

# Cultivating Companionship

A conversation about cornfields and communities.

by Lina M. Hülsmann





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The background of the page is a complex, abstract pattern of red and white lines, resembling a dense, organic texture or a stylized map. This pattern is framed by a solid dark red border on the left and right sides. The text is centered horizontally and vertically within the white space of the pattern.

Zea Mays

Milzea

Design for the Living

Tools to Design Space  
and Conversation

Wording, People, Endnotes, Images, Bibliography, Webliography



An aerial photograph of a rural landscape, showing a grid of agricultural fields separated by narrow roads and paths. The fields are in various shades of green and brown, indicating different crops or stages of growth. A prominent road winds through the landscape, and several small buildings or structures are visible in some of the fields.

# Introduction

Finding myself in a time where the present is confusing and the future unknown, I am confronted with questions and fears that seem to be bigger than the personal reach. When climate change and the economic wish for growth go hand in hand, it is a challenge to find one's position and angle toward the rising questions. Through this research I want to observe our current relationship with the land and landscape and find ways to understand today's situation, by learning about and from my ancestors in the countryside.

With every new place I go and every new perspective I meet, I learn a bit more about myself. I have been following this philosophy since I lived in a rural mountain area in India for one year. Later on, I spent a year in Spain, and now I am in the Netherlands. Fernweh is not an unknown term for me. But my recent travel to Central America opened my eyes to a new fact: It is not only about who I am and where I go, it is also about where I come from. Some people let me discover a high level of pride and love for their own culture and heritage. My education was based on western, modern values. Local awareness about traditional wisdom played only a little, exclusively theoretical role. Inspired by those people and curious about what I can find, I go back to where I come from and explore the countryside as the origin of my culture.



This research is based in Bersenbrück. The little town belongs to the district of Osnabrück in North-West Germany. I grew up at the edge of Osnabrück, close to a landscape of fields, and forests. I remember the sweet smell of the bright yellow raps and the particularly beautiful scent of summer rain hitting the forest ground. I remember the sound of hundreds of bees going around the huge chestnut tree in our garden. I remember watching cows and horses graze on the meadows. Sometimes you would see a deer or field hare. This area, with farmhouses spread in between the hills, is what I call my Heimat.









Those farmhouses have a particular value for the region of the Osnabrückerland and the Artland. Some of them are more than 500 years old and most of them are listed as protected historical monuments. We call those half-timbered farmhouses “Heuerhäuser” or “Kotten”. Seeing those houses every day during my childhood I question the historical life connected to them for the first time now. Many Heuerhäuser can be found around the town of Bersenbrück where still a large part of the income is based on agriculture. It is also the place where my father grew up and still goes to every day for work.





There is a time of maize and there was a time before maize. Through the corn, I will explain why the current Anthropocene needs to set a new way of thinking and designing, based on a community of humans; and non-humans.

During my visits to Bersenbrück I interviewed different people. I went back several times and met people who grew up in Heuerhäusern. I visited farmhouses with different uses and histories. I spoke to farmers, the mayor, young people and the older generation. I spent time on fields, at a biogas-plant and at different kitchen tables where people invited me to have a coffee while we talk. Through





all this, I began to understand what drastic changes had happened in the past 50 years. Those houses are remaining representatives of a 'time before maize'. In summer I found myself surrounded by hectares and hectares of corn which covers nearly 50 percent of the agricultural land in Bersenbrück. Maize came to northern Germany in the 1960s and grows on huge monocultural fields.



But none of it is planted to feed humans.<sup>1</sup> The area changed from small-scale, self-sufficient farming to industrialized mass production. This change in agricultural land use affects and reduces the biodiversity of the area.

The countryside of Bersenbrück alongside the current global conversation on inter-species coexistence guides me through the social, economic, and political situations of today's, 2023. The farmer, as an echo of society, reveal our relation to and the missing connection with another, the land and the other. I am recalling wisdom that evolved and grew through many generations and that will now disappear with the extinction of the older generations.



What can I as a spatial designer learn about community and companionship from my ancestors in the countryside of Bersenbrück? And how can the current global conversation on the Post-Anthropocene give my research a theoretical foundation on a philosophical and scientific level?

I invite you to take your time and allow yourself to become part of the story, whose individual chapters can be understood as actors of the whole. Find your position as an actor and design the world around you with awareness of the other(s).











The background of the slide features a repeating pattern of red line art corn cobs, oriented diagonally from the top-left to the bottom-right.

# The Scale

The question of scale is very important when it comes to research as it allows different angles on the same topic. Zooming in (small scale) and out (big scale) not only shows different aspects of the same but also changes the context of perspective. Among the aspects of distance, scaling takes into account also the aspect of amount. To this extent scaling up means to increase (amount or size) while scaling down signifies to reduce. Looking at the corn I will explain why scale matters.

Maize is a plant that evolved in many varieties that differ in aspects of climatic requirements, the appearance of the corn cobs, and the plant. The growth height of the plant reaches from less than 1 meter up to 4 meters.<sup>2</sup> In total there are 8 sorts of corn that can be divided into more than 220 types.<sup>3</sup>

below<sup>1</sup> right<sup>11</sup>



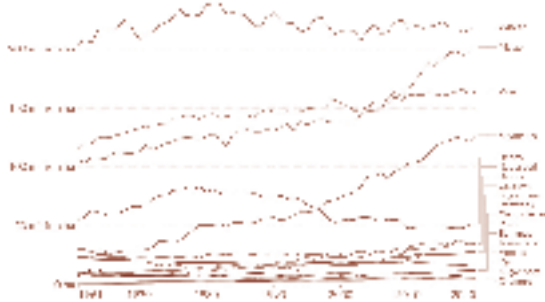




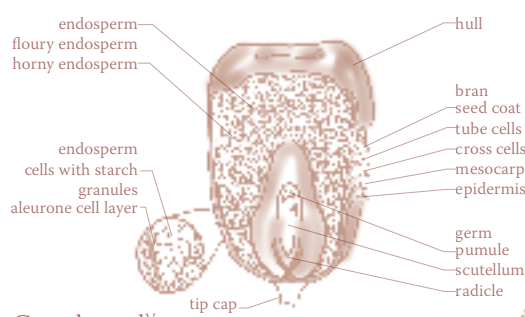


The Yellow Dent no.2 is by far the most known of all the different variations. It becomes obvious that many people only know this type of corn when we take into account that this variety accounts for 99 percent of all planted maize.<sup>4</sup> Zooming out we will see which amounts we are talking about. Alone the cornfields of the USA would cover entire Germany. In total, 201.98 million hectares of land worldwide are covered with corn (2020) which means that it had doubled the amount of land within the last 60 years. No other crop has ever increased so much.<sup>5</sup>





Land area per crop type<sup>IV</sup>



Corn kernel<sup>V</sup>



Yellow Dent no.2 got selected to scale up in the economic interest of growth. While scaling up it also got optimized and perfected in terms of efficiency and resistance.<sup>6</sup> Let's zoom into the plant itself. If we have a close look into the microscopic aspects of the single corn, interesting facts can be discovered. The first is the aspect of reproduction. As it is a hybrid plant, meaning a mix of different varieties, the maize is not able to reproduce itself. The highly domesticated plant cannot exist without humans. This seemingly powerful plant covering millions of hectares of land is, seen from a close perspective, fragile and dependent.<sup>7</sup> And so are the farmers who need to buy new seeds from the companies that produce them. The ownership of seeds and the patenting of plants is a widely discussed topic that opens up another chapter of the capitalistic overtake on the agricultural sector.



A further matter which we can discover on a cellular level is the reason why the corn became so successful in Germany and worldwide: It is the high energy level of the corn (Protein - 8.5 g ; Fat, 3.8 g ; Carbohydrates - 64.2 g ; Dietary fibre, 9.7 g).<sup>8</sup> One hectare of corn provides more energy than the same amount of land with any other kind of grain. It needs little care and as it grows extremely fast (May until September).<sup>9</sup> “The quick growth even allows double use of the field. The farmer can grow winter crops such as winter wheat or rye during the cold period of the year.”<sup>10</sup>

Corn field<sup>VI</sup>







Economically corn is highly successful, therefore it still gets scaled up. Today corn is not only used as food for domestic animals but it also became an important source of energy. With the need for alternative sources of electricity, while fossil fuels get less, local biogas appears as a great alternative. Not only around Bersenbrück but all over Germany, the number of Biogas plants, and with them the number of cornfields, keeps on growing. Through the Renewable Energy Sources Act (EEG) the government began to support this development in 2004. While biogas used to be a side product on farms, now energy farming is a completely new discipline in the agricultural sector.<sup>11</sup>

Nevertheless, scaling up in terms of increasing the amount of maize does not only solve problems. In fact, the idea of scaling up is a problem in itself. ‘The more corn we plant, the more problems we solve.’ Seems logical at first moment, but this idea of endless growth contains a contradiction as space and resources are limited. Taking more implements that others (human or non-human) get less. This simple calculation describes the capitalistic centralization of wealth.<sup>12</sup> The division of the agricultural land in Bersenbrück represents this development: there is an increasing number of landowners with a lot of land, while the number of small farmers and the total number of landowners declines.<sup>13</sup>



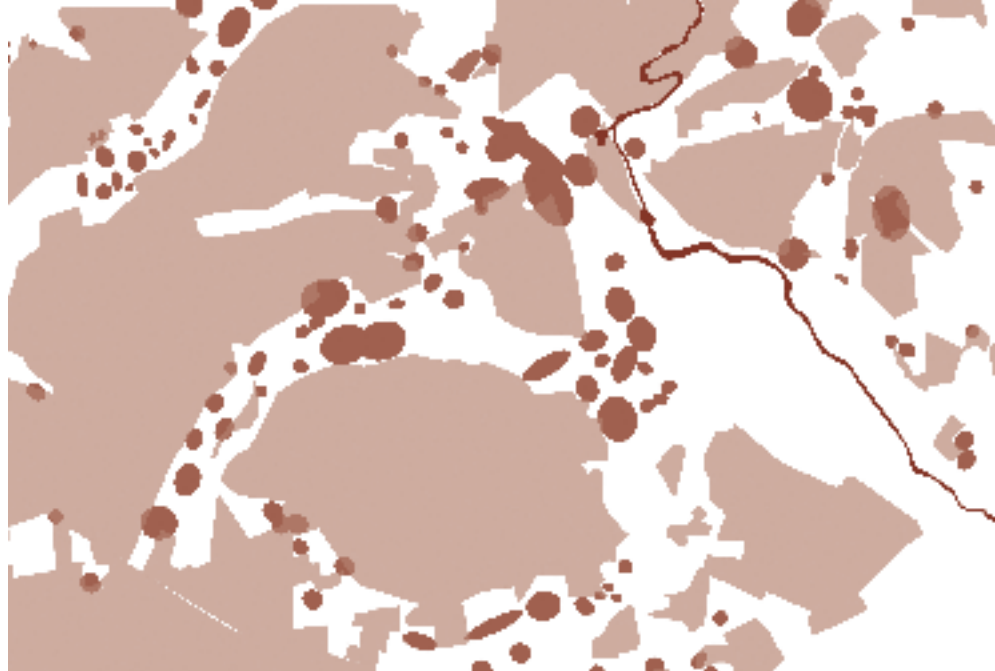
The expansion of corn changes the visual scenery of Bersenbrück's countryside. The patchwork landscape with different varieties of meadows crops and vegetables today shows up as a carpet of 2,5m high maize. On monocultural corn fields there is nothing that grows besides corn. The use of pesticides, herbicides, and fertilizers eliminates all other life on the field and in the soil. Scaling up one single element has led to the disappearance of the previously existing diversity. The wide range of different plants and crops was necessary for the self-sufficient life of the people in former times. This loss of diversity has a direct impact on local ecosystems. Various insects, mammals, birds, native plants, and other species are affected by mono cultivation. The consequences can be discovered until the smallest scale of microscopic organisms within the soil. (see chapter 'Interconnectedness of the living')



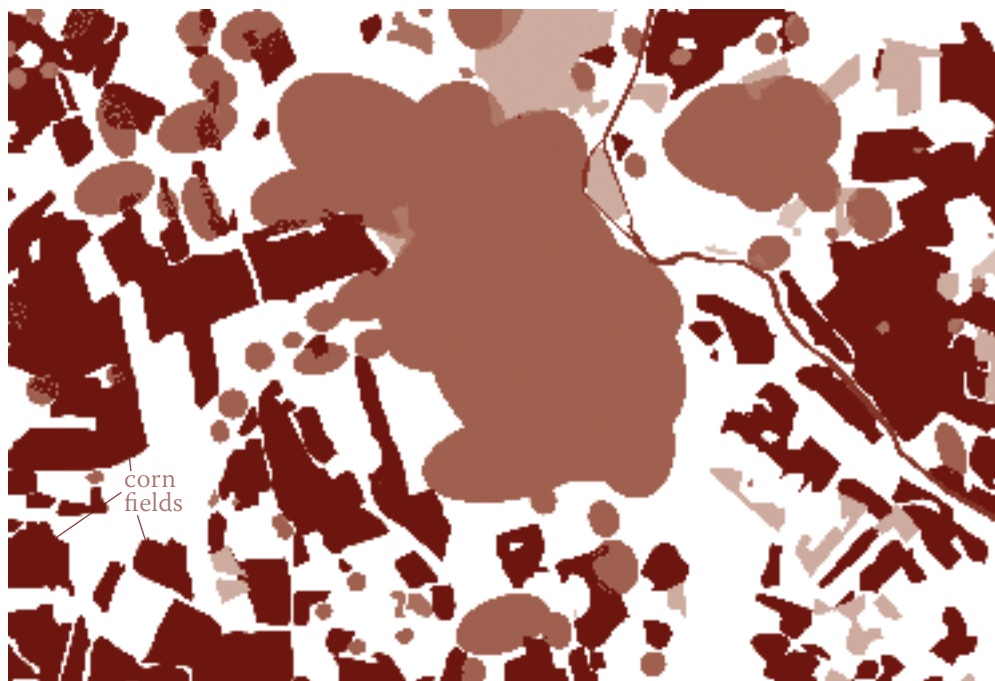
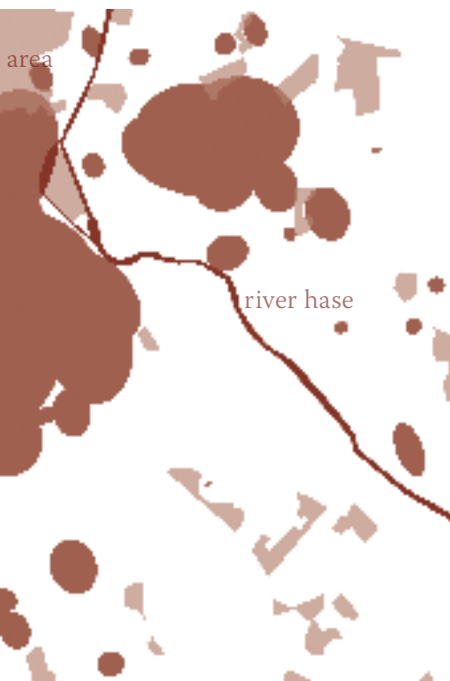
Bersenbrück 1789



Bersenbrück 2002



Bersenbrück 1834



Bersenbrück corn fields 2018





The contrast between the agricultural soil and the soil of the forest shows how land-use interferes with biodiversity.





The field which grows winter grains was a cornfield last summer.  
Only a path divides the field and the forest.

















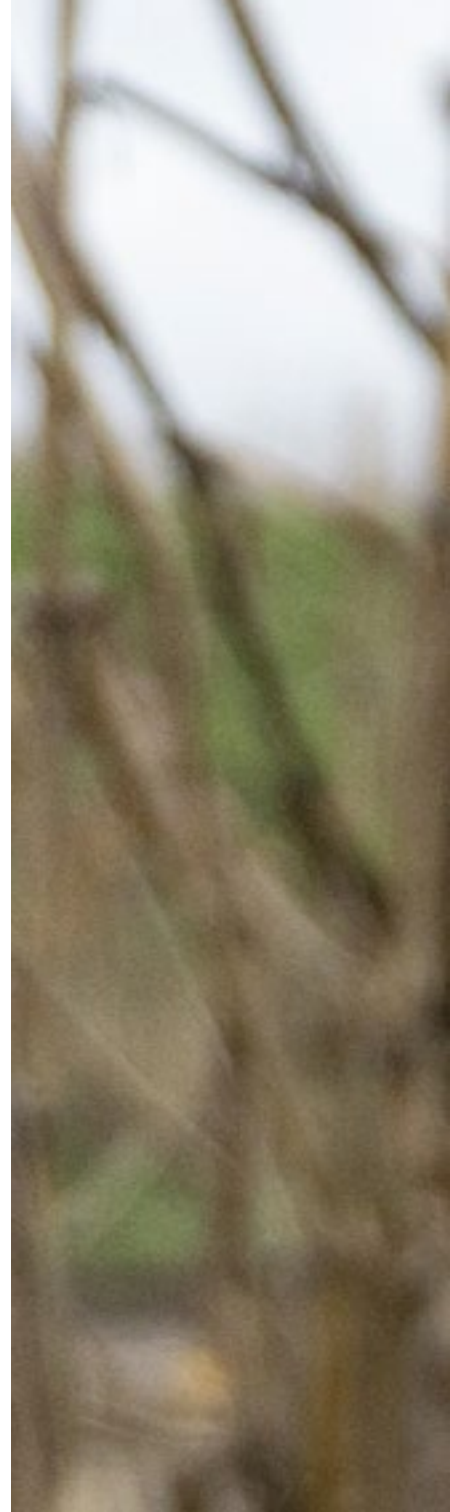








The scaling up of the corn also includes an alienation of the plant and the loss of companionship. One reason for the estrangement is that the life span of the corn plant is divided into different steps that are guided by different actants: seed production, planting, harvesting, and final use. The corn goes through many different hands during its year of existence. Each of the owners is specialized in their 'production step' but does not see the plant as a living element with the entire lifespan that it has during the year. This division generates objectification and eliminates the fascination for the circular pattern of growing life. Similar to the fabrication of cars or electronic devices, corn becomes a product, that manufacture evolves through a row of production segments. The industrialization of the farming process is based on heavy machines and technical devices that minimize the personal interaction and emotional connection between humans and corn (this stands in great contrast to the original corn plantations, see chapter 'Zea Mays').



