



WALKING THE LINE

A NEW BORDERSCAPE FOR PARKSTAD-AACHEN

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ABSTRACT

Parkstad and Aachen both lie on either side of the national border between the Netherlands and Germany. Border landscapes feature many unique and interesting elements, but also a lot of problems as a border is established to separate certain elements. In this research, I will try to transform this border landscape into a landscape of meeting instead of separating. By researching border landscapes and using them in a landscape design, I established a local intervention that offers the opportunity for people and landscapes to meet by incorporating a common historical identity and spatial and mental concepts of borders. A landscape that bridges the border in this way can solve the border-related issues that play in the Parkstad Aachen region.

1. INTRODUCTION



Figure 1: Aerial photograph of the Parkstad near Landgraaf

1.1 CONTEXT

This report is written as the BSc thesis for the study Landscape Architecture at Wageningen University. The set up for this report is a scientific research in the field of landscape architecture. This means that the research question will be tested and answered according to a design. The theme of this thesis lies with the IBA Parkstad. The IBA is a tool for the spatial development of an urban region. It develops a great amount of creative ideas to improve an urban region that is coping with problems. In the period of 2015-2020 this IBA happens in Parkstad, an agglomeration of municipalities in the southeastern corner of the province of Zuid-Limburg in the Netherlands.

1.2 PARKSTAD

The municipalities of Parkstad in the agglomeration of Heerlen-Kerkrade is coping with a lot of problems. Demographic shrinkage is rampant, causing a snowball-like consequence of other problems. The population ages because young people move out, causing a future demand for health care services. A shrinking population causes vacancy, leaving buildings and sometimes entire

parts of town to deteriorate. Some, if not all of these problems can be wholly or partly ascribed to its geographical location in the Netherlands, as it is literally in the remote corner of the country, at the border with Germany. It is in Parkstad that we find the border landscape: a landscape of institutional symbolism, a clash of cultures.



Figure 2: Location of the Parkstad municipalities and the city region of Aachen.

1.3 THE BORDER

A border is the place where two countries end their territory. It is here that we make create a distinction between 'us' and 'them', and have done so throughout history. Borders meant passports, barriers, smuggles, and sometimes, war. Although the borders were proclaimed 'open' by the EU in the 80's, the geographical line between two countries remains noticeable in the landscape. It has now become easier to cross than ever before, but still not many tend to do so: people hold on to their own identities, languages and cultural habits, and with those things, their geographical location. The geographical border marks the end of that idea. But what if the border is not an end? What if we can give a border new meaning? What if we can, instead of a line that marks a separation, make the border into a line that marks a meeting?

A lot of the above mentioned problems Parkstad copes with are related to its location at the border. But although two nation states end here, the landscape goes on. Giving the border new meaning can open up these edges at Parkstad, creating exciting new opportunities for the region.



From left to right, top to bottom: Figure 3: Sign marking the border along a motorway. Figure 4: A border control post at the Dutch-German border in Kerkade, early 20th century. Figure 5: A smuggler gets caught by a customs officer in civilian clothing, in Kerkade, 1931

2. APPROACH



Figure 6: A German sentry box at the old customs office near the Dutch-German border at Heerlen

2.1 OBJECTIVE

The objective of my research is to see if we can reinterpret the 'borderscape' as a landscape where things meet instead of end. This way, I hope that I can literally and figuratively open up a new opportunity for Parkstad. This does not necessarily mean that I want a landscape in which the border has disappeared. Instead I envision a landscape which utilises the institutional, symbolical and cultural features of the border and borderscapes and create a landscape where people, cultures and countries meet.

2.2 APPROACH AND METHODS

To reach my objective, I will use the method of research by design. This means that I will attempt to answer my research question by the means of a landscape design. Before I start designing however, I need to assemble the required knowledge to get to know the theme and to incorporate this knowledge in the design that will answer my design question. This means that in the design i will feedback on this knowledge, switching back and forth between knowledge of themes and landscapes and design. To further specify, I will use

the basics of the 'research by design' concept as set up by Hevner (2007), and modify it according to my specific theme and research question as shown below.

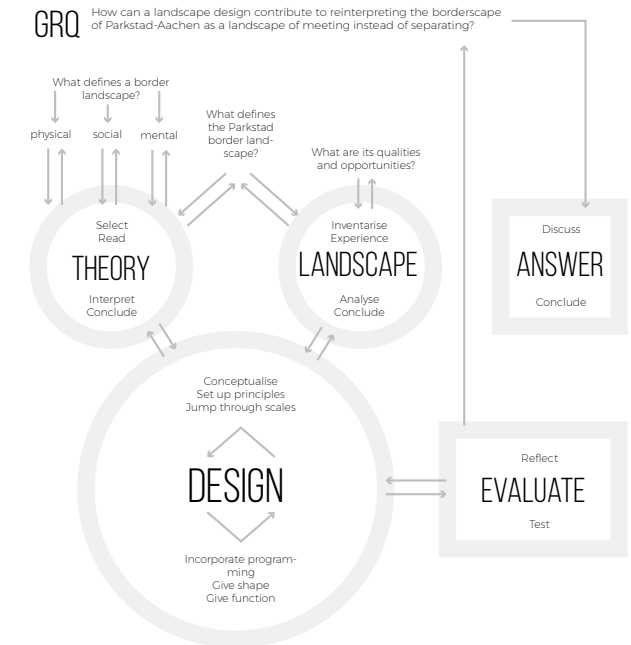


Figure 7: My method for this research, based on Hevner, 2007

2.3 GENERAL RESEARCH QUESTION

Where the border ends, the landscape continues. We may look at landscape therefore as a carrier of the border, a line in the landscape. That is why, to change the interpretation of the border landscape

by people in this way, I am proposing a landscape design. How the landscape design is going to achieve that, will be my general research question. In other words:

How can a landscape design contribute to reinterpreting the borderscape of Parkstad-Aachen as a landscape of meeting instead of separating?

2.4 SPECIFIC RESEARCH QUESTIONS

By using the concept of 'research through design', I will be designing a landscape at the border which, according to my views and research will achieve this reinterpretation. The completed design will be critically evaluated if it meets the desired outcomes and foreseen effects: Is this design cause for a reinterpretation of the border landscape as a landscape of meeting, and more importantly: how?

Before I can start making a design though, there are some questions that need answering before I can get an idea how to make reinterpretation of the border by design possible. It is because of that missing knowledge that I set up three knowledge questions about the border landscapes, which will naturally flow into a design concept for the border landscape

at Parkstad Aachen. First of all, we want to know: What are border landscapes exactly, and how do they manifest themselves in every sense of the landscape.

To answer this, I set up three questions which attempt to cover all aspects of what landscapes are in the case of borders, according to the distinction made in Jacobs (2004): the 'matterscape' (physical reality) 'powerscape' (social reality) and 'mindscape' (inner reality). These categories are translated into the following questions, shaping my theoretical framework:

What defines the physical border landscape? (chapter 4)

What defines the social border landscape? (chapter 5)

What defines the mental border landscape? (chapter 6)

If we know this, we will try to analyse the landscape at Parkstad Aachen in the traditional manner, but also adding to this analysis the knowledge we gained from our former research questions, asking this time:

What defines the border landscape at Parkstad-Aachen? (chapter 8)

When we got both the knowledge about the theme and the landscape, we will try to see which areas are of great promise and what attributes of the landscape we can use for a landscape design, asking:

What are the qualities and opportunities of the Parkstad-Aachen landscape? (chapter 8 & 9)

In some chapters that also shape my theoretical framework i will elaborate on certain border related theories, adding theory to my specific research questions by placing them into context. (chapter 3 & 7) Chapter 9 through 11 will explain my design concepts and the spatial elaboration on my design. Chapter 12 through 15 will be my evaluation where I put my design to the test to move to a conclusion and a discussion of my general research question, finishing with a self-reflection on what I learned in this thesis.

3. LITERATURE ON THE BORDER LANDSCAPE



Figure 8. The Horbacher Strasse connecting Heerlen to Aachen.

The border is often the end of the plan, because of that it is often overlooked in spatial planning and architecture. Nevertheless, the study of border landscapes and borders is quite popular in literature. The word 'Borderscape' has gained popularity, being not only a term used by landscape architects, geographers and planners, but also by visual artists. It is not strange that, according to dell'Agnese & Amilhat Szary (2015) the term was first dropped by two hispanic performance artists, in a play about the struggles of the Mexican-US borderscape. But the border has played a role in arts for much longer, which I will elaborate on further in this chapter.

The word borderscape also appeared in planning in a chapter 'Borderscapes' by Arjan Harbers in the book 'Euroscapes' (2003). His approach is very direct and simple: A borderscape is a physical landscape marked by the presence of a boundary (dell'Agnese & Amilhat Szary, 2015). Harbers uses the word borderscape to point at the shaping or reshaping of the built or natural environment by the presence of a political border, A 'border solidification' (Harbers, 2003). In his opinion, the physical landscape is a manifestation of a political idea.

