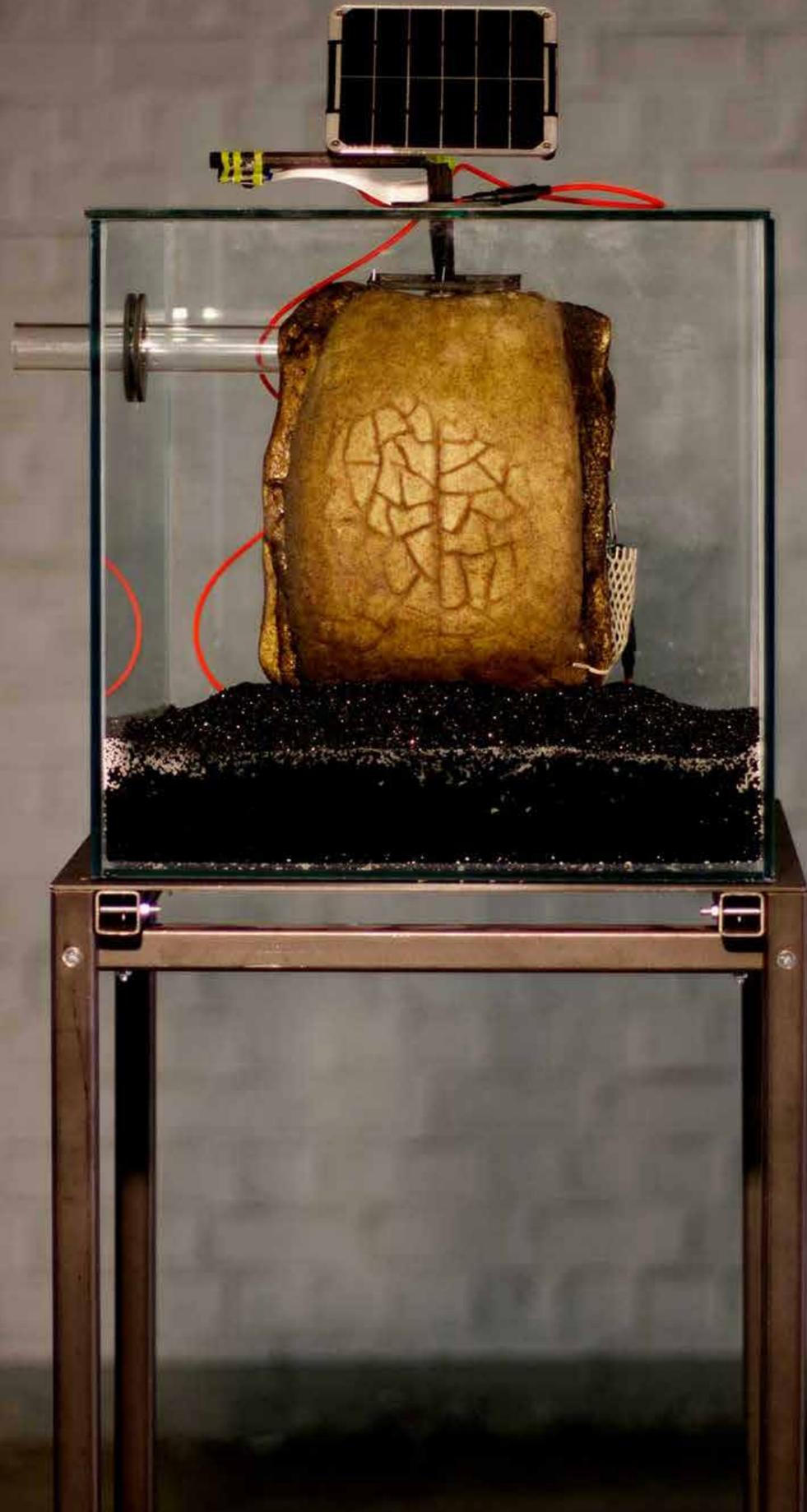
## ***Bee Agency*** 2020

How is artistic/scientific research used in the arts to draw attention to pressing ecological issues?

