

Simbiosi



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Simbiosi

A poetical narrative on paper waste from exhibition:
the metamorphosis of material through mycelium.

Note to the reader: "Simbiosi"

Simbiosi -as in the title - is the Italian translation of the term symbiosis. In the Italian renowned Enciclopedia Treccani, "simbiosi" is defined as an intimate, often obligatory, association between organisms of different species, generally involving co-evolutionary phenomena. Depending on the type of relationship established between the various organisms (symbionts), different modes of symbiosis can be defined. The one of interest for this thesis is the ectotrophic mycorrhizal. Mycorrhiza is the structural and functional combination of the mycelium of a fungus with the root of a plant. (Micorriza, n.d.) In this thesis I want to express the symbiosis among two cultural fields: museum and bio design.

Abstract

In this research, I am exploring how to regenerate paper, so making it an endless material. I propose an approach based on transforming paper from an exhibition into soil, through the help of mycelium, a living organism .

The thesis aims to create awareness about the development of sustainable alternatives to recycling and archiving within the museum field. It Embeds the concept of metamorphosis within the transformation of paper.

For that, I developed a collaborative project focused on experimentation taking place in a material incubator laboratory, and on a visual translation of a design methodology.

In this thesis, I present research on testing if mycelium can grow on paper and how it will decompose in the soil.

The thesis proposes a “poetical narrative”, as it stems from the idea that paper originated from the trees and will return to them through their roots in transferring and preserving the information of the piece of paper within the mycelium . The mycelium which has grown on paper in the laboratory, is used to create vases that will be positioned into the ground , allowing the cycle to continue endlessly.

The thesis builds on my interests in museums and bio design, and on my professional experience in the field of exhibition organisation .