Van Houtum et al. in dell'Agnese & Amilhat Szary (2015) surpass this harsh and somewhat simple modernistic idea of borderscapes by Harbers. In their sense, the borderscape is viewed more as a whole, a manifestation of processes that play along borders, or 'transnational flows', not just politics. This characterization finds itself moving more towards a landscape that is shaped by the effects of the border on certain processes. This can also be found in the definition by Hansen in Hardi (2010): "that part of the natural space where economic and social life is directly and significantly influenced by the existence of an international border. In this sense we can differentiate between open or potentially open regions and closed regions". In this notion of a borderscape we can see that the emphasis is on economic and social life in the borderscape. This means that, however the border landscape expresses itself physically in border posts along a line in the landscape, economic, social and mental are key in shaping the borderscape. That is why I will try to define the border landscape by three different categories: the 'matterscape' (physical reality, chapter 4) 'powerscape' (social reality, chapter 5) and 'mindscape' (inner reality, chapter 6) (Jacobs, 2004).

4. THE PHYSICAL BORDER: CAUSE AND RESULT



Figure 9: The landscape at the Dutch-German border near Heerlen.

How to define the physical reality of the borderscape? It would be an underestimation too just think of the physical reality of the borderscape through a line in the landscape. In a very platonic way it is though, especially when that line is formed by the natural landscape. Harbers classifies this as one of the way borders present themselves in the physical world. Here, they can be natural barriers: The sea for one, is a very clear cut border. But a border can also be a river, a stream, or a mountain ridge (Harbers, 2003). But not all borders are simultaneous with the natural landscape, and they do not always present themselves as lines. Although this line marks a separation, it is more importantly an edge of the area at each side of the border.

But the region, containing the areas on both sides of the border, also has certain characteristics. Many papers on border research name the border regions as peripheries. This could be called obvious, if we look at a nationwide central-periphery model. In that case, the edges become the periphery, which is also the way border regions are viewing themselves (Jacobs, 2012). Periphery measures itself by isolation, bad accessibility and worse economic indices

(Hardi, 2010). It can be noticed that some of these measurements is related to borders or barriers - making their geographical location along a national border crucial to their fate as being peripheral. Border regions are viewing themselves as peripheral, even though they have large built-up areas and some economic potential. To debunk these self images, they tend to look across the border (Jacobs, 2012). This way, they move themselves out of the edges of periphery to the center of Europe, spawning so called 'Euregions. The EU sees potential in these areas to develop according to the 'EUphoric' vision; a borderless Europe, Europe as a whole. Because of this, the EU invests mostly in making the border regions economically viable, as they subsidize international development plans for industrial areas and efficient infrastructural networks.

4.1 SPOILED PEACE AND QUIET

Peripheries at the border often express themselves by certain spatial features. Land use corresponds with the border region as a periphery. Often the landscape has a agricultural use, which is because of the often lack of large residential areas, very open. Paired with this openness and

emptiness of the landscape, land uses that cause nuisance like (military) airports, mineral extraction, wind-energy parks and nuclear power plants can be found near borders. Harbers (2003) classifies this feature of border regions as 'statistical irregularities'. This means that certain functions are related to the function and effect of the border. The functions that cause nuisance are an example of that, but Harbers also names the typical parallel alignment of infrastructure near borders. Larger cities and towns can sometimes be found as well, especially when that city has been important for a



Figure 10: A window in the Lothringer Strasse in Aachen with a poster protesting the Tihange nuclear power plant.

longer period of time, like Roman times or the middle ages, such as Maastricht, Heerlen and Aachen (Eker & van Houtum, 2013a). Mineral extraction can also be a reason for building new residential areas and expanding existing towns, such is the case in the coal mines of Parkstad. In general the edge of a country is also the edge in land use, often without consideration of the other country that lies beyond. For example, the so called 'unsafe' conditions of the Tihange nuclear power plant in Belgium, worries the residents of Aachen in Germany who are quite nearby its fallout zone. This also shows that the landscape is never the same on both sides of the border and is therefore sometimes contested. Some general notions about the borderscape on either side of the border can be made, but there is always a difference in between two countries.

4.2 LANDSCAPE OF CONTRASTS: EXPRESSION OF CULTURES

Less generally, if we look at the borderscape as two areas divided by a line, the physical landscape at each side expresses the national cultures, and also the politics and planning cultures of said countries. For a comparison, and for the

sake of the comparison in our case of Parkstad, let's take the Netherlands and Germany in this case. The Netherlands has always worked from a national viewpoint of planning and works in a more architectural way of envisioning landscape. Germans are more pragmatic in this matter, working from a regional oriented viewpoint for technical and social solutions. Partly because of this there is a large difference in scale: Germans generally plan for larger scales than their Dutch colleagues. This can be seen very well in the traditions in forestry. Forests in Germany are larger, more focused on wood production with trees from the same year and a lot of monoculture. In the Netherlands, forests are smaller, cluttered and more focused on integral functions. Meanwhile, integral planning as a whole fits more into the German culture, which makes the landscape appear more coherent. Here, there is also a different appreciation for nature. Considering the built environment, the Netherlands often builds more at the same time, while their German counterpart fits more into the tradition of 'organic' or 'slow' urbanism (van Kampen, 2013a).

This difference can very well be seen from maps near border areas. Not only the scale and size of certain plots of land use, but also different land uses can be seen. For example, in Germany, Growing crops is often preferred to the Dutch livestock farming. According to Harbers, this is also one category in which the border 'solidifies', as landscape patterns. National borders express themselves here as 'fault lines', dividing different land uses, and therefore land use patterns (Harbers, 2003).

Concluding, the borderscape as a whole is also a landscape of contrasts. Two nations have their own view on planning, and from both sides the same line, the border, is the end of the plan, resulting in sometimes contrasting landscapes. What makes this contrast even greater is the spatial expression of cultures and norms within spatial planning of either countries. This can also cause conflict, whereas the natural landscape goes on. For example, water does not keep itself to country borders, so both countries have to deal with it. However, German water management is focused on drainage, while Dutch management is on buffering (van Kampen, 2013a).



Figure 11: A satellite image shows the typical border land use, a contrast in land use and a difference in land use patterns at the border (yellow line) of the Netherlands and Germany near Roermond (NL). Notice the large scale forestry and airfield on the German side.

Borders are lines made by man, and more specifically by politics, a social and cultural phenomenon: it is therefore more than logical that the physical landscape is an expression of social and cultural processes as well. Physical borderscapes are both cause and result because of that. The physical landscape has become a process: a continuing cycle of these two, fueled by social and cultural processes.

5. THE SOCIO-CULTURAL BORDER: THE LANDSCAPE OF IDENTITIES



Figure 12: Two football supporters living in a border region, each one cheering for the team on their side of the border

As seen in the previous part, cultural and social values play an important role in the border landscape. On one side of the dutch border, we find a natural one: the sea. The sea, or water, that is, is one of the most prominent things the dutch derive their culture and identity from. The border at the other side of the country does not have this feature, although, it contributes to the shaping and confirming of the Dutch identity. This is what borders all over the world do: they confirm identities. They do so by marking a difference with another identity, the other side. It marks the difference between us and them (Jürgens, 2013).

5.1 A BORDERLESS EUROPE

Although the Schengen-treaty made it possible to cross European borders easier than ever before, opening up the way for economic growth and a European identity, by making the continent 'borderless'. In the economic sense this has been achieved: free traffic, consisting of tourists, international commuters and freight trucks now flow through the highways, with only a sign marking the presence of the border when you drive past it at 100 km/h. In this sense, the borderscape can be seen as a landscape

of flows. These can be the 'transnational flows' talked about earlier in the definition by van Houtum et al. in dell'Agnese & Amilhat Szary, 2015. These flows benefit the economic growth the EU foresaw, but not necessarily the European identity: Europe has not become borderless in the cultural sense.

5.2 DO COUNTRIES EXIST?

We identify ourselves with the place where we live. We do so on a local scale, meaning the place which is our home, the town in which we live. On a larger scale, the country we live also defines our identity. But what does a country mean when the borders are open? When the outlines of a country, the borders are proclaimed disappeared by Europe? Van Houtum (2013) talks in his essay about this country as a belief, almost a religion. This belief is self-reassuring: It exist because we believe it exists. And all those who believe that, also create the belief of union, a community connected by their identity of being 'Dutch', 'Flemish' or 'German'. Anderson in van Houtum (2013) calls these 'imagined communities'. This community expresses itself in a nation, which is according to Paasi in Ehlers (2001): "a community of people with a

common identity, which is typically based on shared cultural values and attachment to a particular territory". Together with the clear cut territory of a country, this creates the nation state.

But the reassessment does not only base itself on the belief itself, but also by pitching it against other beliefs. A belief in a nationality believes itself to be different from other nationalities, and by that it tries also to prove itself. This happens at a geographical scale at border regions. Over there lies another landscape, with other people, different than us. They speak different languages and have different habits. This belief of difference is of importance in the daily lives of people living in border regions.



Figure 13: Children of Kerkrade/Herzogenrath welcome Queen Beatrix of the Netherlands during her visit to the region in 2011.

5.3 THE SECRET OF THE 'BINATIONAL CITY'

But the focus on a national identity is not necessarily of any help to border regions. By focussing on difference, border regions block of the 'other side' even more on a social level. But sometimes border regions try to break this notion, focussing more on a regional, and sometimes transnational-regional identity, and also believing in the by the EU proclaimed 'borderless Europe'. Especially in residential areas along the borders, this can be desired to counter the effects of the earlier mentioned border peripheries. In some places along the dutch-german border there are plans to make new towns right on the border: a so called 'binational city'. It is hard to erect a new town with two parties who have different cultures, planning practices and laws. In an unconventional case, there are towns that already expanded towards the border on both sides. This can be found in the cross-border region of Herzogenrath (Germany) and Kerkrade (Netherlands). Here the border passes right through the middle of a residential street. When Germans were buying houses in Kerkrade, both municipalities decided for better cooperation (Ehlers, 2001). This got as far by creating a new 'binational' community and thereby a 'binational' city: Eurode.