'Bee Agency', a sculpture in 2 parts, is an answer on the threat faced by pollinating insects. AnneMarie Maes studies the close interaction between pollinators and urban ecosystems while experimenting with a wide range of biotechnologies and organic materials. 'The Intelligent Guerrilla Beehive' is a radically new beehive designed for urban environments. It is offering an organic shelter to swarming bee colonies. This beehive is tailored to the needs of bee colonies 'living in the wild', in opposition to colonies that are domesticated by beekeepers. As such, the colonies can work on their own rhythm and focus completely on their pollination tasks. This results in the preservation of the biodiversity on their foraging fields. With colour variations, the organic outer skin of the beehive is responding to external stimuli as fine dust particles and pesticides. As such it becomes a pollution sensor, sending out alerts in case of high risks.

'Variation Games' is a video filmed with an infrared camera inside the beehive. It is a condensed edit of a year-long observation of the behaviour of a bee colony and is revealing that community life for bees is based on networking, collaboration and collective intelligence.

Portable installation with Intelligent Beehive sculpture and video screen. Metal, rubber wheels, Microbial skin, electronics, 3Dprints, bioplastic. Black/white video with sound (21:00 min.)  
Dimensions: 180cm x 60 cm x 60cm.



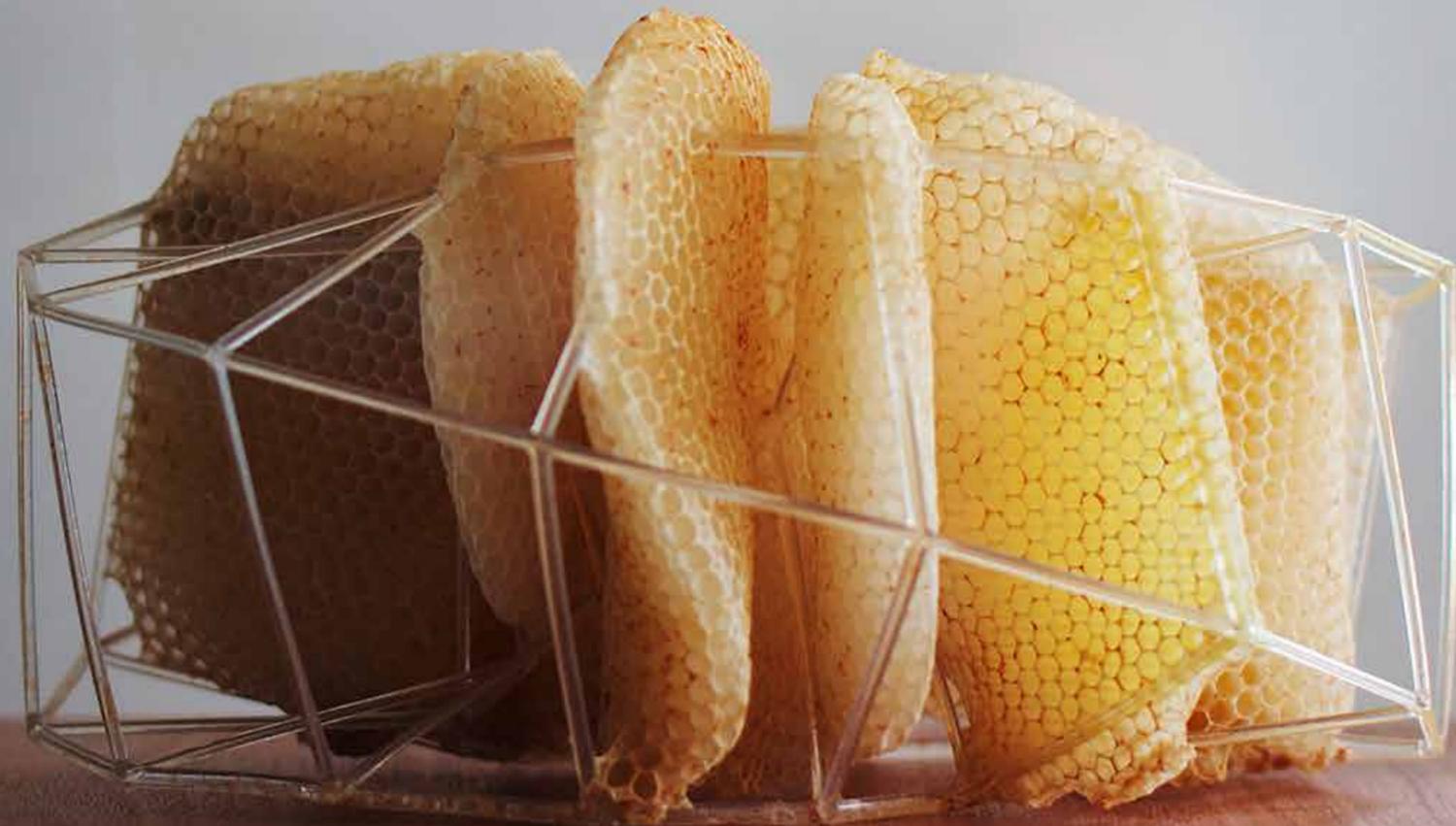
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## ***Moebius*** 2016