Figure 2. Simbiosi collage. 2023

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Figure 3. Petri trees.
2023

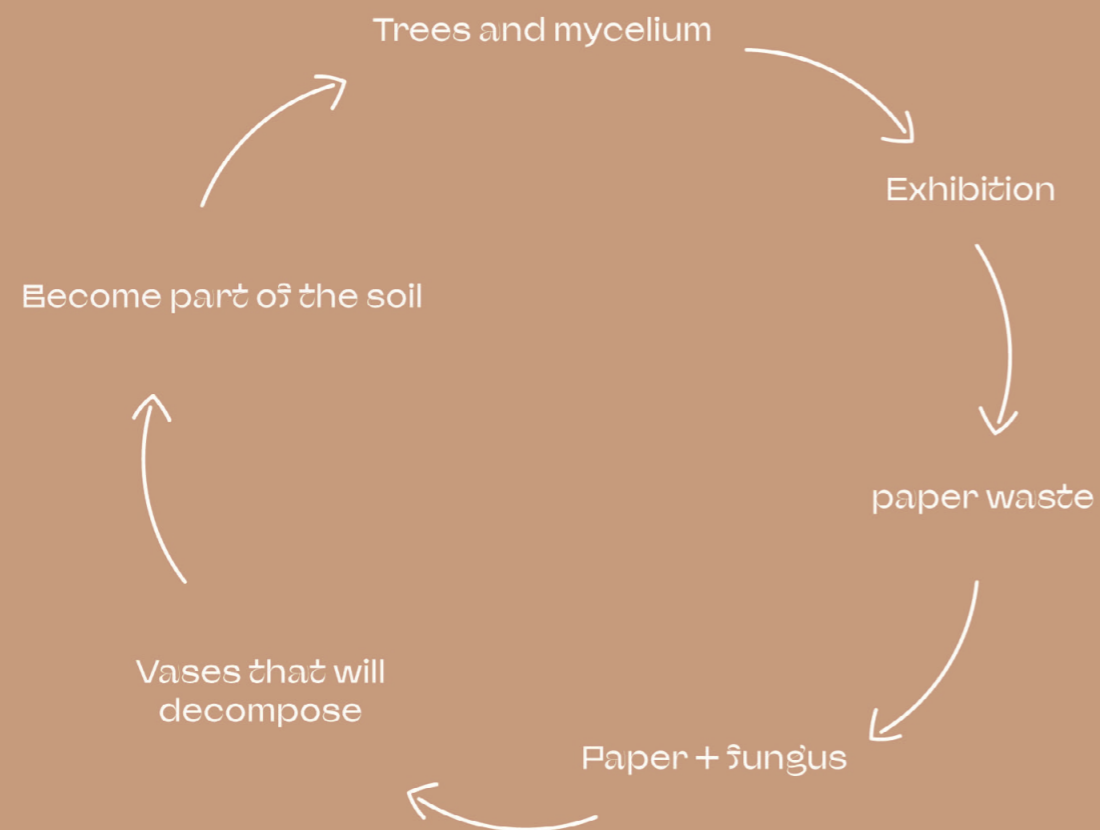


Figure 4. Mushroom.
2023

Introduction

Living in an historical period characterized by a profound economic and climate crisis, and increasing social and political tensions, we cannot avoid taking everything that surrounds us into consideration when dealing with the topic of creating new projects and ideas. The issue of sustainability is increasingly intrinsic to everyday actions both on a large scale and on an individual level.

Closing Conference Working on Common Ground "Have We Met?", 2022.
Triennale di Milano, Italy. Speaker K. Kuitenbrouwer.



This thesis is divided into three main parts.

First, it analyses the role of museum in relations to sustainability;
second it focuses on bio design specifically exploring mycelium.
Thirdly, it presents an innovative experiment with living organism in a bio-based project.

This thesis aims to bridge the two fields of knowledge: exhibition design and bio design.

Nowadays, eco-sustainability in museums is a complex issue, as museums must balance their environmental responsibilities with their educational and cultural duties. In the design field, in the last decades, a new sector emerged: "bio design", which describes the use of biological materials and processes to create new products, services, and systems.

Thus, bio design has the possibility to introduce new methodologies to enhance the sustainability in the museum field by



Figure 7. Nieuwe
Instituut. 2022

Museum



Figure 8. Nieuwe Instituut
entrance. 2022

In September 2022, I started my internship in the agency department at Nieuwe Instituut, Museum of Architecture, Design and Digital Culture in Rotterdam. This museum promotes sustainability within the building itself, the exhibitions, and the program. It shares intrinsic values based on sustainability and cooperation.

These ideals have always been intrinsic into my practice. Also due a compelling educational role played by my mother who nurtured in me the passion towards cultural occasions. Since I have memory, I remember visiting every weekend a different museum or an archive or a cultural event in my home country, Italy. Ever since, I always collected any kind of paper from there, namely flyers, cards, posters, brochures, and books. I still do it and keep most of this material with me.

When I started moving from place to place to study and work, I have always brought some of these papers along. I hang these memories on the walls of my new room as my first ritual when I enter it. This makes me feel home. The lightness and the small dimension of the paper allow me to always carry them with me.