The 'eu' part coming from the European thought of a european identity and a borderless Europe, the 'rode' part from a shared regional historic identity: Both cities used to be part of the 'Land of Rode' in the middle ages. This last part is important, because according to Ehlers a shared cultural identity is key for making a binational city work. In her paper, she presents several criteria for a well functioning binational city. In the case of Eurode, we find the shared historical identity quite a while ago. Because of two world wars where the thinking in terms of nation states excelled (nationalism), feeling of togetherness of the two towns was lost. Instead, they focus on the times when borders were still ambiguous and way more flexible than nowadays, when both towns were part of the Land of Rode. Physically there is great opportunity for this: just near the border on either sides there is a building of great historical importance. In Kerkrade, the Rolduc abbey, in Herzogenrath, the castle Rode. Combining these relics from a time when the two towns were not yet, or at least less bounded by a national government far away, can place the two towns back again in historical context to create a new identity, and therefore a new community. Because one of the characteristics of

community is 'shared origins of kinship, tribe, history or place' (Davies in Ehlers, 2001), this makes one of the starting points for a binational community, and therefore perhaps a bination city.

5.4 BUILDING CROSS-BORDER COMMUNITIES: THE BORDER AS A PLACE TO MEET?

Generally speaking, community is key to building a city. In the physical sense, if we speak of a 'contiguous buildings and urban related land use' (Buursink, 2001), then we can speak of one city. The city having two centres, or being polynuclear (binuclear in this case) is also not a problem in this case, as well-working cities that are polynuclear exist. But a city is also formed by a social construct, a 'place-bound community of people and urban institutions who have a strong feeling of belonging together' according to Buursink. We can also call this the aforementioned 'imagined community'. If we test binational cities according to this criteria of a city, they are unfortunately not one city, unless the residents can dispose of their national-oriented ideas and embrace the one of the common identity, the common community. This Ehlers sets up four operational elements

to define this 'binational' common community: 'facilities', 'social interaction', 'being identified with', and 'identification with'. Facilities meaning that people on both sides of the border use the same commercial, service and recreational facilities. Mental borders, the thinking of 'us' and 'them' can hinder this (Ehlers, 2001). Social interaction can mean formal and informal interaction, from having neighbourly feeling towards each other to relationships and family ties (Ehlers, 2001). Being identified means a presence of a communal consciousness and a representation of this as a part of an identity. This basically means being able to characterise a community, often through



Figure 14: Business centre Eurode in Kerkrade/Herzogenrath. This building is build right on the middle of the border.

its history (Weichhart in Ehlers, 2001). Identification with means that people within said community want to identify themselves as part of that community, a feeling of togetherness (Weichhart in Ehlers, 2001). Ehlers ends her paper by emphasizing again that thought all these things, the placement of similarities of both sides of the border into a historical context is still one of the most essential things in shifting a communal history.

5.5 WHY DO (OR DON'T) WE CROSS BORDERS?

But this community means very little if people constantly stay on 'their side' of the border. People have to cross them. Therefore it would also be wise to analyse why people would want to cross the border by looking at their general reasons. In this case we will be focussing on socio-economic reasons, as borders in our minds will play a larger role in the next part.

People living close the border have the possibility of utilising the possibilities offered by not only the state they live in, but also the other state nearby. How and if they use that possibility, depends on the push and pull factors of the neighbouring country (Bouwens, 2004).

When people make use of facilities and services elsewhere, they generally prefer the places of those that require the least amount of effort and time to get there (Ehlers, 2001). In the case of binational cities, the adjacent towns often have all the facilities and services separately at each side of the border, making cross-border movements unlikely. Also, cultures and languages make it more likely to use the services that are available in their own country.

But people also cross the border for the sake of being abroad, because they are looking for features in another country that their own country does not have. Holidays are a good example: people are looking for places, cultures and experiences that their situation at home does not offer. But institutional differences may also be reasons to occasionally cross the border. For example, a lot of customers of Dutch coffeeshops and brothels are foreign. Unrelated to leisure, economic benefit may also be a reason: fuel is often cheaper abroad (Harbers, 2003).

Related to economic benefit, there is also the case of cross-border commuting. Cross-border commuters may in the first sense use cross-border movements for

economic benefit, but in the meantime these movement also has a socio-cultural impact, causing it to have effect on giving meaning to daily life (Bouwens, 2004). In the past, there have been several fluctuations in the amount of cross-border commuters, being influenced by economic push and pull-factors. Land use of border regions, like mineral extraction, also contributed to this. Nowadays, there is so little cross-border mobility for commuting in border regions, that we may now speak about cross-border immobility (van Houtum & van der Velde, 2003) There are several explanations for this, or at least, multiple factors that can contribute to an explanation. There is an 'insider advantage approach', meaning that people believe that when they have 'grown' into a place (establishing life, habits and social contacts) they value this as an advantage and when they move elsewhere, believe that this advantage is lost (Fischer, Martin and Straubhaar 1997; See also van der Velde and van Houtum 2004a, 2004b in Bouwens, 2004). Other explanations are the presence of a 'significant boundary' as described by Strüver (2002), as boundaries where people assign meanings to constructed by narratives and images. These create 'cognitive distance' causing people to

be indifferent towards the market on the 'other side', creating a barrier effect (Strüver, 2002; van Houtum & van der Velde, 2003). When economic push and pull factors for cross-border commuting reach a certain amount of influence, this 'threshold of indifference' is surpassed, sparking commuting across the border (Bouwens, 2004).

Seeing this, there are multiple ways to encourage cross border movements for commuting and other reasons. One can create push-pull factors on either side of the border, and creating them in such extent that it will surpass the 'threshold of indifference'. Or, one can lower the 'threshold of indifference', narrowing the mental barrier for people to cross the border. But in both of these measures, it is of vital importance to realise what borders themselves mean to people. For people to cross borders, we will in the next chapter look at what borders and transitions in general mean, and translate them to borderscapes.

6. THE MENTAL BORDER: PASSING THROUGH DIMENSIONS



Figure 15: A still from the Disney movie 'Alice in Wonderland', during the scene where Alice falls down the rabbit hole.

A lot of people, including me remember that time that they were young and would go on holiday with their parents by car. During my youth, this was already after the borders were proclaimed 'open' by the EU. My father would always make sure to announce the moment when we would cross the border. We would drive past the sign that would name the country we would drive in, circled by the yellow stars of the EU. Past this sign, I would feel that our holiday had really started. We left our home, the familiar and were now driving into the unknown. I would look out the window to see what was different in this landscape, even though it was not much different than the landscape we drove through before we passed the sign.

6.1 INTO THE WORMHOLE

Van Kampen (2013b) says in her essay that borders often express themselves as wormholes. Not necessarily the wormholes we know in space nowadays, theoretical wormholes existed for much longer. The ancient Greeks imagined unknown, hidden passages that gave access to the underworld, the unknown. These were often caves, hidden in the wilderness shaped by ancient forces, far

away from the influence of man. The moment when a Greek hero would descend into the underworld through this passage, called 'katabasis', was a crucial part in Greek myths. Perhaps this can also be said about border regions: they are the peripheries, a land that is scarcely inhabited by man and has a certain mystery around it. The peace and quiet of the border regions contribute to that image. Border peripheries are from a mental image also far away from the center (in a center-periphery approach), creating a mental distance.

6.2 THE (BORDER)LAND OF OPPORTUNITY

Maybe that is why border regions can be popular among tourists, among which are the people from the busy cities trying to escape the daily rush of city life. Borders and border regions have a certain amount of escapism attributed to them, says de Vries (2013) in his essay. The same can be said about landscape and planning projects in border regions, trying to break the borders and escape the established reality (perhaps even some form of anarchy?) (de Vries, 2013). This can also be seen in the creation of the binational city of Eurode, where its mayor said: "It is an open secret that I would like

to create a kind of little Liechtenstein in the Land of Rode, a small autonomous region where people could fight their own battles, the creation of the first European municipality” (Wöltgens in Ehlers, 2004). This would also suggest that people see the border as a land of opportunity. A place where one could escape both the nation state the border divides. Perhaps that is why the borderscape can be seen as a physical limbo, a landscape not belonging to one imagined community from one country nor the other (van Kampen, 2013b). Instead, it becomes the landscape of ambiguity, a no-man’s land. Some may find themselves in a non-place, something that Marc Augé describes as a place of places of transit without a local history or identity (Augé, 1995). But these places are usually large shopping malls and airports, spaces that feel very impersonal. Border regions do have a local history though, but it can also be a place of detachment and alienation. The definition de Vries (2013) gives in his essay of the border as a no-man’s land may suit the borderscape better: as spaces of ‘unreality, where time came to a standstill or goes back to relive the past.’ Perhaps that is why utopian visionaries like the mayors of Eurode want to act here: they see the border as a new beginning,

looking back at a common history.