A Moebius-strip was printed with natural resin in a 3D printer and than put in a beehive.

The bee colony started to built waxcomb on this 3D structure. As such, a high-tech 3D print is combined with a natural 3D print made by the bees.

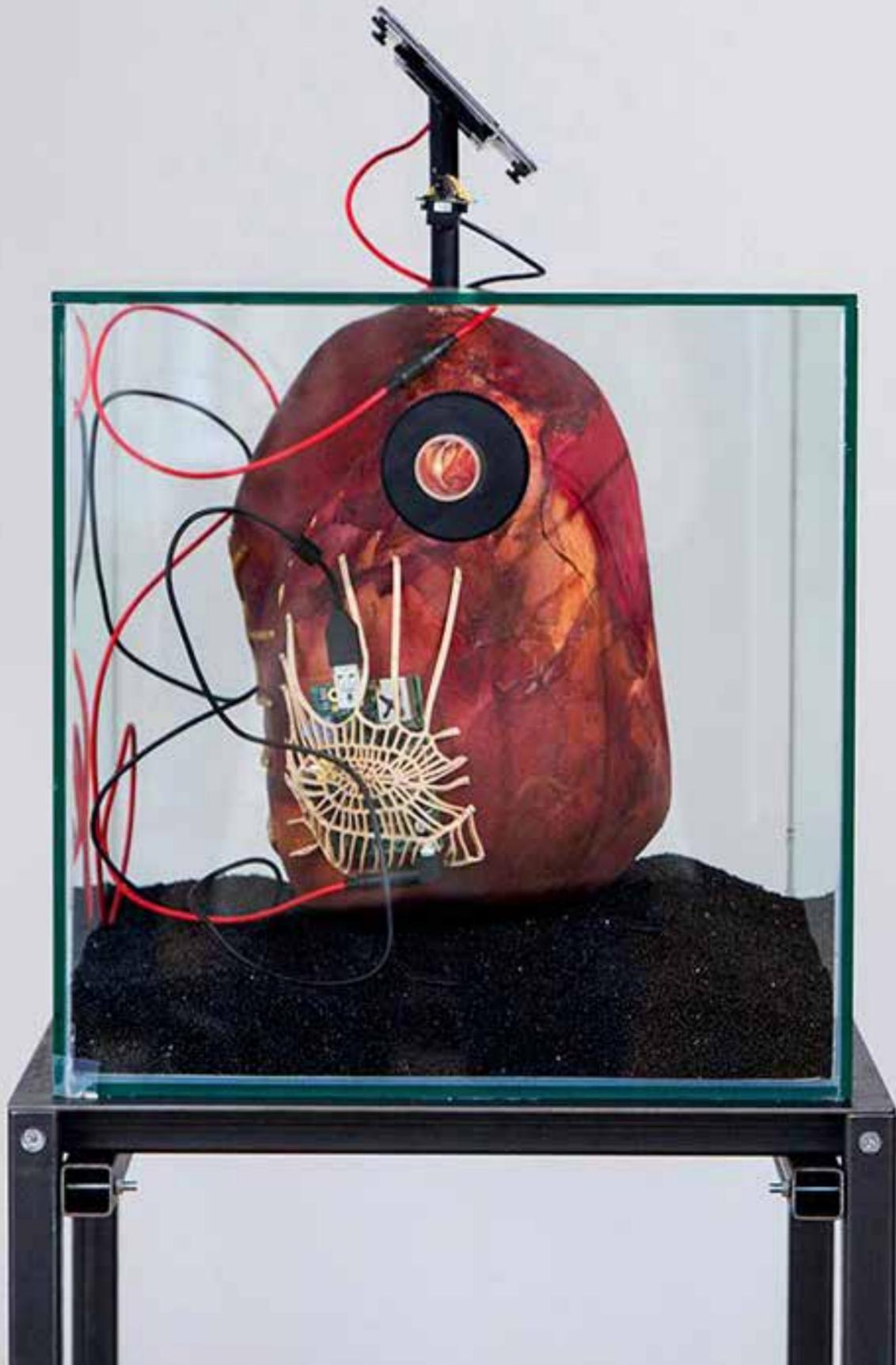
We can see this '**Moebius**' artwork as an example of bio-mimesis, advanced technology inspired by nature.