U.S. Department of Agriculture
National Organic Program



Figure 13. Mushroom.
2023

Bio-design



Figure 15. Growing fungi on the book *Entangled life*. 2020

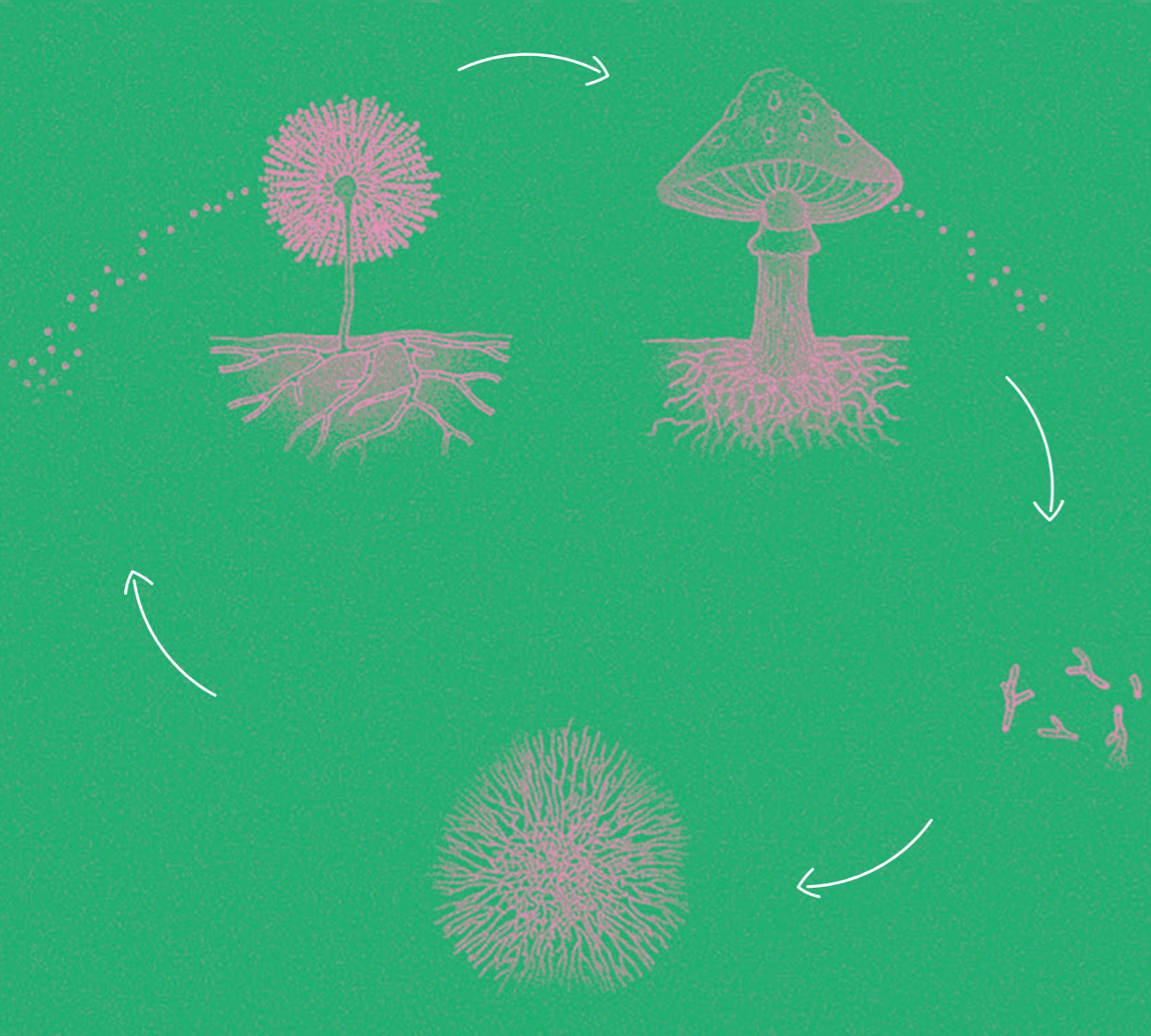


Figure 14. Mushroom cycle. 2023

Bio design means exploring design methodologies with a biological viewpoint or viceversa, researching at the same time with living organism.

Based on this definition, the thesis merges bio design and exhibition design, make them working in symbiosis toward a more sustainable future in the design and artistic world. The aim is to give an afterlife to the paper from the exhibition with a non-canonical method, by working with a living organism: mycelium. The thesis proves a small-scale example.

2.1 What is Mycelium?

Mycelium is a network of fungal threads or hyphae. It often grows underground but can also thrive in other places such as rotting tree trunks. The fruiting bodies of fungi, such as mushrooms, can sprout from a mycelium. A single spore can develop into a mycelium. Mycelia gives a vital importance to the soil. (Mycelium, 2023)

Mycelium is able to break down organic material, by making it raw material which is useful again for the ecosystem.



Figure 16. Still from performative video of Merlin Sheldrake eating his own book. 2020

Project



Figure 22. Mushroom.
2023

Project



Figure 23. Mycelium collage. 2023



Figure 24. Material laboratory Avans. 2023

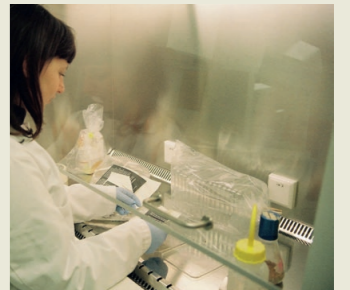


Figure 25. Material laboratory Avans. 2023

In this section I will present the process and the experiments related to the project to put into practice the research presented above. I worked in the Material Laboratory of Avans University, combining paper with a living organism with the guidance of the Laboratory coordinator Serena Buscone and the tutors Emma van der Leest and Emma Luitjens.

Since I am working about material knowledge from exhibitions which will have another life and become parts of trees and in this way, I am exploring a poetic approach on the afterlife of a material wasted from an exhibition. In this case paper, that comes from trees, returns to them by positioning mycelium in the soil. With this project I want to express a circular idea. In this paragraph I am describing the process of mycelium growth with paper as its substrate.