6.3 THE BORDER AS A LINE: WHY DOES THAT FASCINATE US?

Until now we already became much wiser about what the border means to us and how it shapes the landscape. It may be strange to realise that this all came to be by an established line in the landscape. A line that in the landscape can be noticed on a small scale by border posts. The posts standing on these lines are like the custom officers in the modern-day Europe. Turned to stone, immovable watchmen, always standing on the two-dimensional reason of their existence. They almost create a game of ‘connect the dots’, just like Ingold describes in his book ‘Lines, a brief history’ (2007). Ingold looks at the lines on a map like a starting point reaching, or trying to reach a destination in a process of map-making. The border is line that jumps from edge to place: the agricultural fields of two farmers, or the middle of a large, meandering river or following a small brook. Rivers and brooks are a line in motion, as water ‘creates space, and makes its way between space, takes shape and gives shape, falls and flows.’ (de Vries,

2013). Ingold sees in these water flows a trace of movement, but a line made on a topographical map as point-to-point connections. So, in the case a border follows a stream, a static, harsh and simple point to point connection starts to flow and to move.

To summarize, the border takes many forms in our mind, and also dimensions: they can be singular points, acting as doors. These doors form portals into other worlds, the unknown. Borders can also be areas, being a no-man’s land, a place of ambiguity and unreality, out of the bounds of space and time. Lastly the border is a line: but is this line always standing still or is it moving, like a river? Playing with these mental expressions of borders may be an inducement for a landscape design, incorporating the experience borders bring with them.

7. HOW TO APPROACH BORDERSCAPE DEVELOPMENT?



Figure 16: A construction worker removes the stone barrier that marked the border in the Nieuwstraat in Kerkrade

When making a design for a borderscape, it would be wise to seek out which approaches already exist for borderscape development to see if we can use one of these approaches. Eker & Van Houtum have made in their book some approaches on how to design and plan the borderscape. They propose several scenarios for border landscape to develop themselves: autonomous development, community and longing. Autonomous development, community and longing (Eker & van Houtum, 2013b).

Autonomous development basically means a 'laissez faire' approach, meaning the border landscape continues to develop like it already does. Here, a landscape of differences persists: a lack of communal and integral plans, but still some communal efforts for sectoral issues will take place. Thinking in terms of 'us' and 'them' keeps existing on a national scale.

The community scenario assumes that individual (urban) regions gain more importance. National borders will continue to exist, but national thinking will have less effect on border regions. The longing scenario is about strengthening the differences in the border regions. National governments

see border regions as optimal regions to strengthen their national identities (Eker & van Houtum, 2013b).

These general approaches all treat borders and the effects borders have in a different way. European, national or regional identities all come into play as the border changes its meaning and effect. However, the scenarios are all quite clear cut, meaning combinations are unlikely. In my opinion though, these combinations can make these borders interesting.

De Vries (2013) has a more general approach to borderscapes. He generalises current border regions projects as 'soft' projects, composed of for instance 'soft tourism' and 'soft infrastructure'. 'Soft' meaning in this tourism that practices with respect and utilises the natural landscape. 'Soft' infrastructure meaning mobility on a human scale: slow speeds and mobility modes like moving on foot or by bicycle. This goes hand in hand with the often periphery-like border regions, where things are slow and nature is still ever present. He however criticizes the way border regions are rarely thinking about poetic and symbolical meanings of the borders. The way borderscapes present themselves mentally and socially could be taken more into account.

8. THE PARKSTAD- AACHEN LANDSCAPE



Figure 17: View from the border at the Horbacher Strasse, Aachen

Before we make a landscape design for the Borderscape, it is necessary that we not only analyse the border landscape at Parkstad-Aachen, but to also get a feel for other aspects of the landscape. We want to use qualities and opportunities of the border landscape for our design, but it is essential that we place those into the context of the original landscape.

8.1 SOILS AND AGRICULTURAL LAND USE

The landscape of Parkstad-Aachen can be characterised as hilly, with steep gradients and varied land use. The hills are made out of what the Germans and Limburgians 'löss', a kind of silt blown land inwards by aeolian processes. It is high in calcium-content and partly because of that very suitable for agriculture. But the hills were not created by the wind blowing the loss onto the landscape, but by hydrological processes. On a large scale this was caused by the Meuse, which formed terraces throughout the South-Limburg area. The current Meuse has cut in the west side of South Limburg, meaning that the east side of South Limburg, Parkstad (and in Germany Aachen) are among the oldest and highest terraces. This makes Parkstad one of the highest areas in South-Limburg.

On a local scale, relief is formed by small streams ending in the Meuse. By fluvial erosion, these streams dug out stream valleys. These streams form a dendritic system into the landscape, and are the foremost reason for dividing the country in different units and uses. Kerkstra et al. (2007) define these four main units: plateaus, steep slopes, shallow slopes and streambed. Plateaus can be found on the highest soils, where the springs of the stream valley systems can be found, often with older, dry streambeds. These soils often consist of open, large scale agricultural use, as these plateaus are very well drained. On these plateaus, also villages can be found, often in the dry streambeds where water is a bit easier accessible, but the water table is still fairly low. Plateaus can be found a lot in Parkstad, because it is one of the highest areas of its surroundings. It can be very well seen by the dendritic structure in the map, as its 'branches' end towards Aachen. The plateau between Parkstad and Aachen marks the drainage divide between 3 different stream valley systems: the Geul system, the Geleenbeek system and the Worm system. Aachen is an example of village built on a plateau. Steep slopes are often used as forests or meadows, as steep slopes make it hard

to grow crops, partly because of erosion. Sometimes the valleys cut into the geological sediment below, exposing the limestone beneath. Steep slopes are often found along the main streams in the Parkstad Aachen area, though it does not expose any limestone walls. Shallow slopes are often used as agricultural and residential areas since old times, as water is available and the soils is still well-drained. Sometimes these areas also feature meadows. Sometimes these villages even reached to the streambeds, where the water from the brooks was easily accessible (Kerkstra et al., 2007). Shallow slopes formed the starting points for the villages from which the residential areas in Parkstad started.

8.2 DEMOGRAPHY AND URBANISATION: GROWTH AND SHRINKAGE

The good living conditions in the area are shown by the exposing of the older sediments by erosion, showing tools and remnants going back to the Stone Age, like hand axes. Heerlen (in Parkstad) and Aachen also show remnants of being occupied during Roman times, being part of the 'Via Belgica' a string of settlements along an important trade



Figure 18: Landscape unit map of the border landscape of Parkstad-Aachen

route and military transit line. A straight road going from the center from Heerlen to Aachen (Heerlerbaan) is a remnant of the old roman road connecting the cities almost 2000 years ago. During medieval times, the land was cultivated more intensively, creating linear settlements along the slopes of the river valleys and on the plateaus. Aachen gained major importance during this era, as it became the seat of Charlemagne, making the regions the center of his empire (Houwen et al., 2014). After his death, the region got separated into smaller duchies. In the 18th century the region experienced a boost in population growth, as new agriculture techniques boosted economic activity.



Figure 19: The Aachener Dom, showing the wealth of the region in the medieval era.

During the 19th and 20th century, the industrial revolution thrived in the region, supplying techniques for mineral extraction like coal. In the 20th century, the population grew intensively. Urbanification intensified and was almost running rampant. The Parkstad agglomeration grew rapidly. The former linear settlements and old villages, as well as the newly established mining shafts were used as starting points to expand its residential area. Multiple old villages, not even within a great distance from each other grew. Aachen was already quite a large town for the time by them, making it more obvious to use its old town center as a singular starting point for urban expansion. Aachen has been known since Roman times for its springs, causing it to establish itself as a spa town and a popular tourist destination in Europe, along with its treasures of cultural history. The city currently features a large university (RWTH Aachen) and one of the biggest research institutes in Europe (Coenen et al., 2015).

The population growth lasted in the Netherlands until 1965, when the mines were closed. In the 70's, the population started to grow again and the family size shrank, causing housing demand. In a

short time large and abrupt expansions were made, causing the residential districts to fuse together awkwardly. This resulted in a patchwork of built up areas. It can be noticed that the urban expansions steered clear of the stream valleys to maintain a certain amount of landscape quality. The same happened around the spoil tips and soil excavations that may be still happening (like sand excavations).

In the 90's, the population reached its maximum of 270.000 people living in the municipalities of Parkstad. Since then, it has shrank with 10%, and the prognosis is that it will shrink further in future decades (Coenen et al., 2015). With the shrinkage in the region also comes ageing of the population. There is currently a large amount of elderly in Parkstad, as young people move away to work and study elsewhere, even though there are educational institutes in the Parkstad (Coenen et al., 2015). In Aachen, the university causes the city to be inhabited by many students.