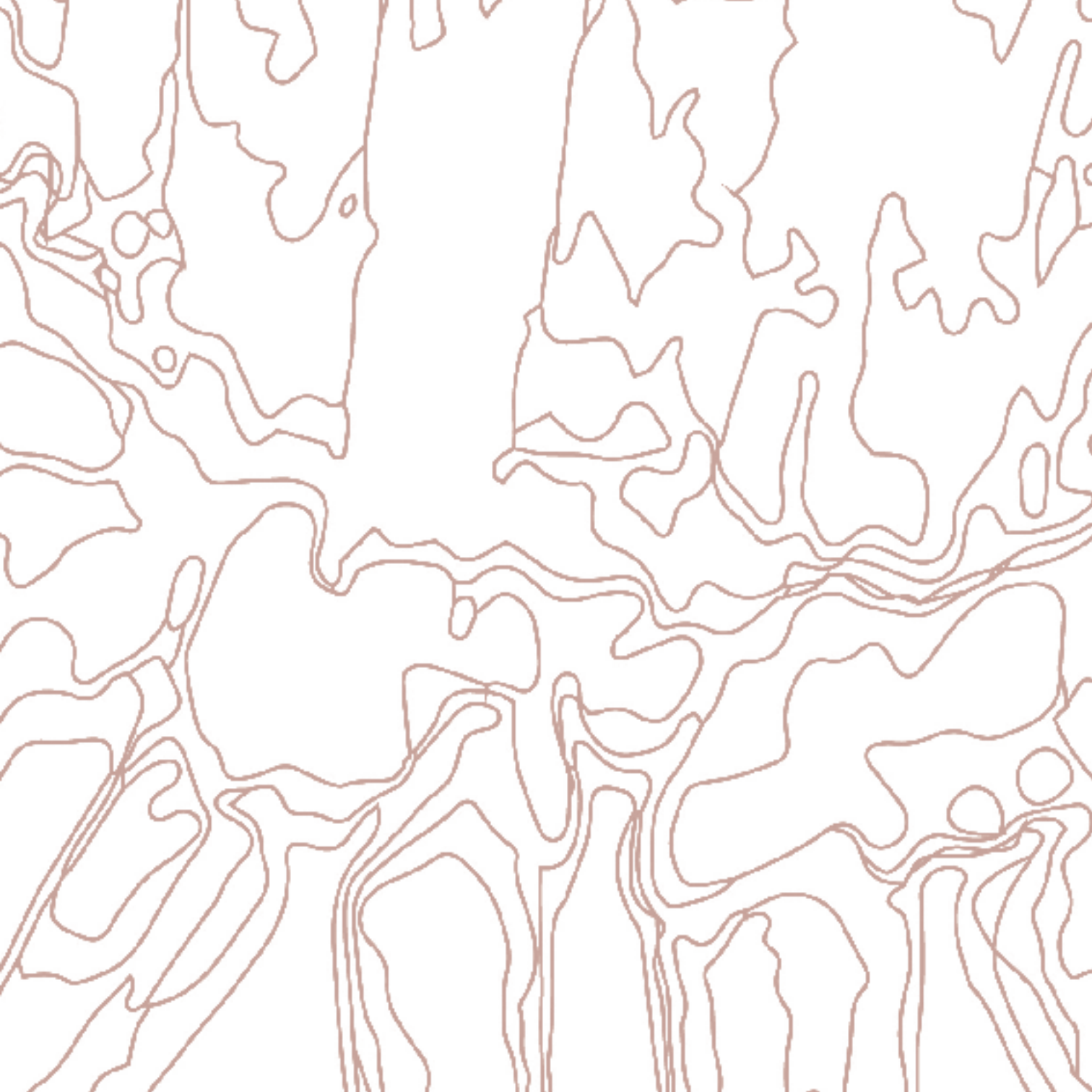






Seeing the scaling up of one element (in this case the corn) from different scales (distances) diverse problems become visible, such as diversity loss and centralization of wealth. Corn, in the context of monocultural mass production, is hardly perceived as a living but is seen as a resource. The magical act of growing becomes a technical necessity. The different scales of observation (distances) can become a tool to adapt our human perspective in order to find companionship and fascination for all kinds of life.

How can we develop through this fascination “the cultivation acceptance of a joyful and balanced renunciation of the growth logic and the collective acceptance of limits”<sup>14</sup> ?







# Interconnectedness of the Living

There is no individual, no living that can exist on its own. Interconnectedness is the foundation of life. One allows the other's existence. The human body gives an idea of what I am talking about: We are not only made from billions of cells, but we also have about the same amount of microbes (bacteria) in and on us. They are necessary for our survival and health.<sup>15</sup>

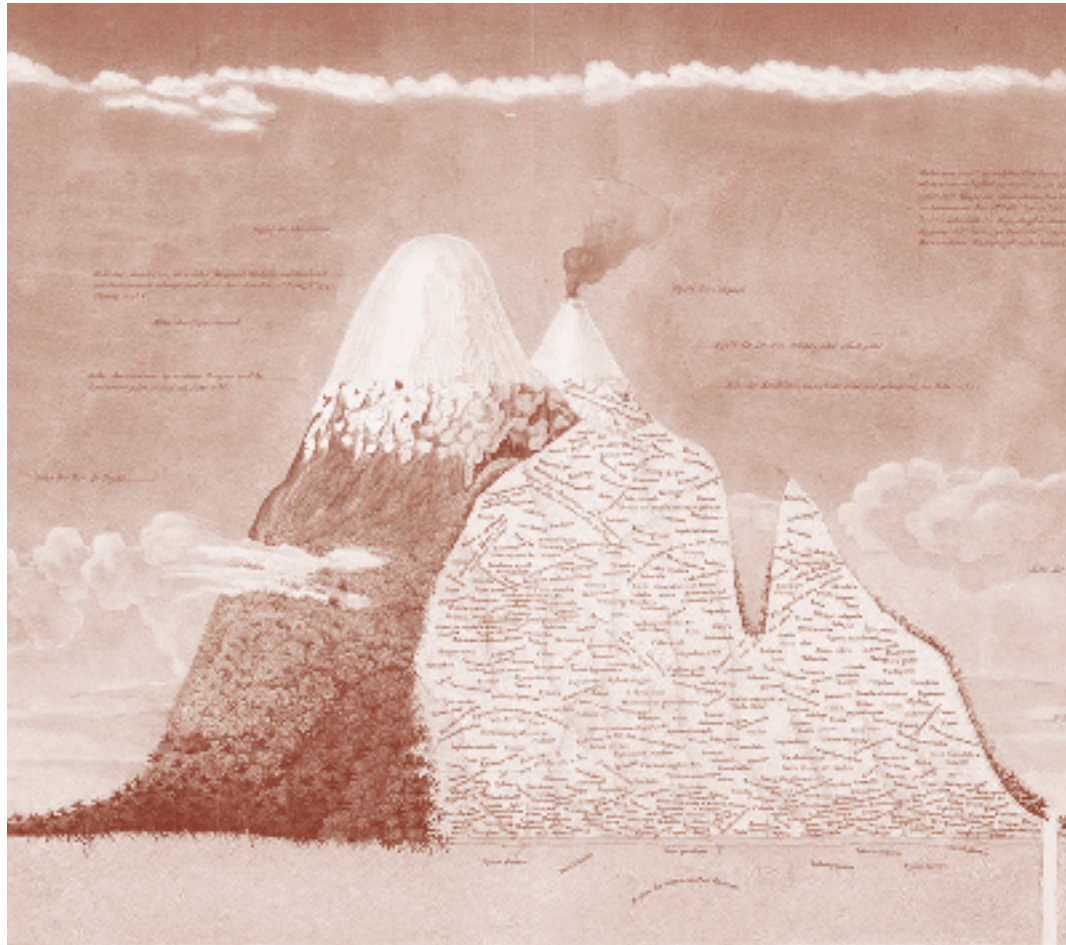
The highest amount lives in our gut. Those microbes protect us from harmful bacteria and help us digest many nutrients that we would otherwise excrete unused. In return, we provide an even body temperature and a constant supply of food for our tiny subtenants. Researchers suspect that our bacteria have a much stronger influence on our health and well-being than previously thought.<sup>16</sup>

Networks describe the interconnectedness of actors. They evolve on top of each other, next to each other, and within each other. According to Bruno Latour's actor-network theory<sup>17</sup>, networks can have any kind of scale from molecular to galaxy. The actor-network theory gives every actant in a network, be they human or not, an equal amount of value and agency. The theory by Laturo also implements the factor of technology as part of the network that connects or disconnects certain elements. The actor-network theory is helpful as an assisting tool to appreciate the complexity of reality and offers a lens through which to comprehend how technology shapes social processes.<sup>18</sup> In this case, it helps me to see how the wide implementation of technologies affected the relationship between humans and non-humans. I will come back to this aspect later in this chapter.



Biologists call networks of different species ecosystems. It was the scientist Alexander van Humboldt (1763-1859) who altered how we perceive individuals within their habitat on this earth. “In this great chain of causes and effects, Humboldt said, no single fact can be considered in isolation.”<sup>19</sup> He created the concept of nature as webs of life, which we call ecosystems today.<sup>20</sup> An awareness of the interconnectedness of things can help to understand the far-reaching consequences of intervening in those.

“When nature is perceived as a web, its vulnerability also becomes obvious. Everything hangs together. If one thread is pulled the whole tapestry may unravel.”<sup>21</sup>



Humboldt's depiction of vegetation zones on the Chimborazo and Antisana volcanoes. From *Naturgemälde* (1807).<sup>vii</sup>

The moment we identify the farm as a network, we explore huge differences between the time of corn and the time before corn: before the 1960th most farms had been self-sufficient small-scale frames. For hundreds of years, they had worked with a huge variety of different plants and animals.<sup>22</sup> In distinction, today's farms around Bersenbrück no longer produce for their own use.<sup>23</sup> Production for the market leads to a focus on a particular element and to the production of that element in large quantities. The specialization is more efficient in terms of needed tools and knowledge. But it also results in an impact on the local ecosystems. The monocultural farming methods decrease the diversity of species in the agricultural landscape. Ecosystem networks depend on diversity, the wider the diversity, the better can the ecosystem deal with threats.<sup>24</sup>





Craig Cilds - Cornfield <sup>VIII</sup>



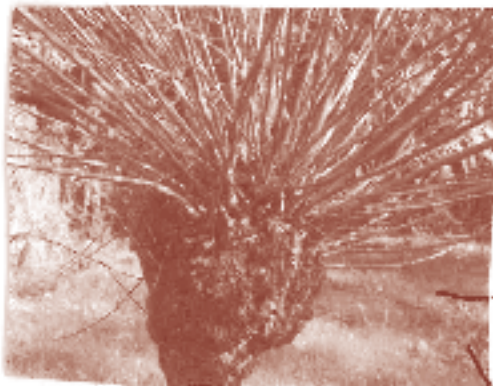
David Liittschwager <sup>IX</sup>

The project “One Cubic foots” shows what the portrait photographer David Liittschwager found within one cubic foot in different landscapes within 24h. Adding up on the project of Liittschwager, the science writer Craig Childs investigated a cornfield in a similar way. The difference with some of the landscapes Liittschwager studied was immense. While Liittschwager came across habitats that provided a home for more than 150 different plants and animals within the cube, Childs counted only 8 different species in the maize field within the same size cube.<sup>25</sup>

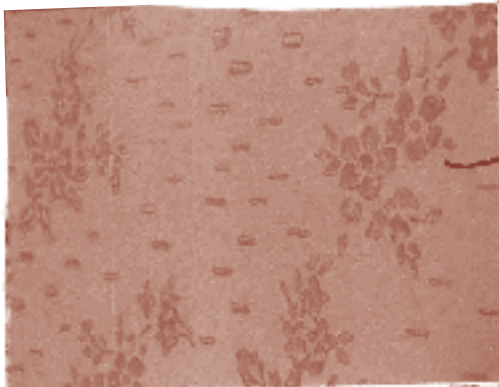




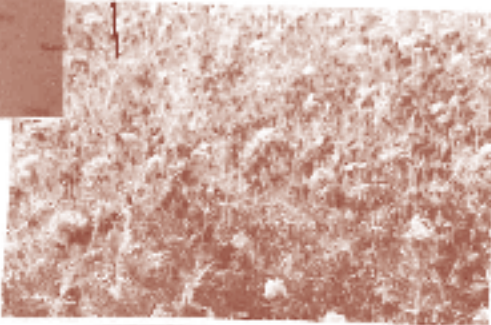
The farmers' personal interaction with the plants and the soil during field work enabled them to observe what the plants need and to analyse interconnectedness. More than that, planting, harvesting, and other fieldwork often required many helping hands which made it a social event, not only between humans and land but also between the workers. Over generations and decades, they developed immense knowledge about plants and the interaction of different species.




Kopfweide, pollarded willow



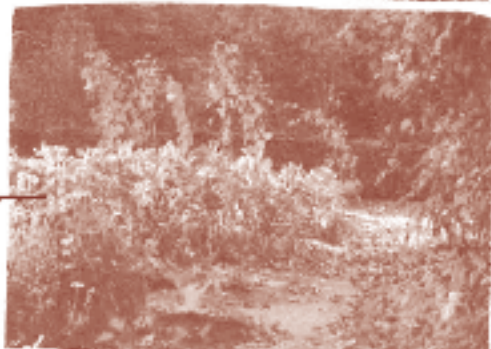
coal-paint design - inspired by nature



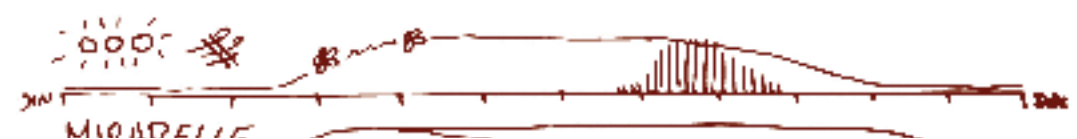
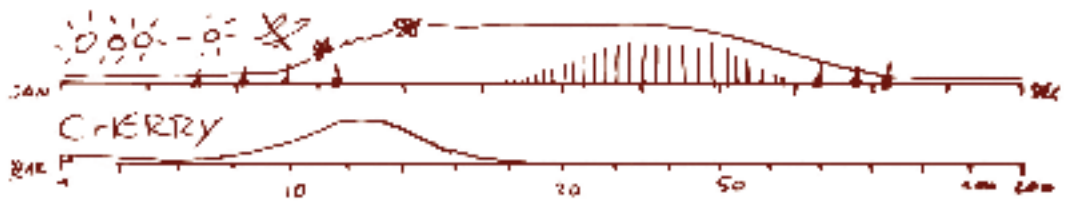
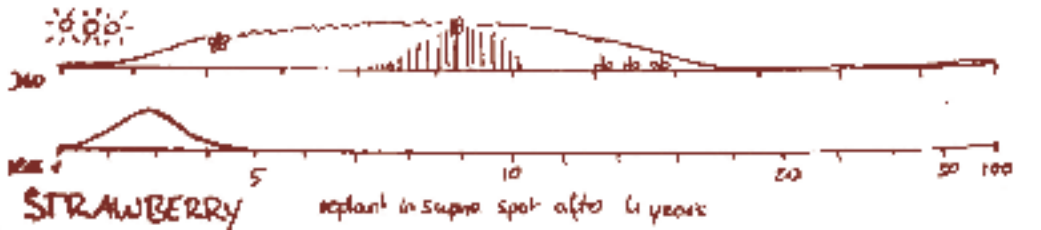
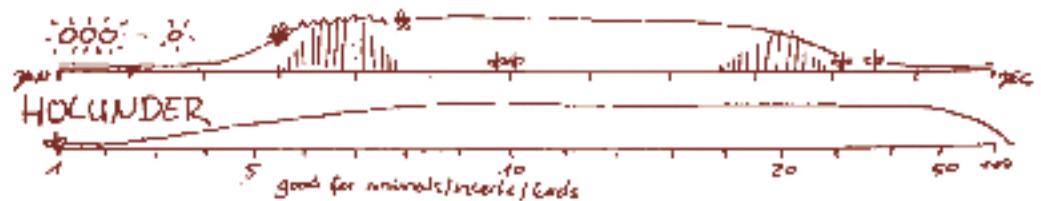
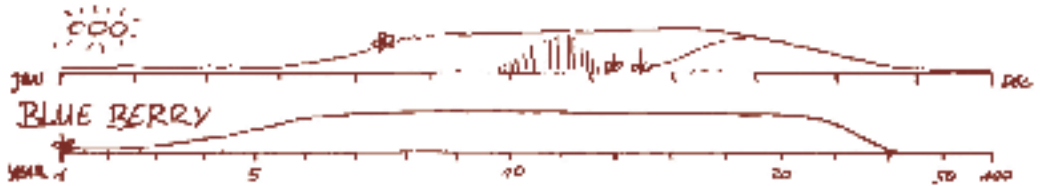
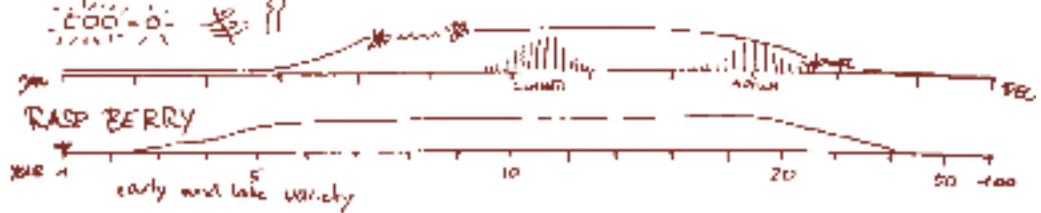
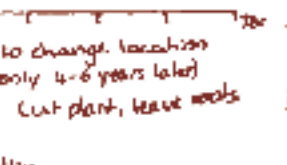
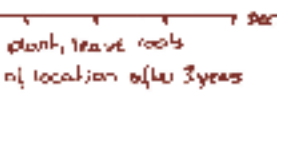
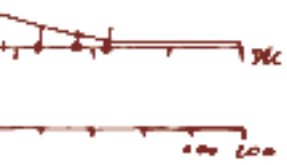
USED FOR HOUSE CONSTRUCTION



farmers garden looked colorful and wild but it was well thought through combination of plants like permaculture