## ***Guerrilla Beehive*** 2014

I want to populate cities with a network of intelligent '**Guerrilla Beehives**'. These beehives should offer shelter to bee colonies 'in the wild' – rather than force bees into artificial apiaries. The bee colony should be able to thrive without the help of a beekeeper. Guerrilla Beehives are intended for pollinators, the preservers and remediators of biodiversity.

I imagine a world where biological fabrication replaces traditional manufacturing and where new sustainable beehives can be generated simply by growing them. The design of such beehives will be inspired by art forms from nature. I create the prototypes using smart and organic materials.



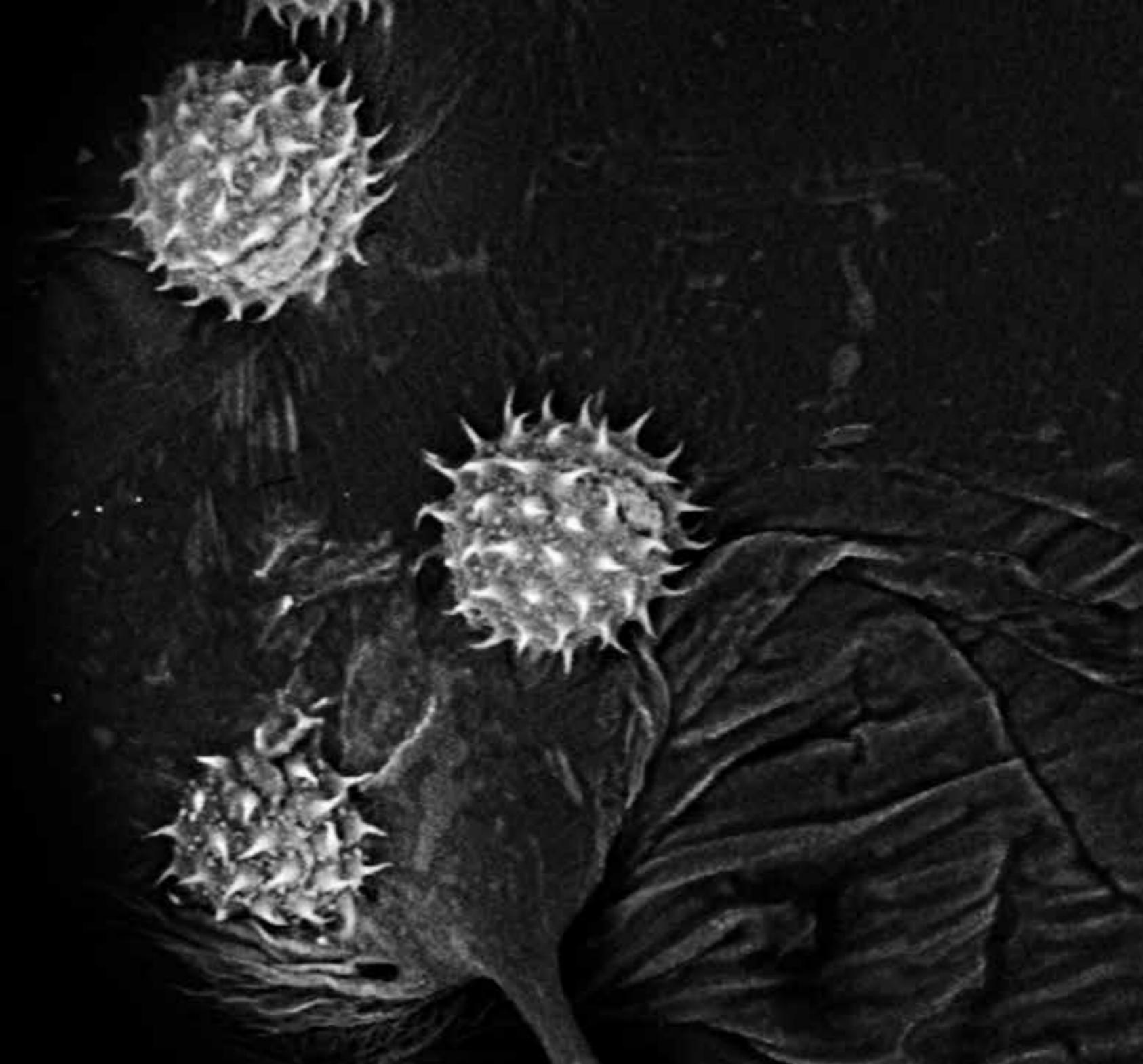


## ***Heart Beehive*** 2017

The sculpture '**Heart Beehive**' is the result from the research into radically new beehives: the Intelligent Guerrilla Beehives. On the Heart Beehive I explored the possibilities of smart organic materials: the microbial skin grown by bacteria, the possibilities of vegetal dying and bioplastics. The aesthetics of the formal aspect in combination with DIY electronics for observing the bee colonies' behaviour and the use of new biomaterials (3D printed with FabLab machines or grown by micro-organisms) form a tight sustainable ecology.



Sculpture with Microbial Cellulose skin, vegetal dyes, solar panel, electronics + Raspberry Pi computer, black sand, glass box, metal pedestal.  
Total dimensions 42cm x 42cm x 175cm.



## ***The Smell of the Hive* 2019**

Every beehive has its own very specific smell. With '**The Smell of the Beehive**' I have created a perfume through multiple distillation processes of five core elements of the beehive: pollen, nectar, wax, propolis and bees.

They are mixed in appropriate proportions to recreate the delicate, warm and sweet smell that we detect inside the beehive.

## ***Golden Beehive*** 2014

The beehive is a system of homeostasis. Homeostasis is the property of a system that regulates its internal environment and tends to maintain a stable, constant condition of properties like temperature or pH.