I started my empirical project with three experiments, in which I combined two different kinds of paper, 80 grams white paper with black ink and 120 grams laminated black and white paper, collected from the exhibition "Archives at risk" (Archives at Risk,

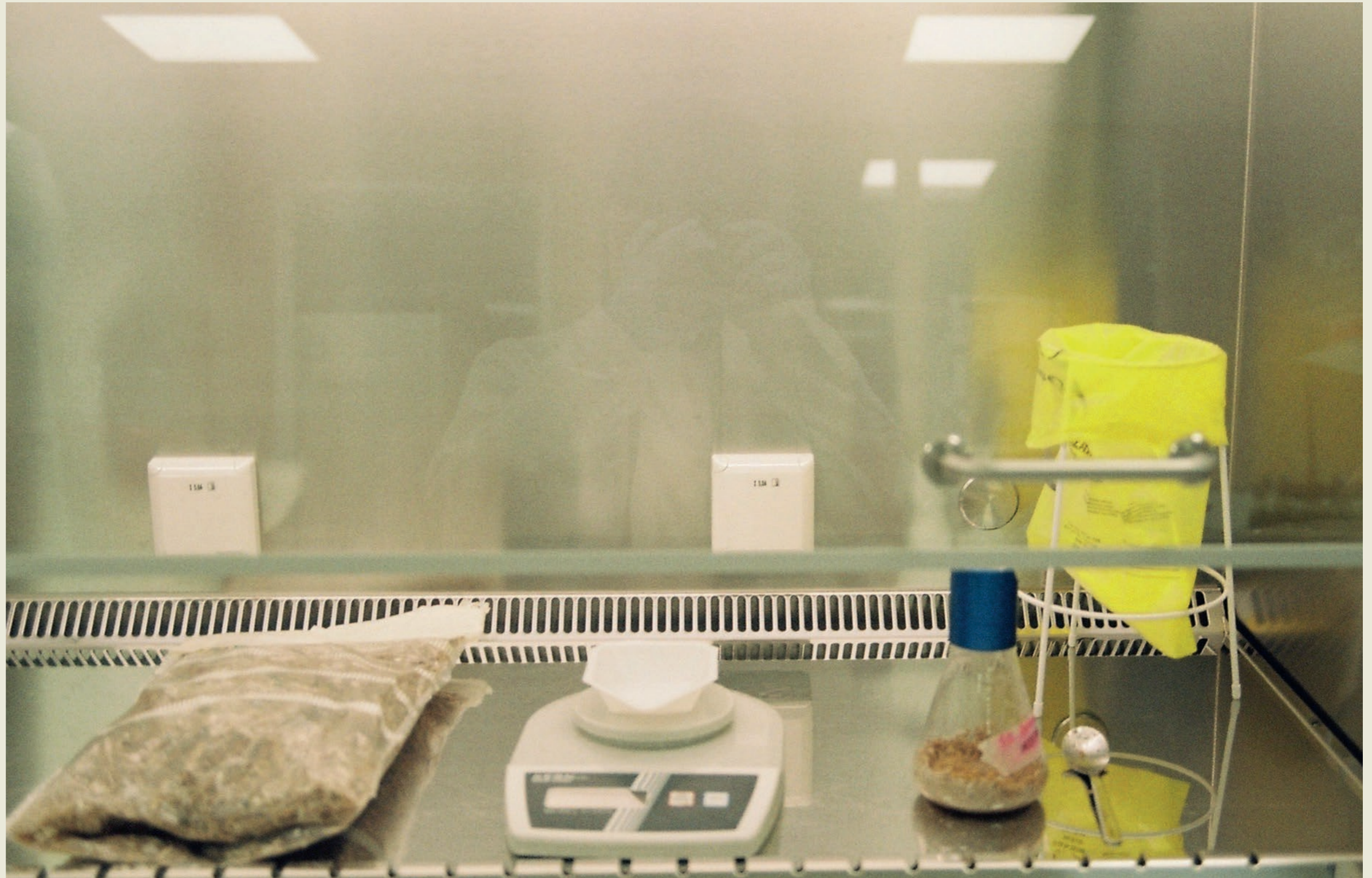


Figure 33. Setting of the process in the Material Laboratory of Avans University. 2023



Figure 46. Detail of *Ganoderesema Resinaceum* growing on the 80g white paper with black ink. 2023