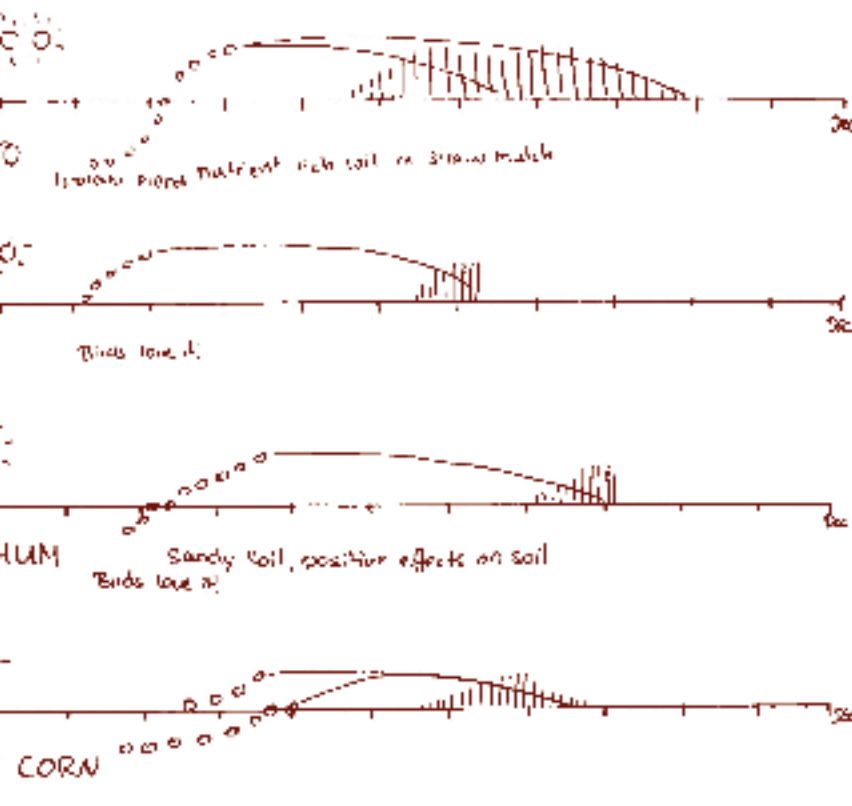


Arcons to feed pigs

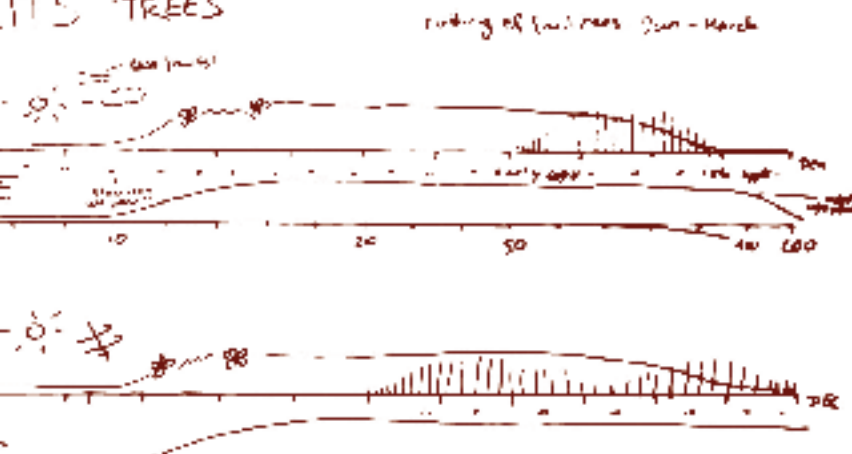


Analysis of different crops and their growth behaviour through the

## GRAINS & POTATOES



## THE TREES



year and their life span.

An interesting example of this is the farmer's garden. What appears at first sight as a wild mixture of all kinds of flowers and plants is a garden full of knowledge and experience. Every plant had its purpose for the farm and was carefully located. One plant would create shade for the other. Another would attract insects and again others would prevent certain pests. The network of functions created a very specific ecosystem within these gardens.<sup>27</sup> These personal contacts got minimised through digital information and the mechanisation of tilling the fields.<sup>28</sup>









From an economical point of view this knowledge about diversity is not of interest. Farming for capitalistic reasons puts all interest in the number of harvests. It is not about the corn plant – this corn plant would be replaced within a year if another plant turns out to be more profitable. The economic force in the system of agriculture generates the need for mass production and monoculture.



The farmer's garden stands in contrast to that. It is much more than a place of harvest. It combines the practical with the beauty of natural diversity. It attracts various senses through a colourful and well-smelling landscape. Tasteful fruits and medical herbs are combined with various kinds of flowers and bushes. The gardens are designed and planted by hand with multi-generation knowledge and with love for non-human beauty. Many companionships can be found within these gardens. Those gardens are not win-oriented as they are sown exclusively for their own use. They require daily care but also give daily pleasure. Compared to the vivid garden the cornfield appears rather dead. The end product is the only ambition of the plantation. This is the alienation of a plant that once was diverse and loved. (see the chapter 'Zea Mays').



Food price crisis in 2007 leads to 'Totilla crisis' in Mexico <sup>x</sup>

As mentioned in the beginning, the scale of the networks play a role (find more information in the chapter 'The Scale'). In a global context the networks of corn get wide-reaching importance in a socio-political manner. Corn is one of the main food basics for millions of people, especially in Latin American and African countries. Even though never before that much corn grew on this planet, the prices of the aliment rose greatly in the past years due to the interest of the industry. Corn became an energy source. In Germany we not only produce energy locally from corn, but we also import corn-based biogas from the US. The increased interest brought this plant to the stock market. Battings on the rise and fall of the price create instability of the corn price with fatal effects on especially so-called 'third world countries'. In South America as well as Africa the corn price led to protests as it became inaccessible for many who need it as basic food for survival.<sup>29</sup>

The reason for hunger and repression is the egoism of the richest countries and companies who put their need for energy over others' need for food. The network of interest has a critical hierarchy. The consequences of the massive expansion of corn are the loss of diversity on the local level and famines on a larger scale. The impact is far-reaching, long-term, and global. The climatic crisis is intensified by monocultural land use. At the same time this way of farming is less resistant to the consequences that will occur.



Some farmers in Bersenbrück told me that in the past years the maize harvest decreased according to the dryer and warmer summers. Monoculture is a result of growth-oriented values that entail the ignorance and loss of sensitivity to networks and their importance for our planet. Farming expresses our relationship with the planet, the environment, and the living. Therefore we should see it as a basic part of humans living on this earth.

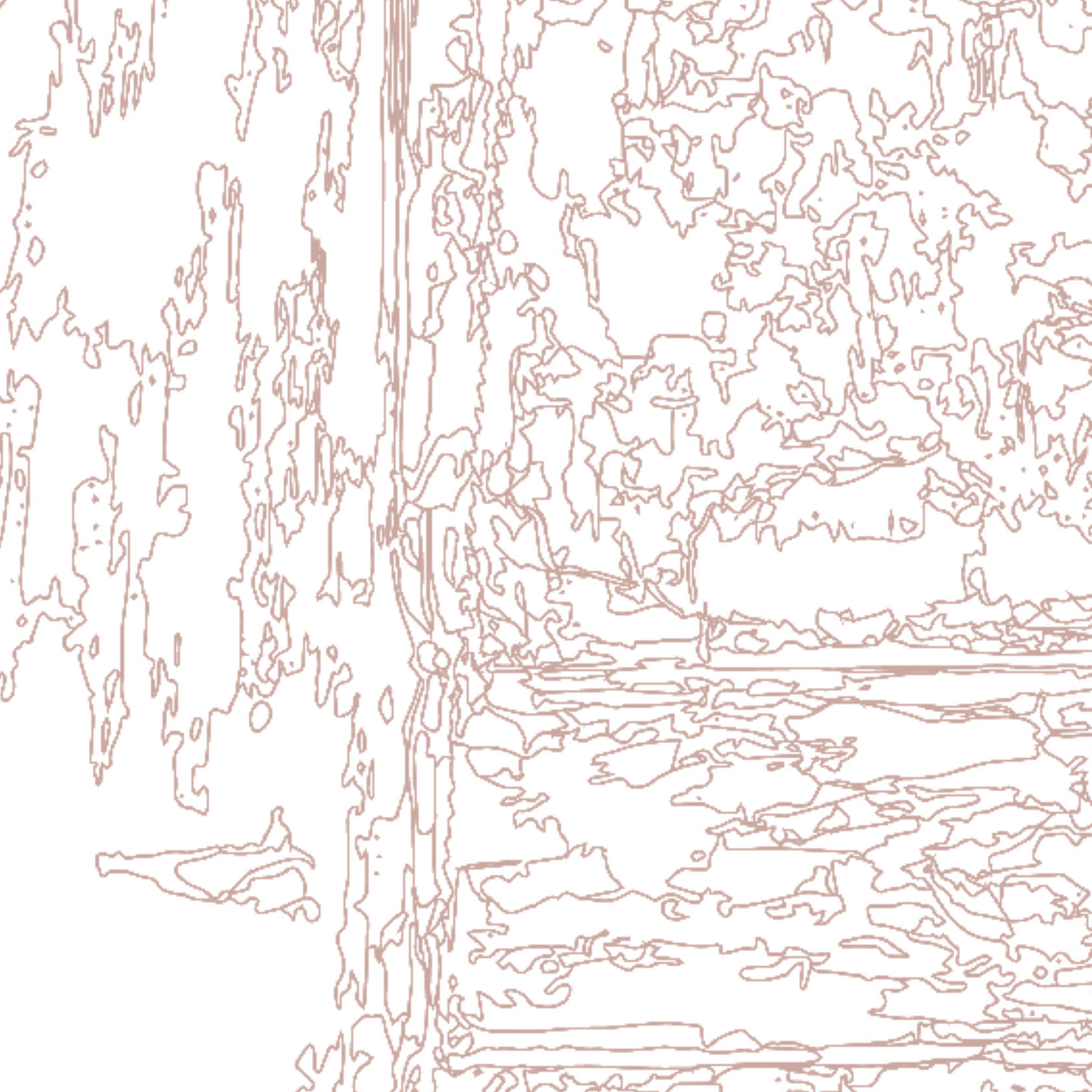


Our acting as farmers describes our acting as humans on and with Mother Earth, our being on this planet, our dwelling. Martin Heidegger writes in his text *Building Dwelling Thinking* (1954): “To dwell, to be set at peace, means to remain at peace within the free sphere that safeguards each thing in its nature. The fundamental character of dwelling is this sparing and preserving.”<sup>30</sup> His description of a search for harmony between humans and their environment is essential for reconnecting to the non-human. If we want to enable companionship, this peace is the base for an equivalent existence.

Following Bruno Latour, Donna Haraway, and Arturo Escobar, the reconnecting of humans and non-humans on emotional as well as systematical levels, might need the visualisation of networks and the mapping of the structures of interconnectedness.<sup>31</sup> As mentioned previously, the analyzation, recognition, and equally important, perception through the sense of fascination and love for non-human interconnectedness is not a new idea. How can I as a designer learn from the farmer's garden that my ancestors created? The allowance of diverse ecosystems can lead to a place of harvest for all kinds of senses, for those who care. A harvest of joy and experience. How can design make interconnectedness visible and enhance the wish to explore and care?



I would like to end this chapter with a quote of Anne-Marie Willis. She summarises interconnectedness in the words “Design designs (...) we design our world, while our world acts back on us and designs us”<sup>32</sup>





# Bersenbrück and the Heuerlinge

Bersenbrück used to look different 50 years ago. The noticeable changes in landscape and society have to do with the development of agricultural economic methods.<sup>33</sup> Before the time of maize plantation, speaking before the 1970s, the farms used to work for their own needs. At the beginning they only sold or exchanged what was extra.



Being self-sufficient connotes the plantation of many different types of vegetables, fruits, and crops in order to have sufficient food all over the year. The work did not only consist of the fieldwork itself, but also the preservation and storage of the food.<sup>34</sup>

The place “Bersingbrugge” was first mentioned in 1221, but only after the dominant monastery dissolved in 1787, the village was able to develop independently. While 1800 Bersenbrück had only 90 inhabitants, about 8,800 people live in Bersenbrück today.<sup>35</sup> The Heuerlingswesen evolved in the Osnabrück region around 1500, at a time of crisis when there was not enough suitable land available for the growing rural population.<sup>36</sup> That time the church who owned most of the land, was the most powerful institution after the king. Only in the 1850s did farmers manage to buy their way out and become land-owners. In order to handle all the work on the farm most farmers had people working for them, the Heuerlinge (Heuer= to hire).<sup>37</sup>















Heuerlinge were people without any possessions. They lived and worked on the farm, in return the farmer would give them a small piece of land they could cultivate for their own needs.<sup>38</sup> Also the Heuerhaus (or Kotten) where they lived together with the animals belong to the farmer.<sup>39</sup> “When der Bauer pfeift muss der Heuerling kommen” (engl. “When the farmer whistles the Heuerling must come”)<sup>40</sup> The relationship between the farmer and Heuerlingen could vary greatly. Some had a good, family-like relationship, but many Heuerlinge lived in slave-like conditions.<sup>41</sup>

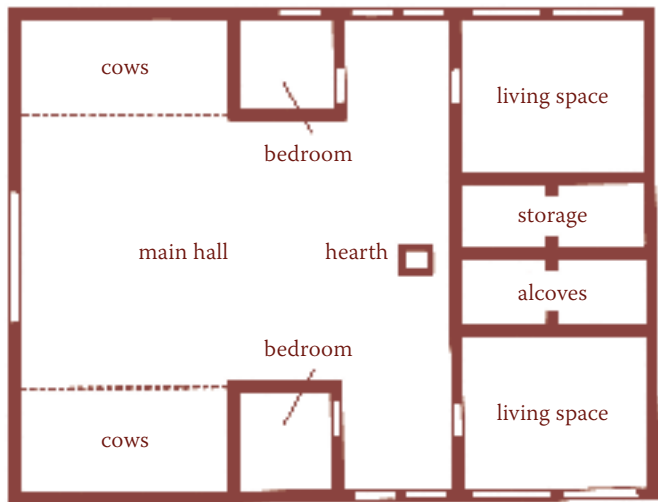


A newspaper article from the Deutsche Allgemeine Zeitung of 1929 described that “The housing conditions of the small farmers and heuerlinge often mock even the most primitive hygienic requirements and can only be described as inhumane without exaggeration.”<sup>42</sup>



The whole family consisting of three or four generations lived and worked together in the Heuerhäuser and on the farm. The houses were very simply built from materials that could be found on and around the farm.