When we evaluate the urban regions without the border, we may see that Parkstad and Aachen form a single urban concentration on a large scale. Drawing this longitudinal line further

north, one may also include the Sittard-Geleen agglomeration. Uniquely, it is the only cross-border urban concentration from the Dutch viewpoint. Kerkrade, Heerlen, Kohlscheid, Würselen and Aachen stand out in their side, and their proximity to each other creates a chain of larger urban cores. On the north side the Parkstad, on the south side Aachen, connected by Würselen and Kohlscheid. It can be noticed that on the Parkstad side, the mononuclear city is way more dense, especially in its centre. However, it can be seen that it also features green 'wedges', sometimes isolating special natural features such as the Lousberg, a large hill overlooking the city. Parkstad, however, is polynuclear and instead of wedges, features green 'veins' throughout its urban regions. These 'veins' are the aforementioned stream valleys and spoil tips. The larger cross-border urban region

8.3 INFRASTRUCTURE AND ECONOMY: CAN ONE CROSS BORDERS?

The Parkstad and Aachen are connected through the E314 motorway, and by several larger roads connecting the urban cores, one going from Heerlen through Horbach (Horbacher Strasse) and one

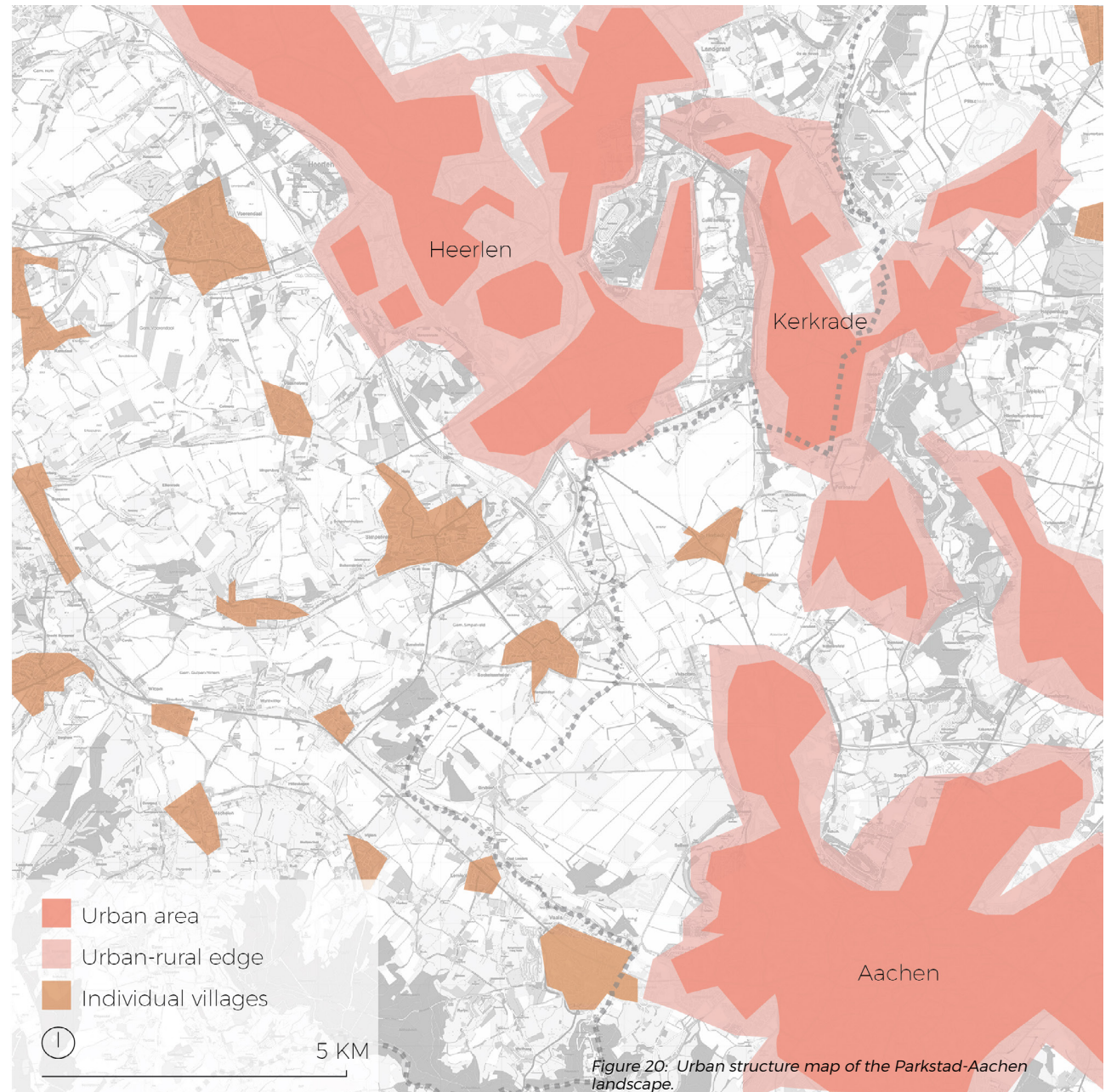


Figure 20: Urban structure map of the Parkstad-Aachen landscape.

going from Kerkrade through Köhlscheid. The cities are cross-border connected by public transport through a single regional train line, going from Aachen through Herzogenrath to Heerlen, as well as a cross-border bus connection through Horbach. The trainline is soon to be expanded towards a double track (Verlaan, 2016). A regional train line in the Parkstad connects the urban cores within Parkstad. There is also another train line in the Parkstad from the era of intensive mining in the region, but this line is only in use for museum purposes. For 'soft' or 'slow' mobility however, Aachen and Parkstad are not very well connected. For bicycles, the Parkstad and Aachen are mostly connected throughout bicycle networks that run through a chain of urban cores and along cluttered urban-rural edges. This does not make a pleasant bicycle route. Walking routes limit themselves to little walks around the green veins in the Parkstad and the green wedges and parks within the town of Aachen. A route for slow mobility along the countryside is lacking. And since a lot of places of cultural history (castles, water mills, medieval farms, old villages) are located in the countryside, the region misses an opportunity to connect these (Houwen et al., 2014). Right now, the only

options for slow mobility is to walk or cycle along regional motorways passing the urban centres or use bicycle paths along the smaller urban centres. Both are not very pleasant though. Bouchiba (2007) also shows that bicycle and foot mobility are way less preferred than mobility by car, both for recreational and commuting purposes. This may also be explained by the relief, since steep hills make cycling in the region not very pleasant. However, the plateau between Parkstad and Limburg has gentle slopes, creating an opportunity to increase cycling possibilities here.

Cross-border commuting is something that used to occur, especially during the mining era. Especially when the service sector thrived in Aachen, a lot of cross-border commuting happened, especially when during that time the industrial sector was the largest in the Parkstad because of the mines (Bouwens, 2004). Nowadays, the service sector is the largest in Parkstad, even though there is quite some unemployment (Coenen, 2015). People there commute the most within their own community, or nearby urban agglomerations in Zuid-Limburg such as Sittard-Geleen or Maastricht. People mostly don't cross the border because mental the mental distance and cultural

and lingual differences (Coenen et al., 2015). A survey for acceptable commuting distances to jobs within the Netherlands puts the Parkstad way on the bottom of the list of the Netherlands. Aachen has a lot of employment opportunities though. If we look at the same survey on a European level (without borders), the Parkstad is on the same level in acceptable commuting distances to jobs as the Randstad region, the powerhouse of the Dutch economy. 'Breaking' the

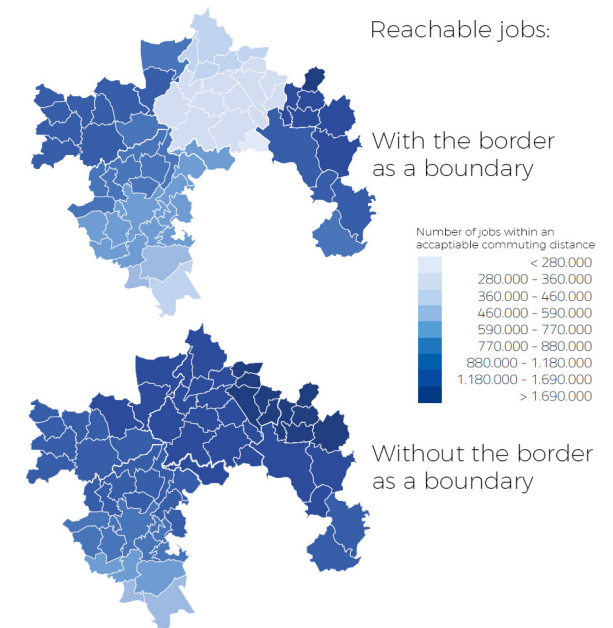


Figure 21: Reachable jobs with and without the border as a boundary. Notice the job opportunities without the border.

border supplies the region with a lot of employment opportunities. It must be noted though that this creates a bit of a distorted picture in contrast with reality. Jobs abroad are not available to anyone, since it requires a certain amount of linguistic skill and because of differences in net and gross salary, often together with differences in living costs. Both are negative for the Parkstad (Coenen et al., 2015). But it is also wrong to assume this is the only reason cross-border commuting does not happen. The border still plays an important factor here. Perhaps there are opportunities in the touristic sector for parkstad, since the region with its interesting relief and beautiful green areas attract a lot of visitors from elsewhere.