A medium sized bees' nest needs 1200gr wax to be build, and the bees need 7,5 kg honey for the energy of building it.

The beeswax is composed of more than 300 different chemical components.

The wax comb is constructed vertically, parallel to the earth's magnetic field. The bees can construct this way thanks to the gravity receptors that are situated in all their legs and body joints.

The '**Golden Beehive**' sculpture is inspired on the morphology of an *Eucalyptus* seedpod and is made from pure beeswax. It has the size needed to house a bee colony in the wild.





## *the Pollinators* 2015

'**The Pollinators**' is a series of four lightboxes, representing microscopical photographs of bee-parts and pollen grains. The photos are made with the high-end Scanning Electron Microscope, which is used for scientific research and can display greatly enlarged images of objects, also in 3D view. Honeybee parts (proboscis, antennae, legs, eyes) were closely inspected.

'They are everywhere and they can be perceived as quite the alien intelligence; six-legged, with their numerous eyes, capacities of motion and sensation so different from our own. No wonder science fiction has been inspired by insects. But also other fields, like robotics as well as network design. Insects are more than creepy-crawly bugs; they are also a central reference point of so much of network culture, from talk of hive minds and distributed networks to algorithms that function like ant colonies; some refer to our cognitive capitalist practices as 'pollen society'.

Jussi Parikka 'Insect Media: an Archaeology of Animals and Technology'



## ***Sensorial Skin*** 2016

**'Sensorial Skin'** is a series of macro photographs of microbial grown skins. The skins are grown by *Acetobacter xylinum* bacteria and yeast cells in a medium of green tea and sugar. The micro-organisms create a flexible bio-film to protect the growth medium. Once the film is harvested and dried, it feels like a second skin and it has the strength and impermeable properties of leather.