The small, bedrooms were the “It was normal that people shared childhood and youth I used to sleep bed. We did not have enough beds this would keep us warm in cold winters heating, only in the kitchen.”(Heinrich Most of the Heuerlinge’s life was in the main room of the house. Not only humans but also the animal stables. The Heuerlinge place with cows, pigs, and chickens and a horse. This had several reasons: one was to make sure the animals (who had a lot to do) were doing well at all times. On the other hand, it would heat up the place on cold winters. In these houses, humans and animals lived





The Heuerlinge were considered highly creative and inventive people. It was them who invented the linen made from flax. The production of honey or learning different crafts was a common way to earn some money.<sup>45</sup> Another way to earn some money was the “Hollandgang”. This migrant labour peaked at the end of the 18th century when yearly 25,000 Heuerlinge went to the Netherlands. Many of them came from Bersenbrück where the Heuerlingswesen was widespread. This region with its uncultivated heath and moorland was one of the poorer regions.<sup>46</sup> In 1946, 1,830 Heuerstellen were registered in Bersenbrück.<sup>47</sup>

# Heuerhaus / Kotten

Walls = clay  
 painted with lime + blue colour /  
 in spring repainted  
 as they get dark through  
 fire, wetness, animals

Materials:  
 Clay, wood, straw

floor = clay + sand

cheap, simple,  
 fast construction  
 locally available

allowed  
 smoking meat

usually  
 Rauchschieß  
 (smoke houses)  
 = no chimney

darkness  
 no or  
 very small  
 window  
 smell of  
 - human  
 - animal  
 - straw  
 - fire  
 - food

Whole family:  
 Heuerling + wife + children  
 often more generations

children needed to  
 help working after school

lived in

if would  
 look at it  
 many years  
 later

relation  
 this differed  
 a lot!

owner

humans could  
 watch over animals

many  
 generations  
 in one house

shared space  
 of humans  
 and animals

little  
 space  
 for amount of  
 people

self-sufficiency

- wheat  
 - milk  
 - vegetables / fruit  
 no meat - too expensive  
 eggs and butter  
 were not eaten they were  
 used as payment

zapped at  
 on huge farm  
 had many

in winter  
 humans depended  
 on warmth of the  
 animals

3 people shared  
 one bed

but it  
 was still  
 very cold!  
 (outside - 10 to 15°C)

humans  
 gathered around  
 fire  
 necessary for survival

# Heuerlingswesen

in north-west Germany

early 400 years

began:  
 beginning  
 17th century

ended:  
 1950/70

land making  
 production  
 work in factories

from  
 1815  
 voices arose  
 to improve  
 situation

1830/ Emigration  
 1840s movement  
 to the US

Allerheuerrecht  
 (elbow right of succession)

first born = farmer  
 second born = Heuerling



until 1850  
 urgent  
 will to become  
 free by getting  
 own land.

after that former  
 free which lead to  
 huge depths which  
 was again bad for  
 Heuerlinge

went into the moor  
 dangerous  
 and live in  
 poverty

# Moor

colonisation  
 through Heuerlinge  
 since 1780.

in many  
 areas of north-west  
 Germany the  
 majority of the  
 population were  
 Heuerlinge: 80%

"first generations' death  
 second generations' distress  
 third generations' need"

after: strong emotional  
 reactions,  
 little research and  
 reflection

we still don't  
 know a lot about  
 it due to missing  
 documentation,  
 reflection and  
 it's not part of  
 education

from 1650  
 until 1850  
 very hard  
 labour

motivation  
 and sense  
 of freedom

children  
The word comes from *heuern* = to hire  
*Heuer* = rent/pacht

# Heuerleute/ Heuerlinge

got some land from farmer  
to provide for own needs  
as well as place to live  
↳ no or very little money

rather  
and  
important  
category  
Worked  
for the  
farmer  
↳ both sides  
were always  
first  
place  
Farmer

highly  
dependent

"the boss"

women: washing for farmer  
- baking bread  
- harvesting fields  
next to that they cared for the  
children and the old, their own  
field and did household work  
they got 5 days before and after  
giving birth off from work.

↳ Horses got  
3 months each.

↳ they  
Heuerlinge  
When he called  
Heuerleute needed  
to come immediately

Heuerlinge could  
care for their own land  
animals only worked after  
all work for the  
farmer was done.

The Heuerlinge were  
very creative to  
invent ideas to earn  
some money

selling eggs  
and other  
productions  
from field

## Other Jobs

contingent  
bird  
catcher  
illegal

carpenter

wood shoe maker

mitz waggan driver

slaughterer

zigar factory

Holzträger  
(wood transport on water)

## Textile

one of the main  
side businesses

since  
1700

Flachs

linen

whole  
family was  
involved

18th century  
expert of small  
amounts to Holland  
who didn't know  
that textile

Hollandgang  
Heuerlinge went to  
Holland to work  
in the floor  
to cut grass or  
fishing



This is a visualisation of stories different people in Bersenbrück told me about the past. The map focusses on rituals and elements of every day life situations that shaped the village life. The landscape, with the river and distribution of the houses does not match with the actual landscape of Bersenbrück. The map has potential to expand and grow but it already creates an image of the memories, interpreted by myself into the visual language.









The Heuerlinge and the farmer developed a rich knowledge of flora and fauna in and around the farm. This knowledge was passed on from one generation to the next until the shift of the farming with the Economic Miracle (1950-1963). Through a huge technical development and mechanization of the agricultural sector, the Heuerlingswesen disappeared as labour was replaced by machines. Former farm employees found new, better-paid work in the factories that produced those machines.<sup>48</sup> This was also the time when corn came to Northern Germany.





The last generation of small-scale farmers is now 80 years old and above, most of them passed away already. The stories I collected during my visits to Bersenbrück, tell about hard physical work and celebrations during the year. Heimatabende where a repetitive event, that brought together the neighbourhood to discuss all kinds of belongings, personal and communal. I learned about the importance of working together, helping each other and also the joy this communal time brought. Stories and knowledge of the aged people were perceived as equally important as the ideas of the younger generations. Even though it was not always harmonious, people saw an advantage in the encounter of those different opinions and perspectives.



The sense of community was different before the 'time of maize', shaped by the moments of celebration and communal dealing with struggles. The necessity of thrift brought people together and led to a stronger connection to land, flora, fauna, and people.

The rituals of celebration are elements I see high potential in. The celebration not only enhances the sense of community but also values the work and the product. Spending time with another connects and creates awareness. My grandmother used to say “Gut Ding muss Weile haben.” (engl. “Good things need time”.)<sup>49</sup> If our goal is to create companionship with humans and non-humans, we will need time, attention and celebration.

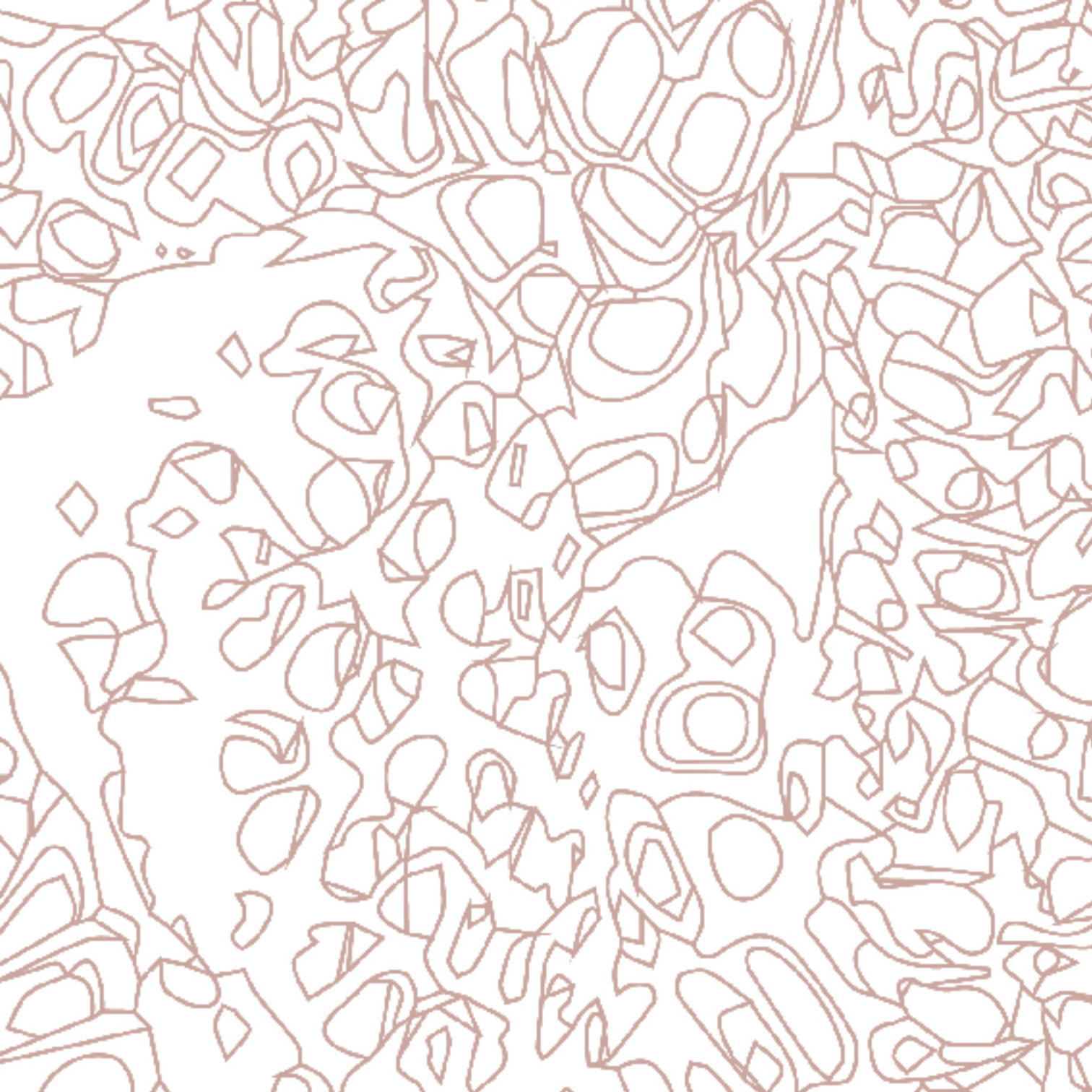




„At the Heimatabende everyone came together, old and young.  
It was often very funny but also sometimes serious.



Those evenings gave us opportunities to start and change things together. The sense of community was different that days.”<sup>50</sup>







# Zea Mays

The maize plant (Latin: *Zea mays*) originated in Mexico. Domesticated from a wild grass called Teosinte (*Zea mays* subsp. *parviglumis* L.) between 4000 and 3000 BC. It belongs to the so-called sweet grasses family (Poaceae) and is a cereal. After wheat, corn is the most important cereal worldwide and it exists in a huge variety of forms.<sup>51</sup>

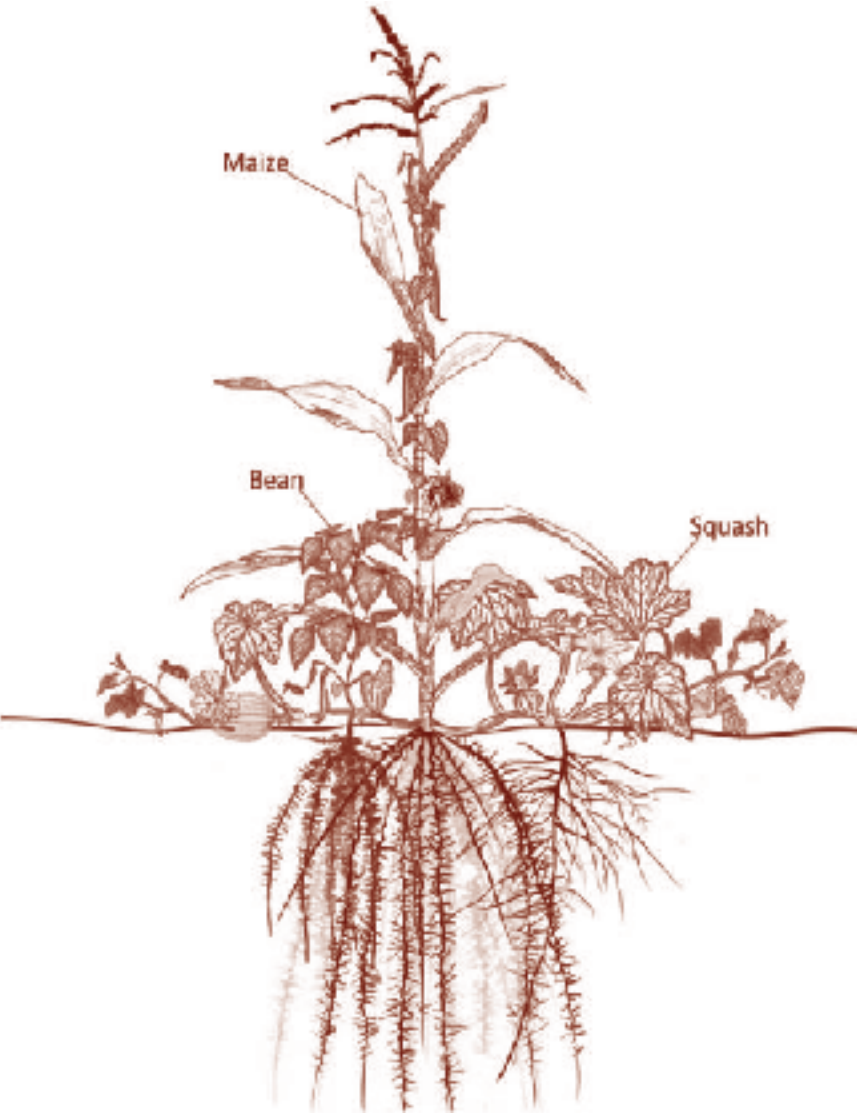
Originally cultivated by the Maya, maize represents great importance in economic, food, religious, and cultural aspects until today. The ‘Corn Gods’ are among the most representative deities worshipped by the Mexica people who honoured multiple gods and expressed gratitude for everything that “Mother Earth” bestowed upon them.<sup>52</sup> The milpa forest gardens of the Maya in Mexico (2500bce) show the traditional plantation of maize. The term ‘mil-pa’ means ‘cultivated field’ and describes an agricultural system that evolved around the maize in pluricultural cultivation of a 25-year lifecycle, on temporary land use.



Corn Gods <sup>XI</sup>

The milpa was considered “the most sacred act, which binds together the family, the community and the universe (..).”<sup>53</sup>

The maize was cultivated in a compound with other plants. This specific way of agricultural corn plantation is practised until today and it is known as “The Three Sisters” planting. It describes a field that combines maize with a climbing plant (such as beans) and a plant that covers the soil (such as squash or herbs). These plants not only support each other while growing they also shape the basics for a balanced diet.<sup>54</sup>





Christopher Columbus brought the first grains of maize to Europe in 1493.<sup>55</sup> It took the maize plant until the 1960s to become successful and popular in Germany. New breedings of hybrid maize varieties allowed to grow corn in a colder climate and also produced higher yields. At the same time, chemical weed killers and new machines became available. Grain mowing threshers, forage harvesters and loader wagons, provided enormous savings of 80 to 90 percent of working time.<sup>56</sup>

These changes and developments ushered in the transformation of agriculture towards highly efficient production and set the base for today's monocultural techniques. The expansion of corn was fast. Starting in the 1960s, within 10 years maize cultivation had increased by 20 percent.<sup>57</sup>





Interesting to know about the time before maize, in Germany specific plants used to have religious and cultural meanings, similar to the maize for the Mexica. The oak tree is a good example of that. The Germans who lived in the area of Bersenbrück used to worship their gods in the forest which originally covered 90 percent of the area (you can see these changes in the maps of Bersenbrück in the chapter “Scale”). Until today the oak tree has been regarded as a symbol of German love of freedom, pride, power, and strength. But it is also a symbol of victory and heroism through which it got connected to the military. Taken up by the National Socialists in the 1930s the tree became the emblem of the Third Reich.<sup>58</sup> Nevertheless, for farmers the oak stayed a symbol of survival and future.



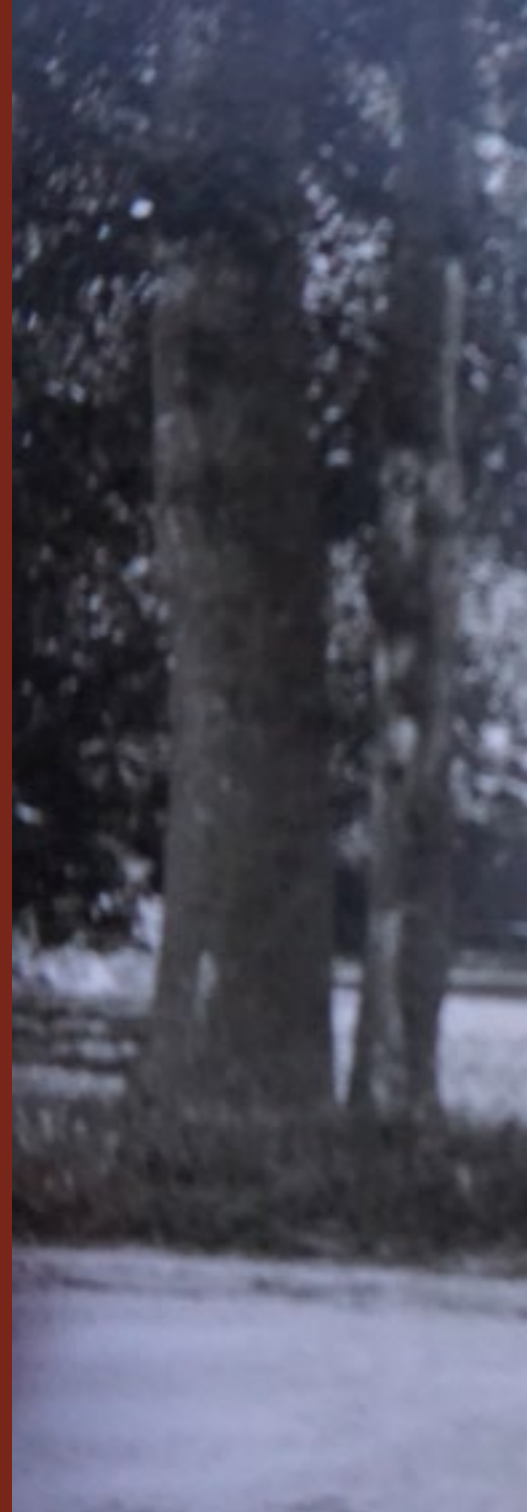
Friedenseiche <sup>xiii</sup>





Oak trees grew around all farm plots. The acorns served as an important food for pigs and other animals and the strong wood was used for building houses. The long-living tree which could overlive thirty generations of humans was a symbol of stability and life. The people saw and cherished the rich life that evolves in and around the tree. No other plant is the basis of life for such a large number of insects (around 1,000 species), mammals, mushrooms, and others.<sup>59</sup> Oaks marked as “Friedenseichen” (engl. peace oak) can be found in Bersenbrück and all over Germany until today.<sup>60</sup>

The oak tree is respected and esteemed so is the maize in many areas of Latin America. The spirituality and the personal identification of humans with non-humans described in this chapter are interesting aspects when we question how we humans perceive non-humans. As we tempt to put ourselves on top of everything, this is a completely different perspective.