8.4 ECOLOGY AND NATURE; BY OR WITHOUT PEOPLE?

The good thing about steep slopes in the area is the large gradient not only in height, but also ecological potential. On a relatively short distance there are variations in groundwater tables, difference in parent material of soils and nutrient and acid concentrations, making this area have high ecological potential. This goes along with the

natural elements that are man made, or deliberately not man made. This is the case for elements which the farmers in the area had no use for. The steep soils were unsuitable for cultivation and therefore were left filled with trees. These forested hills consist of wood rush-beech forests or oak-hornbeam forest communities. These forests can also be found on the spoil tips. There is a large variation of these forests depending on the exposure of the limestone and the presence of gravel-like Meuse-depositions in the soil. On slopes where the limestone is often exposed, we can find calcareous grassland. Because of the chalky soil, there is a great diversity of grasses and flowers (like orchids). This tends to attract certain rare species of insects as well, making this a valuable ecosystem. Unfortunately, this type of grassland has been switched to more intensive form of agricultural use (Jongmans et al., 2012). In the stream valleys we can also find the streams themselves of course. Besides the picturesque image they have, they are also ecological treasures. A naturally flowing stream has soft gradients and provides the stream to overflow. A lot of streams in the Parkstad and in some places in Aachen have been canalised and/or moved, often limiting this natural dynamics, and thus,



Figure 23: The Crombach stream, one of the streams that has been adapted due to agricultural practices on either side.

its ecological potential. This has often been done to speed up the drainage capability of the stream. To increase the biodiversity in streams now, one must keep the water there for a longer time. This is not only beneficial for the local wildlife, but it gives a prettier and more natural image, as well as limiting flood risk further down. Limiting flood risk has been done at the Cranenweyer at parkstad, the only reservoir lake in the Netherlands. The reservoir lake it created is mainly purposed for recreational use. But man's influence on the place has not only been negative. Some relics of the habitation cultivation of the former wilderness still remain, and is of great

help to the regional flora and fauna. For instance, farmers used to cultivate the land on steeper slopes. But to prevent erosion of their lands, they created small terraces by lines of trees and shrubs parallel to the elevation lines, holding the soil back. These trees and shrubs form ecological connections on a small scale, providing shelter for small birds and small mammals. The same can be said about the linear planting of shrubs for the purpose of fencing in livestock. Even though barbed wire is way more efficient alternative, this hedge-landscape is preserved as cultural and ecological heritage. Other landscape heritage include 'hollow roads', which are roads running up a steep or shallow slope, and have been 'dug out' by erosion, causing the road to be sunken in contrast to the surrounding ground level. The trees and shrubs on either side of these roads do not only offer a picturesque feeling, but also provide a gradient in vegetation beneficial to biodiversity (Jongmans et al., 2012).

8.5 CULTURAL HISTORY AND TOURISM: AN ABUNDANCE OF ABUNDANCE HISTORY.

The middle ages are the period which

is most characteristic for the Parkstad-Aachen landscape. In the middle ages during the reign of Charlemagne, the region flourished greatly. Its wealth, prosperity and suitable living conditions for all classes caused the area to be built and cultivated with many farmsteads, castles, estates, churches and monasteries. Many of those still remain to this day, as does the catholic faith, influencing the lifestyle and culture in the region greatly. The region, or better said the people in the region, can still be characterised by being 'burgundian'. This means a lifestyle where people are aiming to enjoy life to the fullest, enjoying a fine drink a good food (Ehlers, 2001). The catholic lifestyle can very well be seen in the physical landscape, as the towers of (parish) churches and monasteries puncture the horizons and are visible beacons in the hilly landscape. On a smaller scale, roadsides and villages feature many small chapels and crucifixes. These are constant reminders to the history of the region as well, as many of these churches often still contain medieval structures, like limestone walls. The locations of these churches as village centres emphasize the catholic church as an authoritative institution of past times. The most majestic and largest churches, like the Aachener Dom, are a

popular tourist attraction. Old monastery complexes sometimes took a more touristic function as well, such as the Rolduc Abbey, which is now a hotel/inn and restaurant.

The fertile soils caused cultivation to happen quite early in the region, already starting in Roman times, reaching its peak in the middle ages. These remnants are still visible in the form of landscape heritage, like hollow roads, graften and the hedge landscape mentioned above. But old farmsteads can also be found throughout the area, built up from stone, brick and/or timber framing. A lot of times, these are 'carré-farms', basically a walled farm with a courtyard in the



Figure 24: Entrance of Unter Fronrath, one of the oldest remaining carré farms in the area.

middle, making them easy to defend in case of war. These farmsteads nowadays still sometimes retain their agricultural function, although quite some have touristic functions as well, like bed and breakfasts or restaurants, since the size and form of the building allows such uses. The farmsteads are often found on the flanks of the valleys. Other agricultural buildings that can be found in the region are windmills (on high plateaus) and watermills (alongside streams) The wealth of the region does not only becomes clear by the presence of these beautiful old farmsteads. A lot of castles and estates are present in the regions as well. These often have been rebuilt or



Figure 25: Haus Heyden near the Amstelbach, a castle containing the ruins of an older castle.

modified according to changing fashion and function, causing the castles and mansions vary greatly. The castles can often be found at the bottom of the stream valleys, as it was possible here to dig a moat around the castle, making them easier to defend. When beauty and garden-fashion gained importance, especially in the 18th and 19th century, these locations still were very useful, because in the stream valleys water bodies could be dug out, sometimes even in combination with fountains. Nowadays, a lot of these castles are open to the public, offering a peek into the life of lords and noblemen (Kerkstra et al., 2007).

Because of early land use, the stream valleys are filled with medieval cultural history. We may remember that the urban expansions of the Parkstad and Aachen sometimes as well steered clear of these stream valleys and remaining spoil tips, making these recreational and touristic and recreational hotspots. Because of this, touristic attractions are often linked to these landscape features, such as zoo and indoor ski-pistes. Besides alternating landscape types along touristic and recreational routes, people want to see the sights as well. This makes a well-placed route to connect these dots

essential, preferably connecting these historical relics, but also places of natural beauty (Provincie Limburg & Regio Parkstad Limburg, 2004) Unfortunately, one of the problems in the region right now, and perhaps also related to the borderscape, is that these routes are not very efficient in this use or sometimes even non-existent, making them hard to reach. What goes along side this is a recreational preference, to 'soft' or 'slow' mobility, which is also lacking in the region (Houwen et al., 2014).

The monks of the Rolduc Abbey started with the excavation of coal in the area, which in the years to come would be the region's main industry. In the Netherlands, where the mining industry was way more dense. This layer of history is still best seen in the urban area, because after the mines were closed in 1965, most structural elements were removed from the landscape. In some places a spoil tip remains, in other places they were removed or are still in the process of being removed. Some mineshaft buildings still remain as they are sometimes high in architectural value (Provincie Limburg & Regio Parkstad Limburg, 2004). This layer in history is not very popular with the local population, as the work in the mines was



Figure 26: One of the few remaining mineshaft buildings in Parkstad, the one of the Oranje-Naussau mine.

hard, unhealthy and a lot of times unfair, as workers would not be compensated enough. This makes the mining history a delicate subject to many (old) inhabitants. Another layer in history that is not very popular is the one on the German side, where remnants of a relatively recent military history are still quite visible. Along Aachen the Westwall ran, a part of

the Siegfriedline and one of Germany's main defences during both world wars. Among the agricultural fields on the plateau in between Parkstad and Aachen, anti-tank measures can still be seen in the form of concrete 'teeth'. This type of heritage is something that the Germans are not that proud of, although it is an attraction for niche tourism. Although it is technically speaking military history, it can also be called 'border heritage', since it was designed to secure the perimeter of Germany, a physical attribute of the border landscape which we did not discuss yet. Yet there are many more features to be found at the borderscape of Parkstad.

8.6 BORDERSCAPE PARKSTAD AACHEN.

In summary, the Parkstad-Aachen landscape is quite an exception to the general notions we made about borderscapes in chapter 3 and 4. Because of the history of the place as a thriving region, both in the middle ages as in the mining era, this is not the empty, quiet periphery the borderscape often is. Instead, one of the few cross-border urban agglomerations in Europe can be found here. However, it shows some 'symptoms' of the periphery in center-periphery

thinking on the Dutch side, looking at the demographic shrinkage. The loss of the area as a mining region was detrimental to the Dutch side. Meanwhile, Aachen is a thriving city and a large economic power in the Nordrhein-Westfalen bundesland, having always been an attractive city in multiple aspects, partly because it has always been a larger town in the entire region. Parkstad is an agglomeration of smaller towns, and although Heerlen can be appointed as its center, the result of the spatial planning practice at Parkstad is noticeably different than the result of the German practice at Aachen. In Parkstad, we can see a patchwork of different urban cores, while Aachen expanded in a much more organic way.

Although the cities are connected in multiple ways, they are mostly connected by infrastructure for fast movements, like highways and train connections. Infrastructural connections for slow or soft mobility are not very well represented in the region, although dirt paths on agricultural lands can be found on a small scale.

The cross-border urban agglomeration may impose the idea of a possible 'binational city' to establish itself for the whole region. Kerkrade and Herzogenrath

are already making their attempts, so it would be interesting to see what the possibilities are on a large scale. However, the large scale may make things more difficult. We could take Ehlers' criteria for a functional binational city and see how they will hold up. First of all, shared facilities lose part of their connecting effect on a large scale, because people will use the facility that takes the least amount of effort to reach. However, people also expect a certain quality for a specific service or facility, which can make them unique (Ehlers, 2001). Work or higher education can be such a facility. This can happen on a larger scale though, and can possibly benefit the residents on the Parkstad side, as we previously discussed the benefits of cross-border mobility. Social interaction also happens a lot less on a large scale. When the distances are greater and no directly neighbouring residential zones of places to meet, little social interaction takes place as people are more interested in their own social circle. What is also of importance, is that this social circle speaks the same language. This is a very limiting factor for social interaction, which means if it is desired, one should really focus on a facility that can be found on a very small scale and is very accessible.

Being identified, as talked about by Weichhart, is something that is not very apparent in the region right now due to national thinking. But it is something that has promise in the region, since the border in the region was established relatively late (in the 19th century), the region shares a lot of communal history. Especially the medieval history, the golden ages of the region, offers possibility to use for the benefit of establishing a communal identity. Working together on preserving this cultural history, in combination with the touristic exploitation of features from this era could help with that. Preserving cultural history could not only create an identity to outsiders, but also makes it possible for the people living and working in the region to be able to identify with the entire binational region, Ehlers' last criterium.