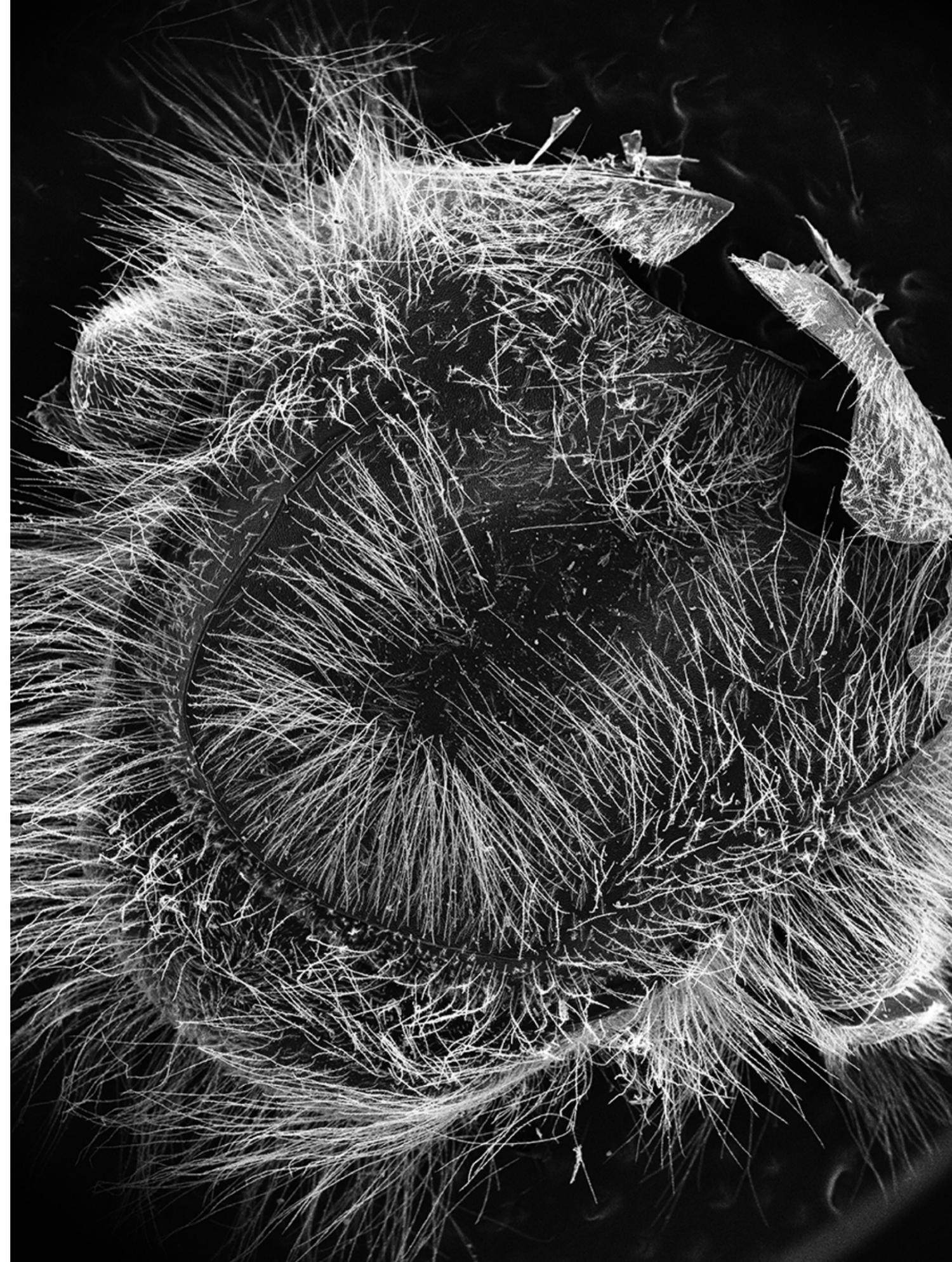
## ***Caput [head]*** 2018

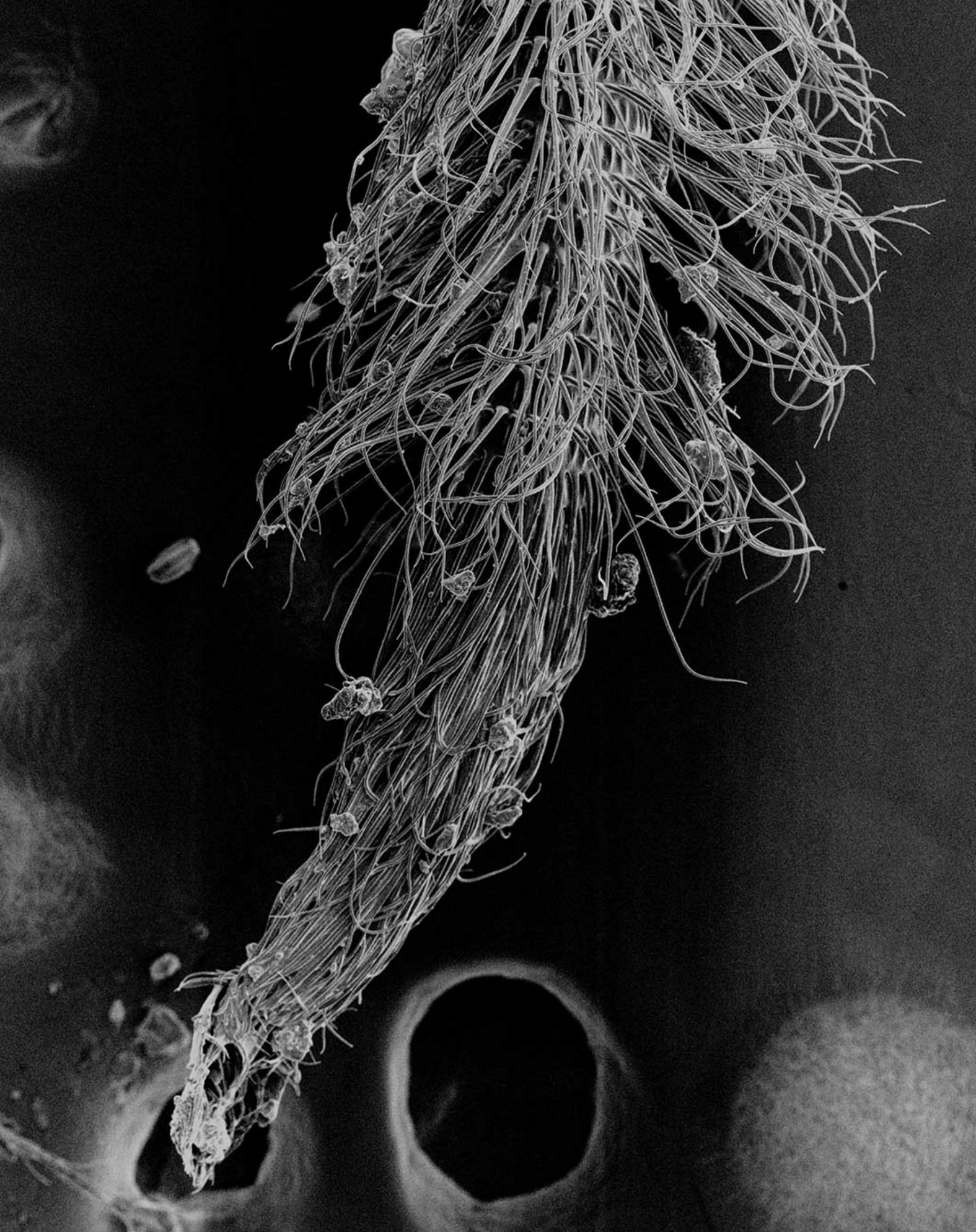
Since Darwin, it is clear that flowers and bees engage in an evolutionary race.

The honey bee is a complex insect with numerous sensorial features which are matching perfectly with the demands of sensual plants.

The black-and-white photograph '**Caput [head]**' reveals the elaborate design of a dissected part of the honey bee. It shows in detail the wide variation of furs that cover a bee's body, and in which pollen but as well pollution particles are transported to the beehive.

All samples were collected in the Urban Bee Lab, the artist's apiary and rooftop garden laboratory in the centre of Brussels.





## ***Glossa [tongue]*** 2018

Glossa (x 150 magnified) 160cm x 215cm

Glossa is the Greek word for 'tongue'. The glossa is similar to a long segmented cylinder covered with hairs. When the bees are foraging, the tongue is extended and immersed into the nectar. The hairs on the glossa erect to collect the liquid and the nectar is sucked into throat of the bee. Besides being a feeding instrument, the bee-tongue serves also for licking the queens' pheromones which regulate the life in the hive. So it is also a kind of communication instrument.

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