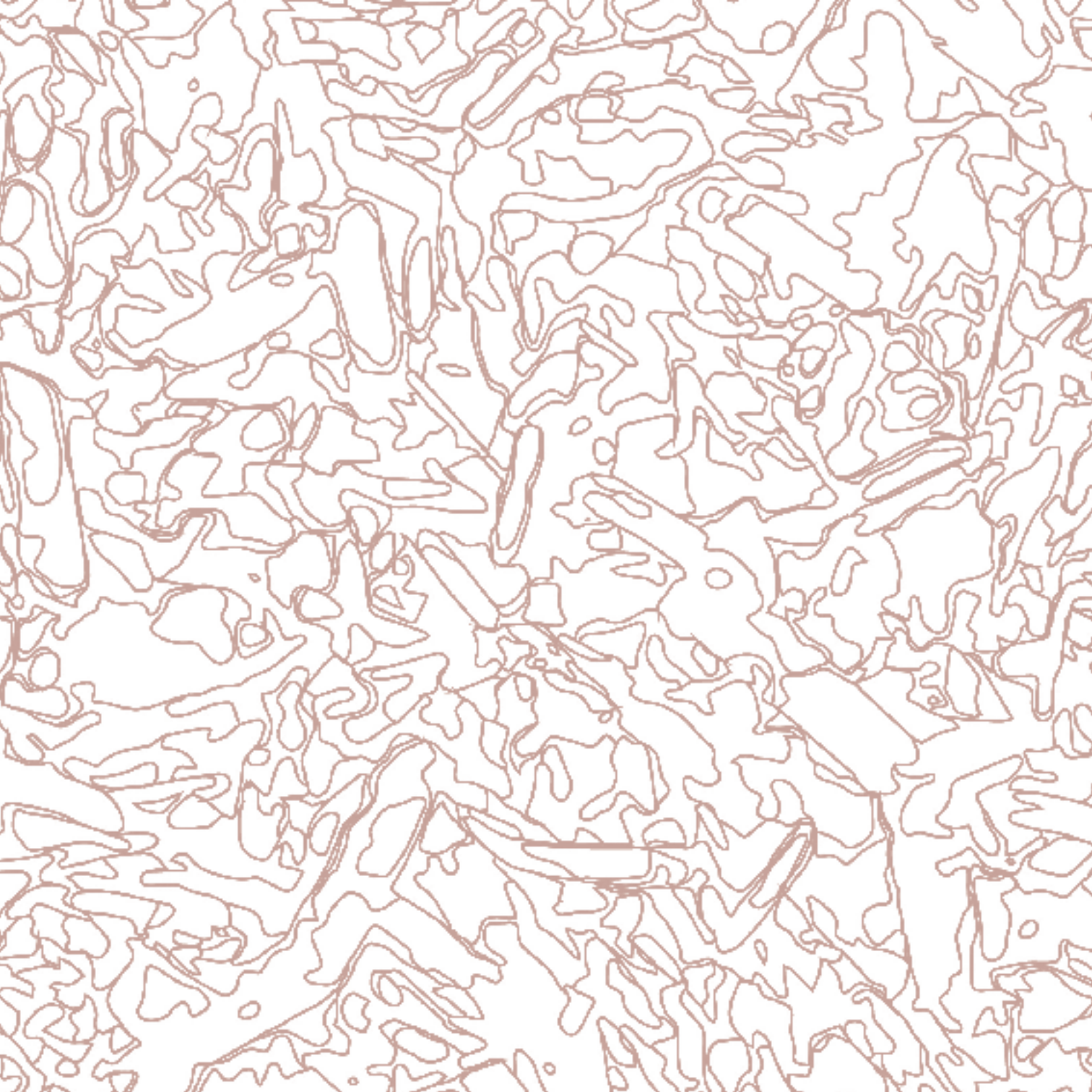






The factor of holiness implements a high level of respect. It gives rights and higher value to the other. Talking about our dependence on the ecosystems and diversity on this planet we should begin to acknowledge ourselves as not more and not less than a part of this (see also Chapter about 'Interconnectedness of the living'). It might be possible to find a spark of holiness in what surrounds us, including other humans and ourselves. Acceptance and love for diversity, as well as fascination and curiosity, are the base for finding an interspecies companionship.

Design very often transmits an indirect message of hierarchy, what would a design look like, that encourages the termination of hierarchy and supports esteem for all life?







# Milzea

We are living in ‘The time of maize’ which means a time of monocultural cultivation of a crop that is planted not to feed humans but to create electricity. As our society and systems are based on technology and electricity, we dig in the soil, burn down forests, search for new technologies and plant hectares and hectares of maize in order to keep it running.















The process of biogas production is based on fermentation. Bacteria, fed with the maize silage are kept warm and healthy so they ferment and digest in order to create the wanted gas. In contrast to fermentation which is based on interspecies cooperation, the plantation minimises the cooperation with other species through the method of monoculture.









Pig manure is also added to the system. The ratio is 2/3 maize and 1/3 manure. Manure is added because of IDEG specifications. The process does not need it.



All functions and processes in the biogas plant are controlled and analysed by modern technology.

Pressure and material supply are mechanically regulated.



The biogas plant is fed with approx. 18000 tonnes of maize every year.



For fertilisation of the maize field

The liquid is the bigger amount (80%) of the side products



For maize cultivation, 50,000 seeds are sown per ha. The maize is grown as a double crop for use in the biogas plant, as it is used as a maize plant. The maize is harvested in mid-September to early October.



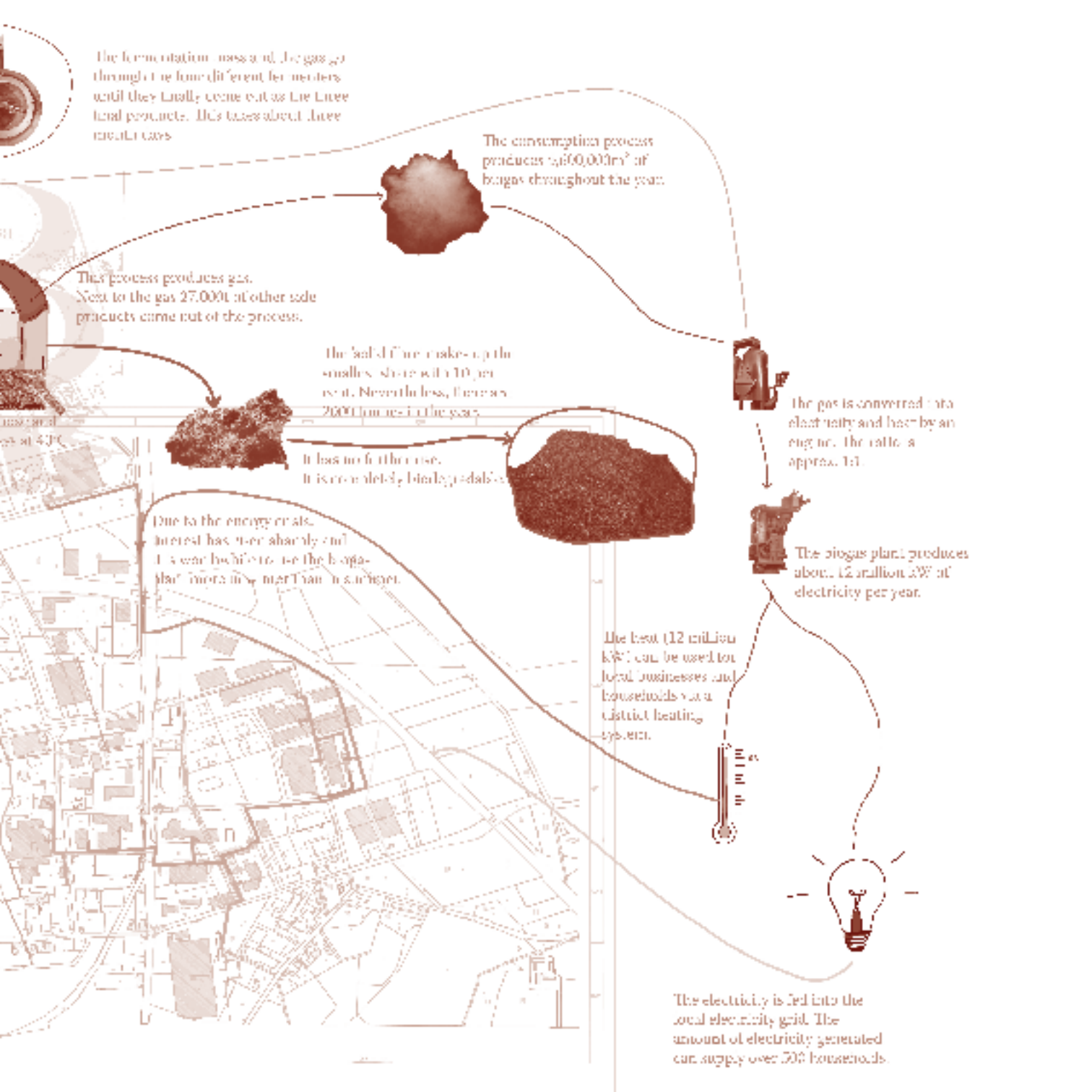
Before it enters the biogas plant, the maize plant is shredded. The entire plant is used, including the stalk, the leaves and the grain. The shredded maize is then stored gradually fed into the system.



The liquid part has very good properties to be used as fertiliser. It is spread on surrounding fields.

The maize fields that supply the biogas plant have a total area of 400 ha (1,000,000 m<sup>2</sup>). As the maize becomes more expensive with increasing distance, the maximum distance is about 11 km from the biogas plant. The fields belong to different farmers.





The fermentation process involves the gas going through a long chain of gut bacteria until they finally come out as the three final products. It's takes about three months.

The consumption process produces 2,000,000m<sup>3</sup> of biogas throughout the year.

This process produces gas. Next to the gas 27,000t of other products come out of the process.

The landfill gas makes up the smallest share with 10 per cent. Nevertheless, there are 2000 tonnes in the year.

It has no further use. It is completely biodegradable.

The gas is converted into electricity and heat by an engine. The ratio is approx. 1:1.

The biogas plant produces about 12 million kW of electricity per year.

The heat (12 million kW) can be used for local businesses and households via a district heating system.

The electricity is fed into the local electricity grid. The amount of electricity generated can supply over 500 households.

Due to the energy crisis, interest has risen sharply and it's now highly to use the biogas plant more in the near future.







The gas coming out of the fermenter is turned into electricity and heat with the help of combustion engines. Those products are locally used for heating and electrical supply of industrial, public, and private buildings. Also, the liquid that emerges through the process of fermentation has a local use. The beginning of the Ukraine war (2022) caused a chemical fertiliser shortage, which gave this locally available fertiliser, coming as a side product from biogas production, a new attractiveness (before it had to be disposed of at great expense). The third element coming out of the biogas process is the 'solid fiber'. This material is a leftover of the process. It has no further use. Aware that farms in the past had no leftovers and that everything was reused and part of the network, I wonder what this material can offer and become. It represents the angle from which this research will develop into a design able to tackle this conversation.





I call this material Milzea.  
The term comes from two  
words: Mil = Milpa and  
Zea = Zea Mays.

Milpa (mil-pa = cultivated  
field) is the original way of  
circular maize cultivation  
(see chapter Zea Mays)

“Mil” means ‘to cultivate’  
which indicates ‘to care  
for’ or ‘to worship’.

“Zea” is Greek and means  
‘another grain’. A grain is  
‘a seed’, the ‘beginning of  
life’.





















To bring interspecies cooperation back I work with Milzea, with a leftover from a biodiversity reducing process. I want to enhance creativity and fascination and set a contrast to monoculture not only in the outcome of the design but also in the process of designing and making. Working together with various others, humans and non-humans will enrich and shape the process, in the same way, my research is framed by several voices. Providing a physical space allows personal interactions and encounters between humans and other species. I set Milzea as my starting point to create a space. Therefore, I needed to get to know the material through tests and experiments.





I began to explore the material through different senses and did several intuitive experiments to understand how I could shape or work with the material.





