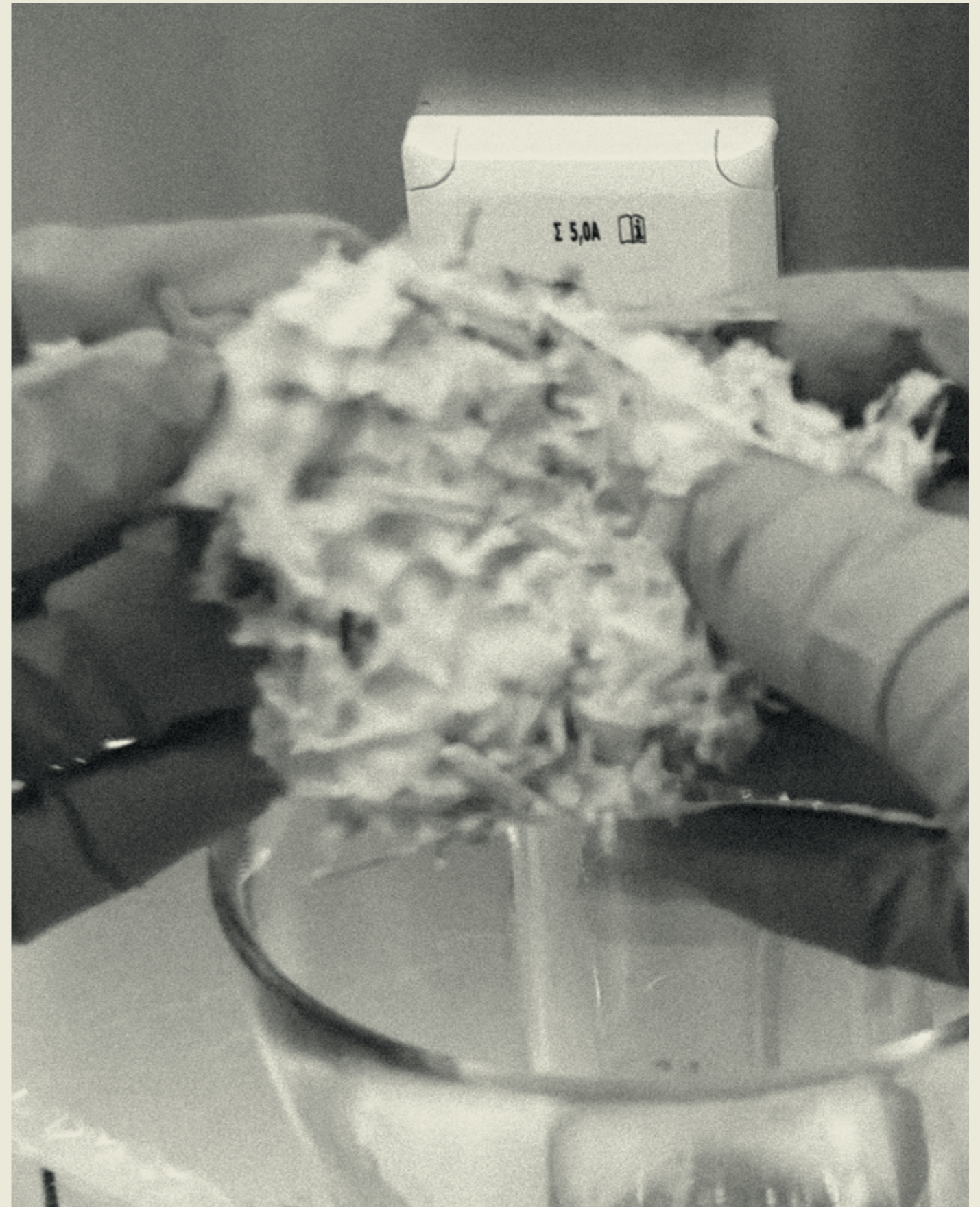


Figure 47. Detail of molding the mycelium in a vase shape. 2023



Conclusion

The thesis developed a collaborative project combined experimentation in a material incubator laboratory and a visual translation of a design methodology.

It built on my professional experience in the field of exhibition organization and my studies and research field of designing with living organism.

The thesis brought closer museums and bio design in the name of sustainability. It showed how a small act, like producing vase from exhibition paper through mycelium, can be integrated in the museum practice as a way of recycling paper waste. The choice of a vase should be intended as a mere example.

Further research should follow to properly assess the molecular evolution of the vase.



Figure 50. Mushroom.
2023

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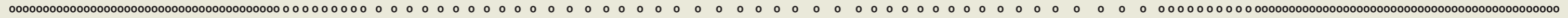
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HOW TO ARCHIVE

archieven

BETTER

(EVERYTHING)

NEEDS CARE

is an

heritage to society