8.7 SUMMARY OF THE QUALITIES

Summarizing, the Parkstad-Aachen region may have its problems and ugly sides, but the region offers fantastic opportunities due to its qualities, which are sometimes hidden or forgotten. To summarize these qualities, I will use some of the core qualities set up by Houwen et al. (2014) and add my own qualities related to the

border.

One of the most prominent qualities is the different ranges in relief, causing beautiful and picturesque landscapes as we can have beautiful vistas from the plateaus to more enclosed areas in the valleys, where water features play an exciting role (Houwen et al., 2014).

The region has a very green character, as the relief and water features along with historical man-made adjustments create beautiful and valuable various biotopes. The region possesses a bountiful cultural history, which left its marks on the landscape in the form of medieval buildings, faith and lifestyle. This, along with the previous qualities, make the region attractive as a touristic destination (Houwen et al., 2014).

The culture of the region does not only limit itself to the bounds of the region, but is also shaped by the two nation states. The region becomes an area where the possibility opens up for cross-border social integration, a meeting opportunity for the cultures and people of the country.

9. SPATIAL CONCEPT



Figure 27: A carré-farm in Försterheide, near Aachen

To utilise the opportunity offered in the last core quality of the region, we are aiming to bridge the border, drawing the Dutch side and the German closer together in a conceptual sense. This simulates the community scenario approach to cross-border planning as set up by Eker & van Houtum (2013b), striving for a cross-border regional identity. This would mean making the border less of a barrier, primarily in a conceptual and mental sense. But also in a physical sense: space that invites social contact and a community feeling on a small, human scale would benefit the community and identity that we wish to establish in the cross-border region. In a spatial concept, we could view bridging the border in a metaphorical sense as having two pieces of cloth, separated from each other. By stitching the pieces together, a connection is made, bringing them closer. Although it would not be possible to make the physical distance of the Parkstad and Aachen shorter, we could try to make better connections in a 'soft' way, creating a feeling of connectedness on a human scale. We can try to achieve this through 'soft' infrastructure, as proposed by de Vries (2013) in chapter 7.

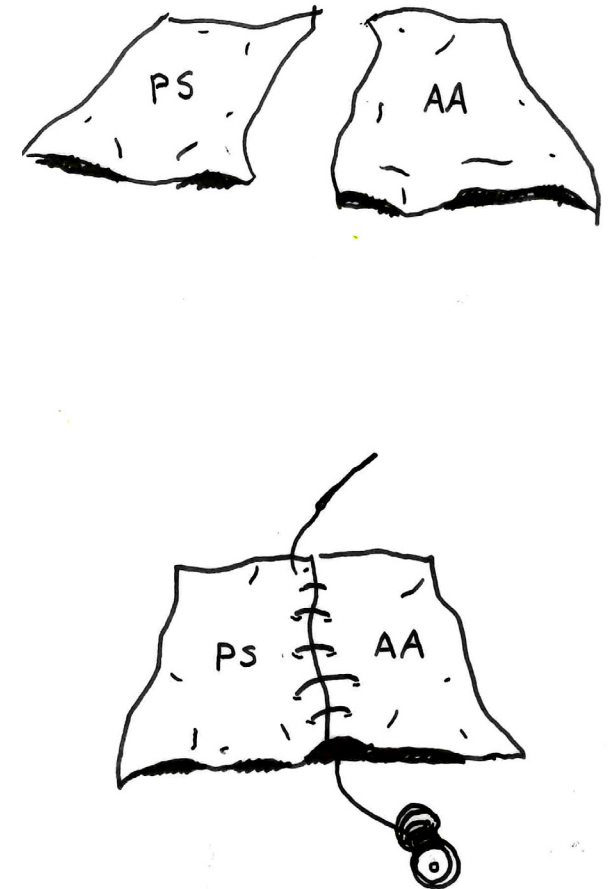


Figure 28: A metaphorical explanation of my concept: stitching two separated pieces together.

10. REGIONAL DESIGN



A bicycle route in this case would offer the opportunity to solve other problems that play in the region, such as the unattractive connections by bicycle and on foot along the ugly, cluttered urban-rural edges. This would mean that we need an attractive bicycle route, that connects well to the green character of the region and the abundant cultural history. This would not only create a pull factor for residents and tourists, but an easy and pleasant connection would also hold promise to lower the 'threshold of indifference' we talked about before. A bicycle connection could contribute to both encouraging and facilitating not cross-border commuting as well.

We now already made some assumptions for the users of our bicycle route, but it would be wise to make it clear who will be the user of our new cycling route. To create a cycling route that will be as effective as possible in reaching the aforementioned goals and effects, we need to take a look at the demography of the region to define who cycles the region. We already spoke about the touristic opportunities of the whole region, making tourists an important group. Tourists come to sight see and experience the landscape. Tourist want to enjoy

the landscape to the fullest, and they differ in the way and degree they want to do this: some want to go on vacation to take it easy, others want an active vacation. It is important has something to offer to both groups. The other group of recreational cyclists are the pensioners living in Parkstad. They mostly want to take it easy since they have the time to do so, meaning that the route should not necessarily be direct. The cross-border commuting we want to encourage with the bicycle means that the route should be direct however, as commuters wish to get to their destination fast. At the same time, they wish a pleasant route, preferably one that does not pass or cross busy roads. Lastly, both Parkstad and Aachen, and even the village of Horbach in between, feature facilities for higher education, such as the RWTH Aachen, Zuyd Hogeschool and the Akademie für Handwerksdesign. This makes the students of those facilities an important group, also since they rely on the bicycle as their primary means of transportation anyways. Their wishes are the same as the commuters.

To create a pleasant bicycle route, we should of course take the landscape into account and utilise the opportunities

Figure 29: A characterisation of the cyclists in the area: the pensioner, the commuter, the tourist and the student.

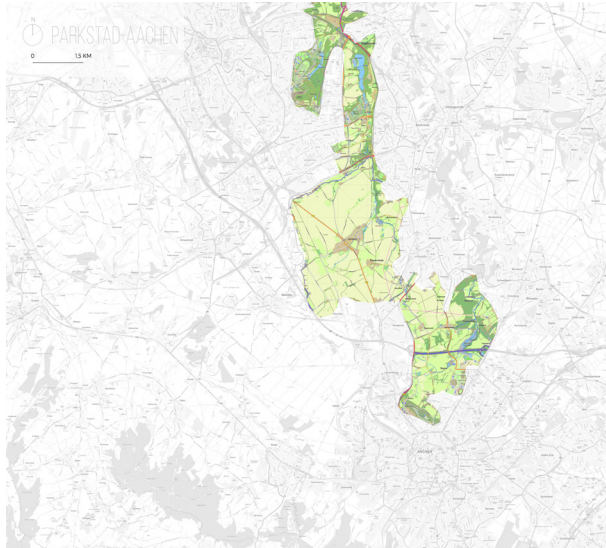


Figure 30: The border region Parkstad-Aachen with its 'green heart' and connecting 'veins' and 'wedges' highlighted.

the Parkstad-Aachen landscape brings us. The polycentric cross-border urban agglomeration has a mirrored 'c' shape, enclosing a rural and green 'heart', similar to the Randstad. This green heart lies on a plateau where the sources of the stream valleys lie. These streams start here and in Aachen and move northwards into the Parkstad. Here, the streams form the green 'veins' amidst the built up areas. On the south side, in Aachen, green 'wedges' puncture the perimeter of the city, consisting of interesting elements such as the Lousberg. We can use all these 'green' elements in the urban agglomeration as

the basic foundation of our bicycle route. To shape the final route, the following elements are taken into account: Moving through green, connectedness to the urban centres and directness. This creates the route as shown below.

The route transfers the plateau, where it crosses several source valleys of the brooks. The route enters the Parkstad through the flank of the stream valley of

the Amstelbach, where it passes castles, monasteries, and the Cranenweyer, a reservoir lake. This valley lies among the main residential cores of primarily Heerlen and Kerkrade, making access from all sides of the valley available. The route enters Aachen through the green 'wedge' of the Lousberg. Passing the Lousberg, one is only 5 minute bicycle ride away from the Aachener dom, the center of the city.