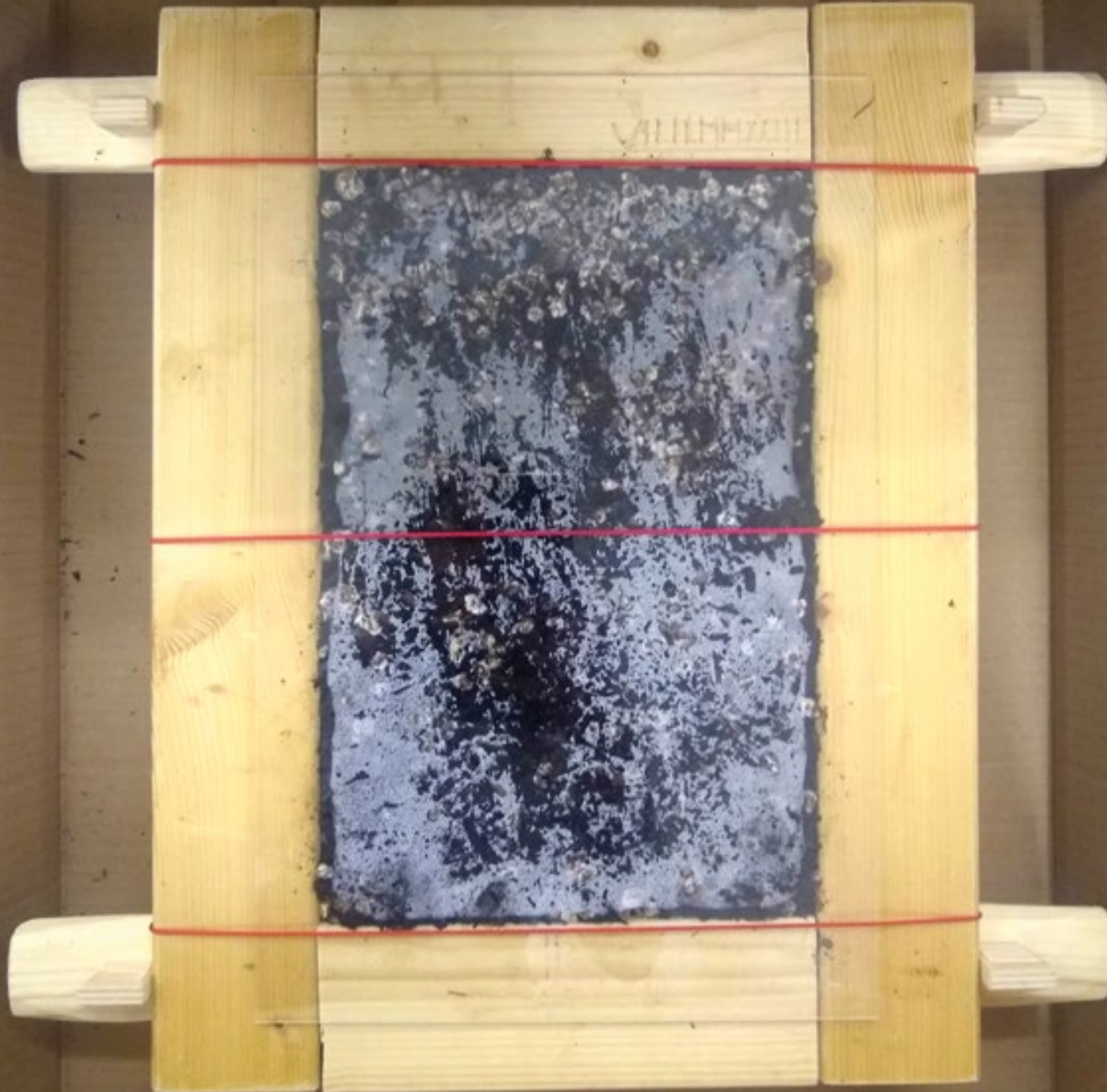


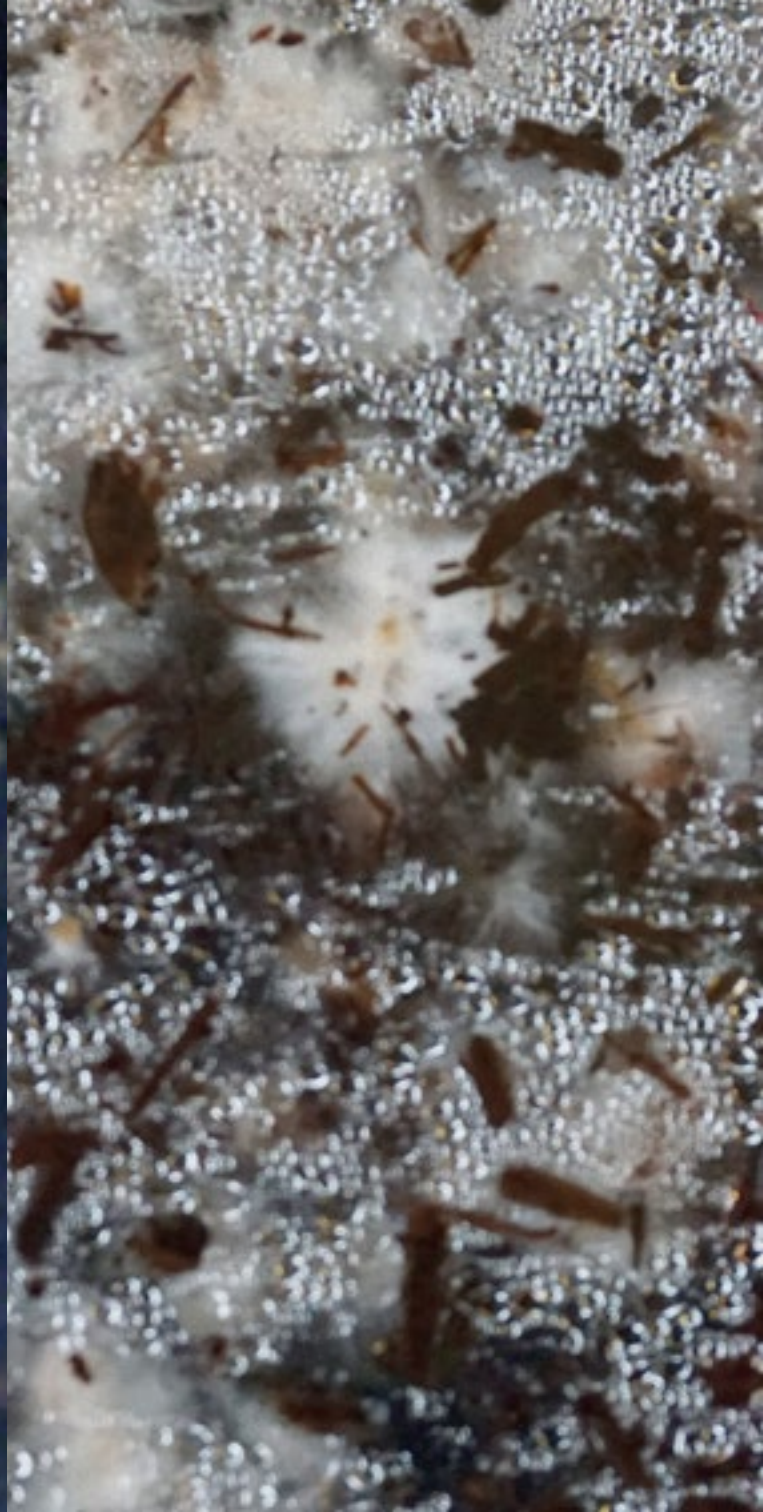


In the summer I observed mushrooms growing in the material when it was laying outside. This observation gave me the idea to grow an oyster mushroom which is to create a mycelium material through an interspecies cooperation with the mushroom.















Not only Milzea, but also the maize plants themselves are now part of my experiments. I am curious to explore the different fibres and structures. I work with old maize plants that I found in an abandoned field. These were not harvested last summer because the yields were too low. As a result of the hot and warm summer in 2022 the harvest was generally smaller than in other years.







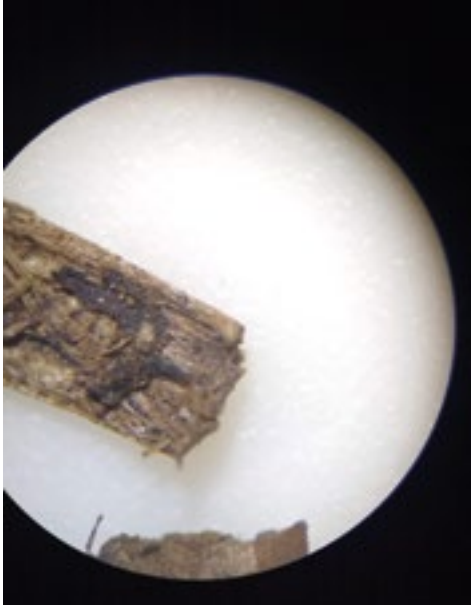






“Our first step is to bring back curiosity. Unencumbered by the simplifications of progress narratives, the knots and pulses of patchiness are there to explore.” (Anna Tsing)<sup>61</sup>

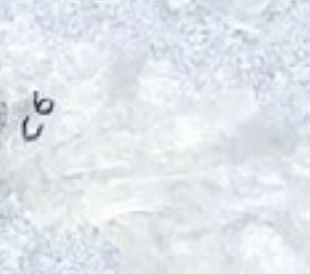
Milzea is a material that calls for the beginning of a new way of cultivating companionship in and through design.



At this moment I am diving into more scientific knowledge about bioplastics. I am particularly curious to explore how I can work with locally sourced starch as a binder to explore the opportunities this material might bring.















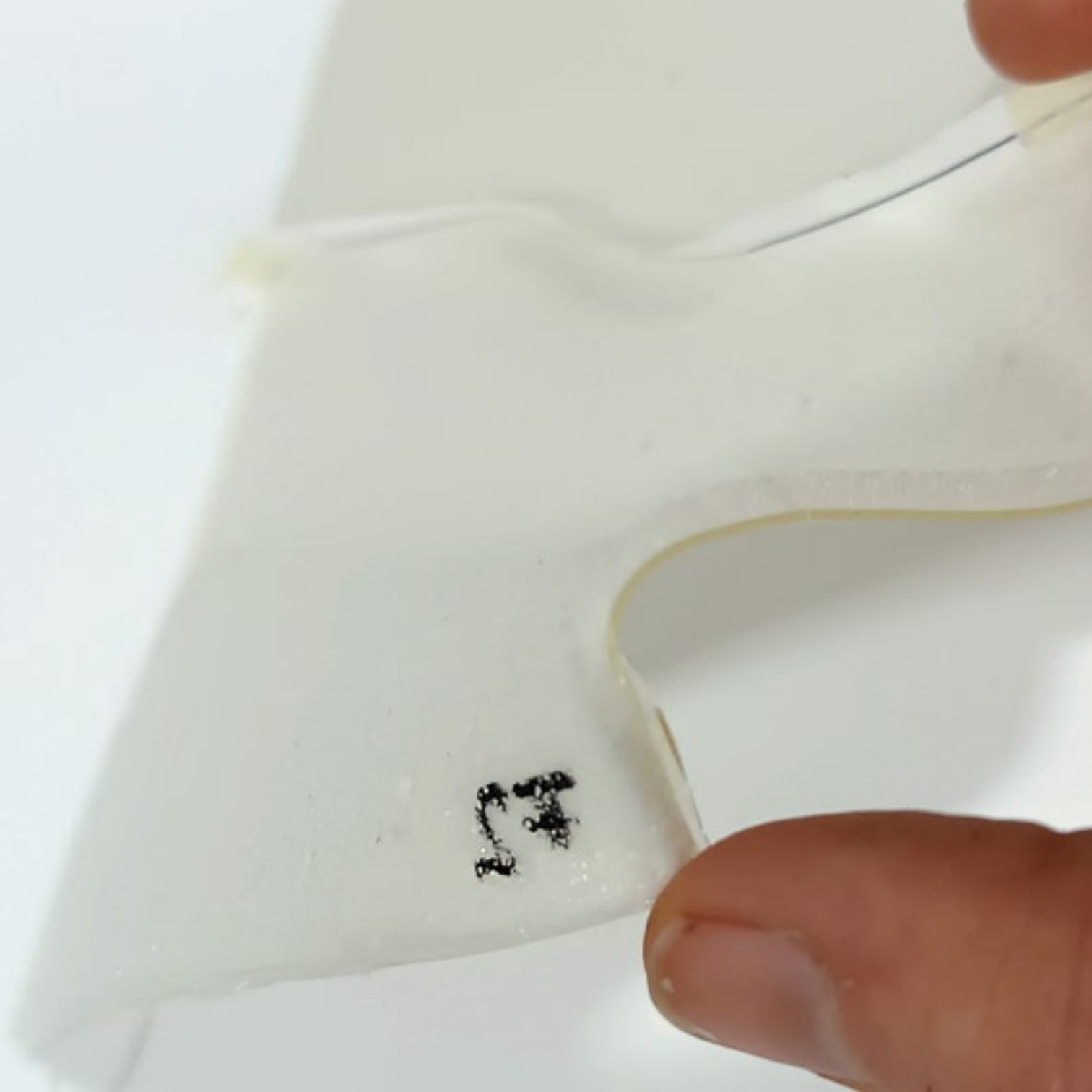
H4

H2

H2

H1





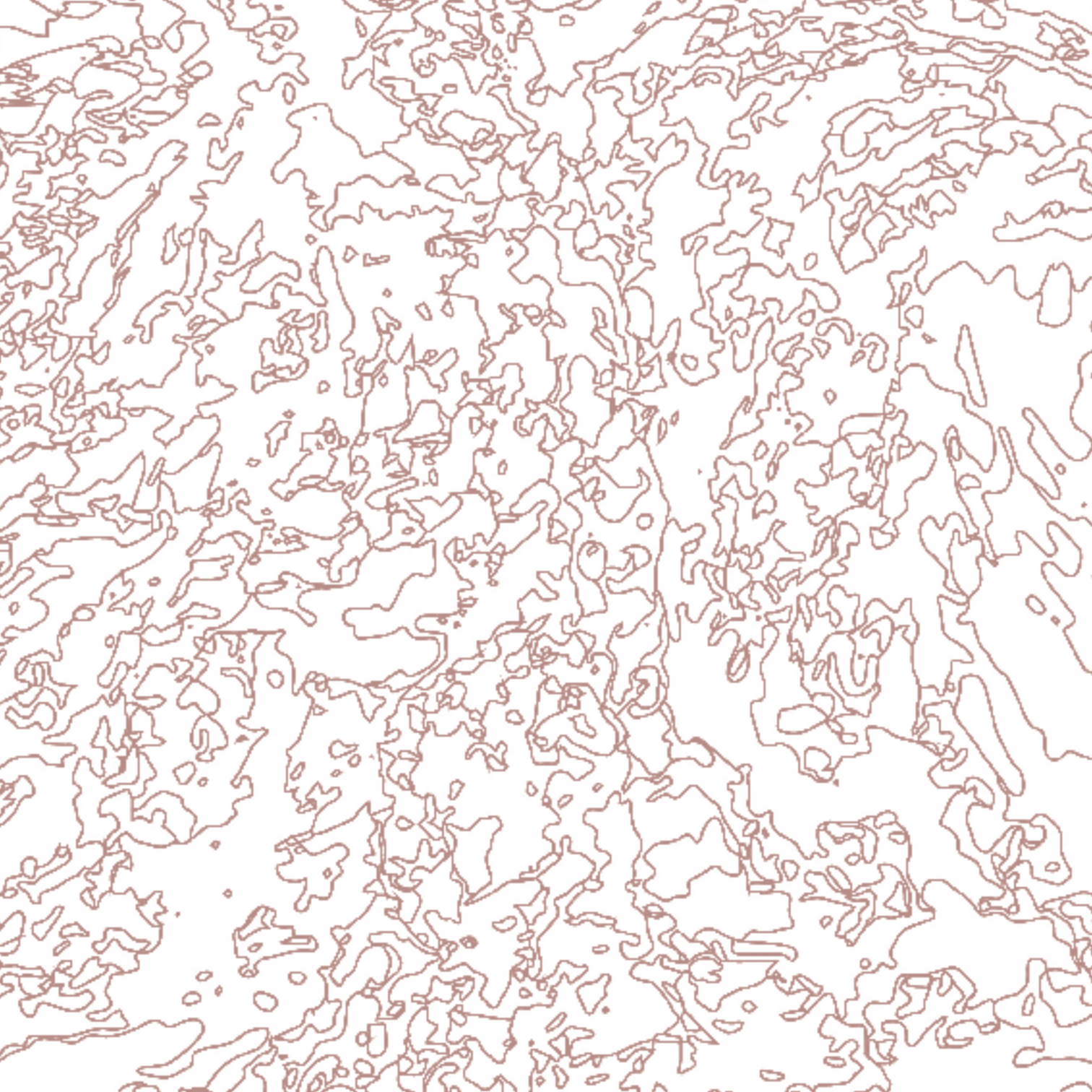




Alongside further tests, I am curious to explore scale and shape, in order to create material and space. The process of making offers the potential for rituals and celebrations (see chapter on ‘Heuerlinge’)



to become part of this creation. I want to create a space for discussion, exchange, and wonder that allows conflict and the search for answers at the same time.





The background of the entire page is a complex, abstract pattern of thin, brown, wavy lines on a white background. These lines form a dense, interconnected web of shapes, resembling a topographical map or a microscopic view of a material. The lines vary in thickness and direction, creating a sense of movement and depth.

# Design for the living

The ‘time of maize’ which I refer to several times in this text, describes the time after the 1960s when the massive expansion and mass production of not only corn began. The ‘time of maize’ does not blame the maize as a plant, it refers to how humans treat maize and other living.

My critical opinion regarding the time of maize addresses how we humans use our intelligence and technology mostly to increase economic wealth, instead of creating harmony, with Mother Earth, the non-humans and within our own species. Of course, not all humans follow the ideologies of modern capitalism, but the majority and especially those who have the power to make far reaching decisions do so. The 'time of maize' is part of the Anthropocene.

We are in the Anthropocene, a new geological age impacted by human activity in which we'll have to contend with climate change, the acidification of the oceans, glaciers melting, and catastrophic weather patterns from droughts to floods.<sup>62</sup>

The term became famous in 2000 but is still an unofficial term for the current unit of geological time. The word itself comes from the Greek language: anthropo means 'man' and cene describes 'new'. The official epoch (following the International Union of Geological Sciences (IUGS)) is the Holocene which began 11,700 years ago. One of the discussions regarding the Anthropocene is the question of when it began. Some scientists call the Industrial Revolution (the 1800s) the point of change, while others are convinced that it has begun in 1945. They argue with the testing and dumping of the first atomic bombs on Japan, which was responsible for radioactive particles that were found in the soil worldwide.<sup>63</sup>



According to Anna Tsing, the term 'Anthropocene' does not represent the current situation. She argues that it misses the aspect of human capitalism as the trouble-causing force of these times, and points out that also the effects on multispecies interconnectedness are excluded. The forces that evolved through the actions humans take, following the modern capitalistic desire cause the destruction of landscapes and the loss of direct relation with non-humans.<sup>64</sup>

'Capitalocene' is a term that describes the same period of time but under a different focus. This term refers to the history of capitalism as the cause of destruction. Donna Haraway goes even further as she mentions the 'plantationocene' as an additional name. She explains the title through the history of the capitalistic plantation which led to forced labour of humans, and other living species as well as soil and the resolution of complex life relations into a monoculture.<sup>65</sup>

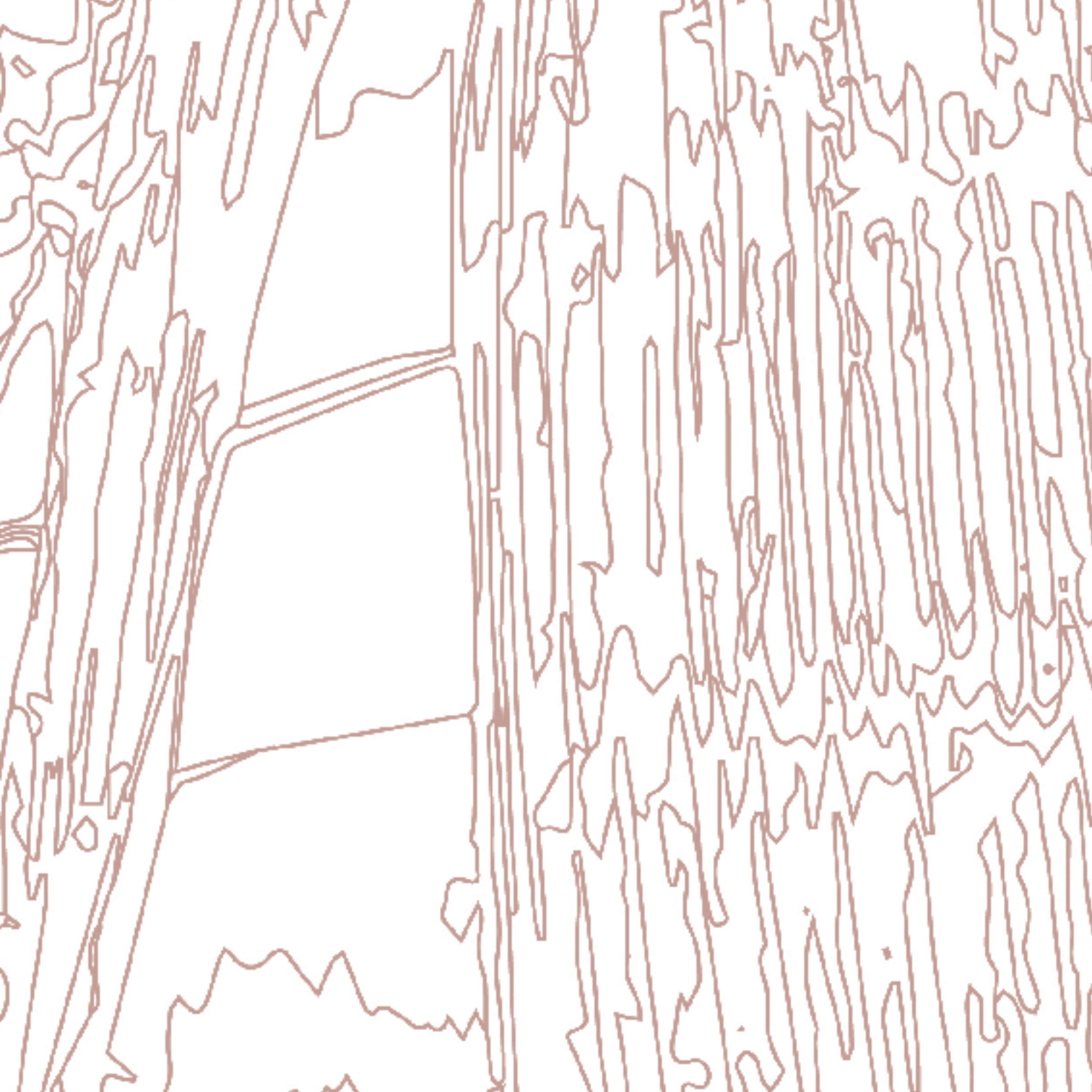
The Post-Antropocene describes a time that comes after the Anthropocene. It is a time that humans change their perception of the world, ethics, biology, and society in a radical way. In the era of the Post-Anthropocene, the approach of design is not human-centred but follows the logic and structure of a fundamental equivalence of non-humans and humans. This equivalence has a direct effect on the actions and thoughts of humans and results in a valuation of the minimization of the environmental footprint. Ecosystems and the interconnectedness of actors and their bio/eco-systemic operations are acknowledged as the primary reference for design and decision-making.<sup>66</sup> (see also the chapter on ‘Interconnectedness of the living’)

Donna Haraway calls this future Chthulucene, through which she refers to ‘companioning’, a teaming up/practising becoming with other species in order to ‘stay with the trouble.’<sup>67</sup> For her the compost is a symbol of teaming up as interspecies cooperation (works, microbes, humans, fungi, ...) that includes life and death, ending and creating new (soil/humus). It is an active process, such as post-humanism based on the making.<sup>68</sup>

Referring to this research on maize, I call the time after the current 'time of maize', 'the time after maize'. We don't know yet when this era will begin. 'After maize' does not mean that there is no maize, it also does not mean there is no human. The 'time after maize' begins at the moment when maize is not standing alone anymore. It is a time when we understand that mono ('one-single') is not desirable. It is a time of seeing the connections between humans and non-humans, a time of listening and understanding.



I am calling for a time when we see our creativity as a tool to have a positive impact on living diversity (instead of the current idea to reduce it less). Talking about the imbalanced destruction caused by the modern-capitalistic wish for the growth (of wealth), I am convinced that this time should come with a name that expresses not the destructive past but rather the value of the then-current present. A name that expresses how we design and live in a radical community with Gaia, full of respect and fascination. The epoche of 'The Living' means that design focuses on the diversity of existence, through companionship in all kinds of scales.






# Tools to design space and conversation

What can I as a spatial designer learn about community and companionship from my ancestors in the countryside of Bersenbrück? And how can the current global conversation on the Post-Anthropocene give my research a theoretical foundation on a philosophical and scientific level?



My research on the countryside of Bersenbrück alongside the voices of Anna Tsing, Bruno Latour, Alexander van Humboldt, Arturo Escobar and Donna Haraway helped me to develop tools for a research-based design that focuses on companionships. focuses on companionships. Each tool engages with a different aspect and method and often also different actants.



Cultivating companionship means standing in contrast to monoculture and alienation, but at the same time observing those in order to find potential. Cultivating companionship does not mean solving problems or seeking to do everything right. It aims at starting the conversation based on observations. The tools that I present in this chapter will raise questions and spark ideas for interspecies-coexistence on a basis of awareness and cooperation between humans; and non-humans. Cooperation and coexistence are never exclusively harmonious and successful. They are processes, and the listening, learning and adapting never ends. The same stands for a spatial design that focuses on cultivating companionships. It is also a process based on curiosity, creativity, and adaptation.

# Localizing

Find the location and see who and what is there by making a social, geographical, political, climat-ical, and biological analysis of the given situation. Be aware of changes during certain periods such as a day or year.

The location for my design is the maize field in Bersenbrück. I grew up in the area therefore I know the seasons and climate. The local people have helped me understand the political and economic situation and through my research, I learned about maize and the problems of monoculture which leads to alienation and the reduction of diversity. I decided to work in the place and within the system I criticise. Through that I not only want to set a contrast, but also let people experience the creative possibilities that can arise in the time of maize.



# Listening

Listen to stories of the people who are in, and/or have connections to the place. Let one story guide you to the other. Find the elements of the stories that spark your interest the most. Sometimes it helps to listen more than once. Find also ways to listen to others than humans. Listening can also include watching and observing as not all species speak in words. In this case listening implements taking time and absorbing information, emotions, and perspectives.

My research is based on many stories people told me about memories and experiences. Also, the observation of the soil and landscape are part of my listening. With the following steps of design new voices will appear. Material researchers are already entering my process. Also, I am eager to investigate which insects, plants, or other species become companions in my designprocess.

# Scaling

Scale up and down, zoom in and out to see smaller and larger connections. Observe also the scale of elements (amount or size) and what effects they have on humans and non-humans. Be aware of the scales of your designs/actions.

By analysing the cornfield and the effects of monoculture on different scales (a hand of soil until the global effects) I also understand that scaling up maize and alienation affect the scaling down of biodiversity and personal connection to plant and soil. Through zooming in and out I will explore how a different design-focus might arise on different scales.

# Looking into the Past and Present

Observe what has changed or is changing currently, connected to the stories and the question of scale. Analyse if the changes are beneficial or if further changes are needed.

Current discussion on companionship and the Post-Anthropocene mentions regularly the advantages of looking back to the past and learning from our ancestors. The observation of the surroundings and working with local materials are elements that I have learned from my ancestors and want to include in my design. Today's research on bio-materials will help me to connect the present and past. I am striving to make all this visible in my spatial design.



# Creating Rituals

Implement rituals and celebrations. The moment of celebration and the appreciation of the archived is as important as setting rituals that guide the cooperation and interaction of the actants.

Rituals and celebrations bring people together. In the past all kind of rituals guided the farmer though the year and seasons. The celebration createt moments to look forward to in times of hard work. What kind of rituals can be implemented in the building process that promote working and celebrating together in order to create companionships of human; and hon-human.

# Giving Names

Create identity by giving important elements names. Also rituals and celebrations can have specific names.

‘Cultivating Companionship’ is the name of my research project. Giving the material I work with the name ‘Milzea,’ changed my relation to it and created a new level of esteem. The place within the cornfield or certain rituals that happen in order to create the space will also have names.

# Valuing Symbiosis

Focus on symbiosis in any design decisions you take. Find ways to enhance networks between humans and other humans, and between humans with non-humans.

The symbiosis between humans, were as important as the one of human and non-human and between non-humans in the past. In monoculture, symbiosis got reduces to the basic minimum. How can my design bring back and create new symbiosis between human; and non-human within the corn field. By trying to understand the different perspectives and roles. I want to include non-humans in the design process. Switching viewpoints can be a special and spacial challenge that will need observation and sensitivity.



# Staying Optimistic with the Trouble

Find opportunities that evolve out of the current situation in order to allow interconnectedness. New connections bring challenges and opportunities, be curious to explore those. Connecting the different actors in a sense of companionship allows you also to think about the roles of the different actants, including your own role.

I am not going to solve the issues of monoculture and the loss of diversity. The change that can evolve through my design and the conversations might be very small, but if I manage to make some people think about the situation of monoculture from a different perspective, that is already a success. Today many crises around us weigh heavy on our shoulders. The incapacity that comes with them let me sometimes feel small and paralyzed. With this project, I want to bring lightness into this urgent discussion. I want to enable people to take action and grow from a positive motivation. Celebration and companionship will bring cheerfulness into the maize fields, as a base for change and discussion.

This tools evolved out of my reseach and help me to transform it into a spatial concept with focus on companionship. Further I invite you to become active. Take the tools with you and add an other chapter to this text that focusses on finding companionship. You will find your own angle and your topic but within that topic stand in contrast to alienation and monocultures, be they human or non-human. As an actor within communities you have the power to listen, to create and to connect in order to cultivate companionship.





# Wording

## Actor/ Actants

The actor-network theory (ANT) by Latour sees actants as nodes in the network. They can be human, non-human or technologies. All actants have the same agency and have the same importance for the network.<sup>A</sup>

## Alienation

Refers to a sense of estrangement or disconnection. It includes the act of turning away or diverting.<sup>B</sup>

## Ancestors

In this text I refer to my ancestors before the economic miracle in the 1950th. I consider my grandmother as the last generation those ancestors.

## Artland

The region lies in the North German district of Osnabrück. It covers around 180 km<sup>2</sup> of land in the state of Lower Saxony. The Artland was never a governmental body; rather, it was bound together by economic, cultural, and familial ties.<sup>C</sup>

## Bersenbrück

The small town with 8.794 inhabitants lies on the Hase. The administrative seat of the joint municipality of Bersenbrück is based in the Osnabrück district of Lower Saxony.<sup>D</sup>

## Community of humans; and non-humans

This phrase includes community between humans, between humans and non-humans as well as the symbiosis between different non-humans.

## Companionship

Donna Haraway defines companionship as 'being on talbe with'. She refers to a new form of connection and community that challenge the traditional binaries of nature/culture, human/animal, and self/other.<sup>E</sup>

## Culture

Refers to the shared beliefs, values, customs and behaviours that characterize a group. It encompasses everything from language and art to food and religion.<sup>F</sup>

## Farmer's Garden

(german: Bauerngarten). Traditional garden that was commonly found on farms. It typically features a mix of ornamental and edible plants, such as flowers, herbs, and vegetables.<sup>G</sup>

## Fernweh

(longing for far-off places) This German word refers to a strong desire to travel and explore new places.

## Heimat

(engl. homeland) The concept of Heimat is central to German culture and refers to a deep emotional attachment to a specific place, which is often associated with childhood, family, and community. It is considered a source of identity and belonging, and is often associated with feelings of nostalgia.<sup>H</sup>

## Heimatabend

Gathering of the neighbourhood. People from all generations and professions came together to discuss official and personal issues.

## Heuerhaus / Kotten

Half-timbered houses where the Heuerlinge used to live in together with the livestock. The simple houses belonged to the farmer. They were built purely from local materials, for example oak wood, clay and straw.<sup>I</sup>

## Heuerlingswesen

System of agricultural labour in Germany (until 1959s) landowners would provide small plots of land and housing to agricultural labourers, who would work for them in exchange.<sup>J</sup>

## Maize / Corn

Both terms refer to the same cereal grain. In the North American English vernacular corn is the mostly used term, whereas maize is used in the British English. In a technical or scientific setting, the term maize is usually used. Corn can refer to both the individual kerns as well as the crob, while maize refers more precisely to the plant.<sup>K</sup>

## Mexica and Maya

Two distinct Mesoamerican civilizations that flourished in Central America.<sup>L</sup>

## Milpa

Traditional agriculture system in Central and South America based on a polyculture with maize. Today's 'three sister planting' evolved out of the milpa system.<sup>M</sup>

## Non-humans

All living entities that are not members of the species *Homo sapiens* (humans). Meaning animals, plants, fungi and micro-organism.

## Osnabrück

The City in the German state of Lower Saxony has a population of 168.286. It lies tucked between the Wiehen Hills and the northernmost point of the Teutoburg Forest in a valley along the Hase River.<sup>N</sup>

## The Living

Includes all living species, the diversity and their interconnectedness.

## The Others

Refers to non-humans.

## Time after maize / Post-Anthropocene

A time when monoculture came to an end, and the focus lays on diversity, symbiosis and companionship of humans; and non humans.

## Time before maize

The time before maize came to Germany, the time before the economic miracle, before the 1950's. That time life in the countryside was based on self-sufficient, small scale farming.

## Time of maize / Anthropocene

The current time of monoculture and human-centered thinking and acting with affects in environmental destruction, climate change and the loss of diversity.

## Traditional wisdom

The knowledge, beliefs, and customs that have been passed down through generations within a culture or society. It includes the practical, common sense and knowledge that is acquired through experience, observation, and learning from others.

## Western modern values

The beliefs, customs, and institutions that have developed in Western societies in recent centuries, particularly in the context of the Enlightenment and the Industrial Revolution. These values include democracy, rationalism, and individualism and capitalism. The use of reason and scientific research and technology is emphasized to comprehend the universe.

A Charlotte Nickerson 2023 – Latour's Actor Network Theory

B Dictionary.com 2023 – Alienation

C Samtgemeinde Artland 2021 – Zahlen und Daten

D Samtgemeinde Bersenbrück 2018 – Zahlen, Daten & Fakten

E Sarah Franklin 2017 – Staying with the Manifesto:  
An Interview with Donna Haraway

F Cambridge University Press & Assessment 2023 – Culture

G Kriemhild Finken 2008 – Vom Zauber alter Bauerngärten (pp. 23f.)

H Jochen Bittner 2018 – Why the World Should Learn

I Björn Herrmann 2011 – Museumsdorf Cloppenburg  
English Guide (p. 156)

J Helmut Lensing 2015 – Wenn der Bauer Pfeift (pp. 268f.)

K Gardening Channel 2020 – Corn vs. Maize

L Diffen 2013 – Aztecs vs. Mayans

M Julia Watson 2019 – Lo—TEK (pp. 126f.)

N Stadt Osnabrück– Daten und Zahlen

Explanations without footnote are defined by myself.

# People

## Carmen Lohmann,

My counsin. She grew up with my grandmother, her siblings and workers who lived with the family as well. After living in Düsseldorf for some years she came back to Bersenbrück with her husband and children.

## Elke Drzymalla,

Baukoordinatorin Museumsdorf Cloppenburg.

## Erica Groneick,

Bought an old farm some years ago, before she and her family lived in the town. Now she and her husband run a hotel and event place. One of her children with family moved to the farm now as well.

## Family Gösting,

Both parents grew up in Bersenbrück. They are large scale potatoe farmers. Now they renovate an old farmhouse to live there with their small children. The farm belonged to the former local brickyard and is located close to the former clay pit.

## Gregor Erpenbeck,

Trained farmer. He worked in different secotrs of the field for many years. Now works for the biogas plant.

## Hubert and Anni Thye-Moormann,

Belong to the last generation of small-scale farmers. Hubert has lived on the farm his whole life (more than 80 years), Anni his wife joined when they got married. They belong to the last generation of small-scale farmers. Most of their children and grandchildren also live on the farm in various converted buildings.



## Jutta Stalfort,

Expert in the Bersenbrück's history, she has access to the state archives and church records.

## Martin Hülsmann,

My father, owner of a biogas plant, grew up with 10 siblings in Bersenbrück.

## Michael Wernke,

Current mayor of the joint municipality of Bersenbrück. He lives with his family on a farm and sees a lot of potential to convert old farms into community based housings, to reconnect different generations.

## Ottilia Hülsmann,

My grandmother. She passed away a few years ago. Because of her dementia, she was not able to tell me about her past herself. But she was part of many stories and examples people told me. Since I knew her, the family home and many people who surrounded her, I could imagine what it might have been like when she was feeding so many people and perserving food in hundrets of jars for the winter. So I decided to mention her in this list.

## Renate Hülsmann,

My aunt, engaged in community through politics and church. From 2001 until 2004 she was the mayor of Bersenbrück. She is the owner of the Hessler Hof. She showed me many places and put me in contact with several people.

## Sasha, Bauunternehmen Krone,

With his business he focusses on the restauration of old half-timbered houses, and creating visual identity withm the hostorical landscape and building styles.

## Thomas Hülsmann,

My cousin. Contractor and developer in Bersenbrück, continues my grandfather's and uncle's business.

# Endnotes

- 1 Kreissparkasse Bersenbrück 2022 – Strukturatlas der Kreissparkasse Bersenbrück (p. 35)
- 2 Wikifamer 2017 – Corn Plant Infromation and Production
- 3 delMaíz.info.2023 – Los diversos Tipos de Maíz
- 4 Chris Kniesly 2019 – How corn conquered the world
- 5 Food and Agriculture Organization of the United Nations  
17.05.2022 – Land area per crop
- 6 Chris Kniesly 2019 – How corn conquered the world
- 7 Thomas Beutler 2013 – Mais
- 8 DFA 2009 – Lebensmitteltabelle für die Praxis (p. 229)
- 9 Martina Frietsch 2020 – Mais in Deutschland
- 10 Gregor Erpenbeck, 2022, Bersenbrück
- 11 Martina Frietsch 2020 – Mais in Deutschland
- 12 Anna Lowenhaupt Tsing 2015 – The Mushroom at the End of the World (p. 62)
- 13 Kreissparkasse Bersenbrück 2022 – Strukturatlas der Kreissparkasse Bersenbrück (p. 33)
- 14 Arturo Escobar 2018 – Design for the Pluriverse (p.9)
- 15 Ingo Knopf 2015 – Die Bewohner des Körpers
- 16 Ibid.
- 17 Charlotte Nickerson 2023 – Latour’s Actor Network Theory
- 18 Ibid.
- 19 Andrea Wulf 2015 – The Invention of Nature (p. 5)
- 20 Ibid.
- 21 Ibid.
- 22 Helmut Lensing 2015 – Wenn der Bauer Pfeift (pp. 141ff., 268)
- 23 Kreissparkasse Bersenbrück 2022 – Strukturatlas der Kreissparkasse Bersenbrück (pp. 32ff.)
- 24 Prof. E. O Wilson 2010 – Why do we need biodiversity?
- 25 Robert Krulwich 2012 – Cornstalks Everywhere But Nothing Else
- 26 Allison Balogh 2021 – The rise and fall of monoculture farming
- 27 Kriemhild Finken 2008 – Vom Zauber alter Bauerngärten (pp. 23f.)
- 28 UAF Times 2021 – What are the Advantages and Disadvantages of Technology in Agriculture?
- 29 Thomas Beutler 2013 – Mais
- 30 Martin Heidegger 1971 – Building Dwelling Thinking
- 31 Arturo Escobar 2018 – Design for the Pluriverse (p. 64)
- 32 Ibid. (p. 110)
- 33 Edgar F. Warnecke 1984 – Bauernhöfe (p. 7)
- 34 Helmut Lensing 2015 – Wenn der Bauer Pfeift (p. 141ff.)

- 35 Samtgemeinde Bersenbrück 2018 – Geschichte  
36 Edgar F. Warnecke 1984 – Bauernhöfe (p. 44)  
37 Björn Herrmann 2011 – Museumsdorf Cloppenburg English Guide  
(p. 156)  
38 Helmut Lensing 2015 – Wenn der Bauer Pfeift (p. 35f.)  
39 Björn Herrmann 2011 – Museumsdorf Cloppenburg English Guide  
(p. 156)  
40 Helmut Lensing 2015 – Wenn der Bauer Pfeift (title)  
41 Ibid. (p. 147f.)  
42 Ibid. (p. 35f.)  
43 Heinz Thye-Moormann 2022, Bersenbrück  
44 Helmut Lensing 2015 – Wenn der Bauer Pfeift (p. 24)  
45 Ibid. (p. 130ff.)  
46 Edgar F. Warnecke 1984 – Bauernhöfe (p. 51)  
47 Ibid. (p.44)  
48 Helmut Lensing 2015 – Wenn der Bauer Pfeift (p. 268)  
49 Ottilia Hülsmann, Bersenbrück  
50 Anni Thye-Moormann 2022, Bersenbrück  
51 Thomas Beutler 2013 – Mais  
52 Servicio de Información Agroalimentaria y Pesquera 2019 –  
Dioses hechos de maíz  
53 Quote from Ronald Neigh in: Julia Watson 2019 – Lo—TEK (p. 126)  
54 Ibid. (p. 123ff.)  
55 Verein zur Erhaltung der Nutzpflanzenvielfalt e. V. 2010 – Mais:  
Herkunft und Verbreitung  
56 Martina Frietsch 2020 – Mais in Deutschland  
57 Ibid.  
58 Georg-August-Universität Göttingen – Quercus Robus / Stile-Eiche,  
O Petraea- Trauben-Eiche  
59 Redaktion waldwissen.net LWF 2014 – In und an der Eiche  
60 Ibid.  
61 Anna Lowenhaupt Tsing 2015 – The Mushroom at the End of  
the World (p. 6)  
62 Andrea Wulf 2015 – The Invention of Nature (p. 337)  
63 National Geographic Society 2022 – Anthropocene  
64 Anna Lowenhaupt Tsing 2015 – The Mushroom at the End of  
the World (pp. 19, 292)  
65 Sarah Franklin 2017 – Staying with the Manifesto: An Interview  
with Donna Haraway  
66 Marie Davidova and Yannis Zavoleas 2020 – Post-Anthropocene  
67 Donna J. Haraway 2016 – Staying with the Trouble (p. 55)  
68 Sarah Franklin 2017 – Staying with the Manifesto: An Interview  
with Donna Haraway



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Available online at <https://images.kew.org/plants-fungi/edible-plants/zea-mays-corn-10681942.html>, checked on 25.03.2023.
- IV    © OurWorldInData.org/land-use • CC BY, Source: Food and Agriculture Organization of the United Nations.  
Available online at <https://ourworldindata.org/grapher/land-area-per-crop-type>, checked on 25.03.2023.
- V     Original image: ©1996 Encyclopedia Britannica. Inc.  
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- VI    Credit: fishhawk, CC BY 2.0
- VII   Alexander von Humboldt (1807): Naturgemälde.  
Available online at [https://bionieuws.nl/article/382771/humboldt\\_zette\\_de\\_biologie\\_op\\_de\\_kaart](https://bionieuws.nl/article/382771/humboldt_zette_de_biologie_op_de_kaart), checked on 25.3.2023.
- VIII   Illustration ©NPR, photo: ©Heather Nemec /iStockphoto  
Available online at <https://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>, checked on 3.25.2023.
- IX    © David Liittschwager (2012): A world in one cubic foot.  
Available online at <https://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>, checked on 25/03/2023.
- X     © Reuters  
Available online at <https://www.biomasse-nutzung.de/biokraftstoffe-bioenergie-nahrungsmittelpreise-hunger/>, checked on 3/25/2023.

- XI Image part of the article: Servicio de Información Agroalimentaria y Pesquera (2019): Dioses hechos de maíz.  
Available online at <https://www.gob.mx/siap/articulos/dioses-hechos-de-maiz?idiom=es>, checked on 3/21/2023.
- XII © Scientific Reports (Sci Rep) ISSN 2045-2322 (online)  
Available online at <https://www.nature.com/articles/s41598-021-82784-2/figures/1>, checked on 25.03.2023.
- XIII © Görlitz Insider  
Available online at <https://www.goerlitz-insider.de/die-friedenseichen/>, checked on 25.03.2023.

Unless stated otherwise, all images and graphics are created by me.

# Bibliography

Andrea Wulf (2015): *The Invention of Nature. The adventures of Alexander von Humboldt. The lost hero of science.* Great Britain: John Murray (Publishers).

Anna Lowenhaupt Tsing (2015): *The Mushroom at the End of the World. On the possibility of life in capitalist ruins.* USA: Princeton University Press.

Arturo Escobar (2018): *Design for the Pluriverse. Radical Interdependence, Autonomy, and the Making of Worlds.* USA: Duke University Press.

Björn Herrmann (2011): *Museumsdorf Cloppenburg English Guide.* Niedersächsisches Freilichtmuseum.  
2nd ed. Germany: Museumsdorf Cloppenburg.

Deutsche Forschungsanstalt für Lebensmittelchemie (2009): *Lebensmittelatlas für die Praxis. Der kleine Souci · Fachmann · Kraut.* With assistance of Garching (editor). 4th ed. Germany: Wissenschaftliche Verlagsgesellschaft mbH.

Donna J. Haraway (2016): *Staying with the Trouble. Making Kin in the Chthulucene.* USA: Duke University Press.

Edgar F. Warnecke (1984): *Bauernhöfe. Zeugnisse bäuerlichen Lebens im Land von Hase und Ems.*  
Germany: H. Th. Wenner.

Helmut Lensing, Bernd Robben (2015): *“Wenn der Bauer Pfeift, dann müssen die Heuerleute kommen!”. Betrachtungen und Forschungen zum Heuerlingswesen in Nordwestdeutschland.* 4th ed. Germany: Verlag der Studiengesellschaft für Emsländische Regionalgeschichte.

Julia Watson (2019): *Lo—TEK. Design by Radical Indigenism.* Italy: TASCHEN GmbH.



Kreissparkasse Bersenbrück (2022): Strukturatlas der Kreissparkasse Bersenbrück. Der nördliche Osnabrücker Landkreis aus sozioökonomischen Perspektiven. Germany.

Kriemhild Finken, Aloys Finken (2008): Vom Zauber alter Bauerngärten. Germany: Jan Thorbecke Verlag.

Martin Heidegger (1971): Building Dwelling Thinking. New York: Harper Colophon Books.

Sarah Franklin (2017): Staying with the Manifesto: An Interview with Donna Haraway. USA: SAGE.

Available online at [https://monoskop.org/images/9/9f/Franklin\\_Sarah\\_2017\\_Staying\\_with\\_the\\_Manifesto\\_An\\_Interview\\_with\\_Donna\\_Haraway.pdf](https://monoskop.org/images/9/9f/Franklin_Sarah_2017_Staying_with_the_Manifesto_An_Interview_with_Donna_Haraway.pdf), checked on 21.3.2023.

# Webliography

Allison Balogh (2021): The rise and fall of monoculture farming. Edited by Directorate-General for Research and Innovation. European Commission. Available online at <https://ec.europa.eu/research-and-innovation/en/horizon-magazine/rise-and-fall-monoculture-farming>, checked on 21.3.2023.

Cambridge University Press & Assessment (2023): Culture. Available online at <https://dictionary.cambridge.org/dictionary/english/culture>, checked on 3/28/2023.

Charlotte Nickerson (2023): Latour's Actor Network Theory. With assistance of Saul Mcleod. Simply Scholar Ltd. Available online at <https://simplysociology.com/Actor-Network-Theory.html>, checked on 21.3.2023.

Chris Kniesly (2019): How corn conquered the world. With assistance of Addison Anderson Artrake Studio. Edited by TED-Ed. TED Conferences, LLC. Available online at [https://www.ted.com/talks/chris\\_a\\_kniesly\\_how\\_corn\\_conquered\\_the\\_world?language=en](https://www.ted.com/talks/chris_a_kniesly_how_corn_conquered_the_world?language=en), updated on 12.2.2019, checked on 21.3.2023.

delMaíz.info (2023): Los diversos Tipos de Maíz o Variedades. Available online at <https://delmaiz.info/tipos-de-maiz/>, checked on 21.3.2023.

Dictionary.com (2023): alienation. Available online at <https://www.dictionary.com/browse/alienation>, checked on 28.3.2023.

Diffen (2013): Aztecs vs. Mayans. Available online at [https://www.diffen.com/difference/Aztecs\\_vs\\_Mayans](https://www.diffen.com/difference/Aztecs_vs_Mayans), checked on 28.3.2023.

Food and Agriculture Organization of the United Nations (2022): Land area per crop, World, 1961 to 2020. Our World in Data. Available online at <https://ourworldindata.org/grapher/land-area-per-crop-type>, updated on 17.5.2022, checked on 21.3.2023.

Gardening Channel (2020): Corn vs. Maize, What's the Difference? Available online at <https://www.gardeningchannel.com/corn-vs-maize-explanation/>, checked on 28.3.2023.

Georg-August-Universität Göttingen: Quercus Robus / Stile-Eiche, O Petraea - Trauben-Eiche. Mythologie und Brauchtum. Available online at <https://www.uni-goettingen.de/de/mythologie+und+brauchtum/16703.html>, checked on 21.3.2023.

Gurkcity Webdesign (2021): Eiche an der Hasemühle. Available online at [https://www.baumkunde.de/baumregister/4150-eiche\\_an\\_der\\_hasemuehle/](https://www.baumkunde.de/baumregister/4150-eiche_an_der_hasemuehle/), updated on 7/17/2021, checked on 21.3.2023.

Ingo Knopf (2015): Die Bewohner des Körpers. Wie viele Mirkoben leben in meinem Körper? Edited by Michelle Schaltz (FNR). science.lu. Available online at <https://www.science.lu/de/die-bewohner-des-koerpers/wie-viele-mikroben-leben-deinem-koerper>, updated on 30.5.2015, checked on 3/21/2023.

Jochen Bittner (2018): Why the World Should Learn to Say ‘Heimat’. The New York Times. Available online at <https://www.nytimes.com/2018/02/28/opinion/america-heimat-germany-politics.html>, checked on 3/28/2023.

Marie Davidova and Yannis Zavoleas 2020 – Post-Anthropocene: The Design after the Human Centered Design Age. Available online at [https://www.researchgate.net/publication/343472930\\_Post-Anthropocene\\_The\\_Design\\_after\\_the\\_Human\\_Centered\\_Design\\_Age](https://www.researchgate.net/publication/343472930_Post-Anthropocene_The_Design_after_the_Human_Centered_Design_Age), checked on 21.3.2023.

Martina Frietsch (2020): Mais in Deutschland. WDR. Available online at [https://www.planet-wissen.de/gesellschaft/lebensmittel/mais\\_ein\\_korn\\_fuer\\_alle\\_faelle/pwie-maisindeutschlandvomexotenzurallzweckpflanze100.html](https://www.planet-wissen.de/gesellschaft/lebensmittel/mais_ein_korn_fuer_alle_faelle/pwie-maisindeutschlandvomexotenzurallzweckpflanze100.html), updated on 3.6.2020, checked on 21.3.2023.

National Geographic Society (2022): Anthropocene. Edited by Tyson Brown. Available online at <https://education.nationalgeographic.org/resource/anthropocene/>, updated on 20.5.2022, checked on 21.3.2023.

Prof. E. O Wilson (2010): Why do we need to protect biodiversity? We need ants to survive, but they don't need us at all. With assistance of Harvard Medical School. European Commission. Available online at [https://ec.europa.eu/environment/nature/biodiversity/intro/index\\_en.htm](https://ec.europa.eu/environment/nature/biodiversity/intro/index_en.htm), checked on 21.3.2023.

Redaktion waldwissen.net LWF (2014): In und an der Eiche. Bayerische Landesanstalt für Wald und Forstwirtschaft. Available online at <https://www.waldwissen.net/de/lebensraum-wald/baeume-und-waldpflanzen/laubbaeume/in-und-an-der-eiche>, checked on 21.3.2023.



Robert Krulwich (2012): Cornstalks Everywhere But Nothing Else, Not Even A Bee. npr. Available online at <https://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>, checked on 25.3.2023.

Samtgemeinde Artland (2021): Zahlen und Daten. Available online at <https://www.artland.de/portal/seiten/zahlen-und-daten-900000028-31440.html?vs=1.>, checked on 21.3.2023.

Samtgemeinde Bersenbrück (2018): Geschichte. Available online at <https://sgbsb.de/die-samtgemeinde/ueber-die-samtgemeinde/zahlen-daten-fakten/>, checked on 21.3.2023.

Samtgemeinde Bersenbrück (2018): Geschichte. Available online at <https://sgbsb.de/stadt-bersenbrueck/geschichte/>, checked on 21.3.2023.

Servicio de Información Agroalimentaria y Pesquera (2019): Dioses hechos de maíz. Considerado como uno de los productos más valiosos que ofrece la tierra. Gobierno de México. Available online at <https://www.gob.mx/siap/articulos/dioses-hechos-de-maiz?idiom=es>, checked on 21.3.2023.

Stadt Osnabrück (2022): Daten und Zahlen. Available online at <https://sgbsb.de/die-samtgemeinde/ueber-die-samtgemeinde/zahlen-daten-fakten/>, checked on 28.3.2023.

Thomas Beutler (2013): Mais. 2020 Zukunftsstiftung Landwirtschaft. Available online at <https://www.2000m2.eu/de/getreide/mais/>, checked on 21.3.2023.

UAF Times (2021): What are the Advantages and Disadvantages of Technology in Agriculture? Available online at <https://www.uaftimes.com/what-are-the-advantages-and-disadvantages-of-technology-in-agriculture/>, checked on 21.3.2023.

Verein zur Erhaltung der Nutzpflanzenvielfalt e. V. (2010): Mais: Herkunft und Verbreitung in Europa. Available online at <https://www.nutzpflanzenvielfalt.de/mais-herkunft-und-verbreitung-europa>, checked on 21.3.2023.

Wikifamer (2017): Corn Plant Information and Production. Edited by Wikifamer. Available online at <https://wikifarmer.com/corn-plant-information-and-production/>, checked on 21.3.2023.



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to Martin, Niklas und Sabine  
and to my guiding tutors.



# Cultivating Companionship

A conversation about cornfields and communities.

Master Thesis

INSIDE - Master Interior Architecture

Royal Academy of Art The Hague

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