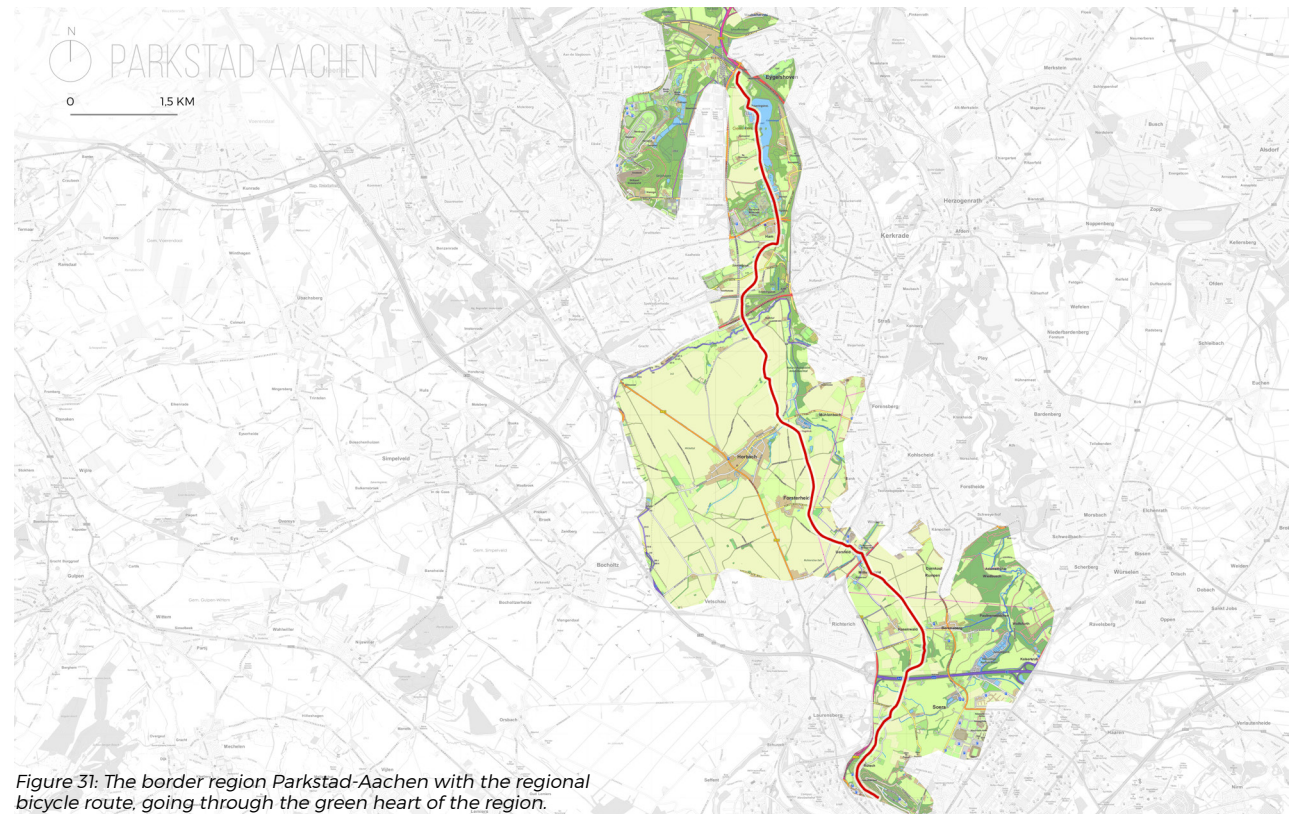


Figure 31: The border region Parkstad-Aachen with the regional bicycle route, going through the green heart of the region.

11. LOCAL DESIGN



Figure 32: The Crombach valley at the Dutch-German border.

11.1 LOCATION

There is a crucial part along this route which poses some problems, but also opportunities. This part is the border, the area which is on both sides the end of the plan. The consequences this has is that there are no routes in the vicinity that run perpendicular across the border, only parallel. This is mostly attributed to the border, but also to the elevation of the landscape: the border follows a stream here, the Crombach. This means that it is also located in a valley, with a height difference of around 20 meters on its lowest point in relation to its direct surroundings. The valley is mostly used by horse farms and riding schools, with inaccessible meadows along the slopes of the valley and farms at the edge of the topside of the valley. Some of these farms are the square carré farms I mentioned in the analysis of cultural history. These farms, the relief, the horse meadows and tree groups together becomes a showcase of the surrounding landscape. Its arcadian and picturesque qualities would be great to use for a design on a medium scale.

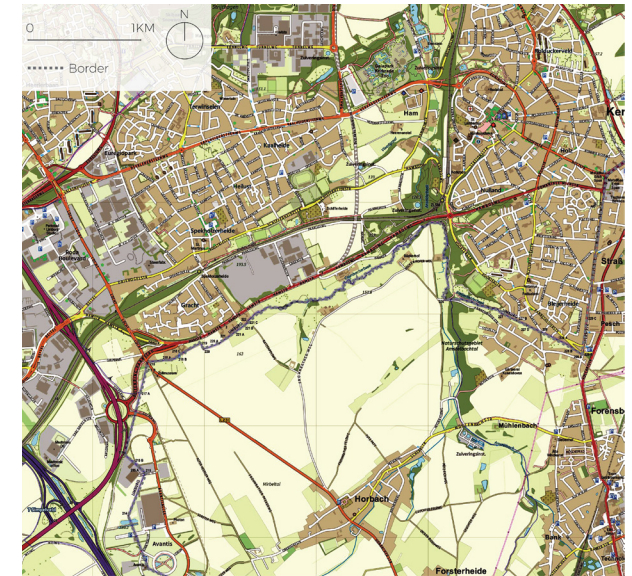


Figure 33 & 34: Above, the Crombach valley where the border follows the stream. Below, the barriers and passages of that area.

11.2 DESIGN

That is why I am using the Crombach valley as an area to create a border 'park'; a place where the border becomes the centrepiece of the design, instead of the edge. The central theme of the border invites me to play with border concepts and what borders mean to us as talked about before in chapter , the border as a mindscape. But most importantly, my design has to help to answer the research question if we can transform this landscape into a place of meeting. As of right now it is a space of separating, both mentally and physically, as the border provides a barrier, the elevation, stream valley, stream, privately owned land, lack of crossing routes and a large motorway on the dutch side limit the accessibility of not only the area, but also of the urban regions, countries and their people. A landscape design right on the border should help to create a space amidst the edge of spaces.

To create a space of meeting it is also important that it attracts visitors from around with a space that people on both sides of the border can identify with. Here I try to strive for a communal identity. To shape and ascribe meaning to this

identity, I will take the cultural history of the medieval era, something that characterises the region and the lifestyle of its people. I can use the spatial features of this history we have seen in the analysis, consisting of the churches, monasteries, castles, estates and mines. Old churches have another benefit: they mark the old town centers. The Aachener Dom is an obvious landmark that is the centrepiece of Aachen. In Parkstad, smaller churches are scattered across the agglomeration, marking old village centres. On a smaller scale in the Crombach valley, I use the lines that connect the historical landmarks as the crow flies. I pinpointed the landmarks in the region and connected them by thread, creating a play of lines in the region and in the valley. These lines and the landmarks can also be viewed as the conceptual stitches, pulling the Parkstad and Aachen together by the means of a communal cultural identity. This play of lines will be the framework of my design. The most important one will become the trace of the regional bicycle route in the valley, as it connects the topographical centres of both the urban regions: Castle Strijthagen on the Parkstad side, and the Aachener Dom on the Aachen side.

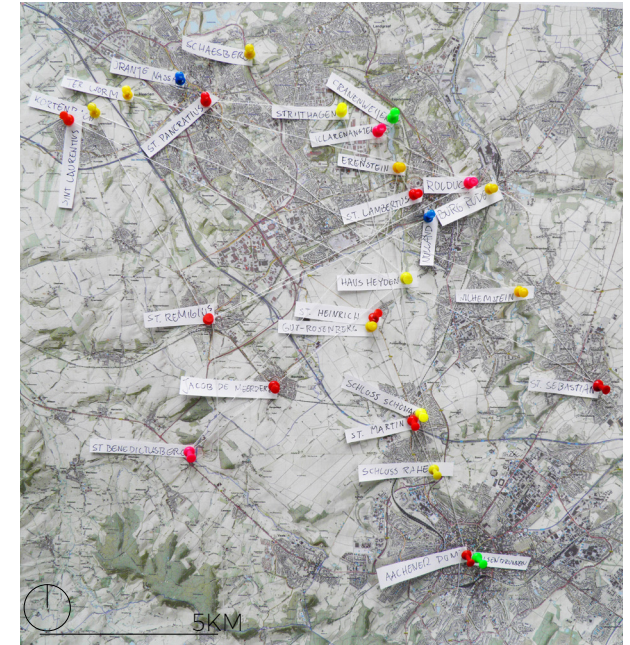


Figure 35 & 36; Above, a map with all old churches (red), castles and estates (yellow), monasteries (pink), mines (blue) and other interesting places (green) pinpointed on the map and connected. Below, several of these connections pass through the Crombach valley, creating a play of lines.



To ascribe meaning and the spatial representation and experience in the landscape of the lines, I take the meaning of the borders into account. I used the effects borders have on us and the way borders changed over time to set up some core concepts which can be translated into the landscape. I set up every concept as antonyms, which also match the concept of a border as a fault line of differences.

My core concepts are: **moving and staying, exposure and enclosure, meeting and separating.**

Moving means the courage to cross borders and to overcome distance. But it does not limit itself to the movement of people. It can also mean the movements of natural processes across or along the border, such as water.

Staying means staying at one's own side and views. Someone can stay in their own area, but one can also choose to stay at the intersection, the edge of two areas. This can be the border in our case.

Exposure means the wide openness in a landscape, to see and be seen. In the sense of borders, this means watching

the border and observing the 'other side', almost like a customs officer guarding the frontier.

Enclosure means being hidden or not seen. In the sense of borders, this means the border as wormhole, the rabbit hole or the hidden passages to the underworld in the dense wilderness. Like a smuggler one tries to find the backdoor of the landscape.

Meeting, perhaps the most important concept, especially in relation with the research question means interaction between elements, either social interaction between people as well as spatial interaction of physical features.

Passing, its antonym in this case, will mean passing by the opportunity for elements to meet one another, but also passing the edge, the border.

Using these concepts and the lines I came to a landscape design for the Crombach valley, as can be seen on the next page. By explaining the features of my design, the core concepts and their spatial representation will become clearer.

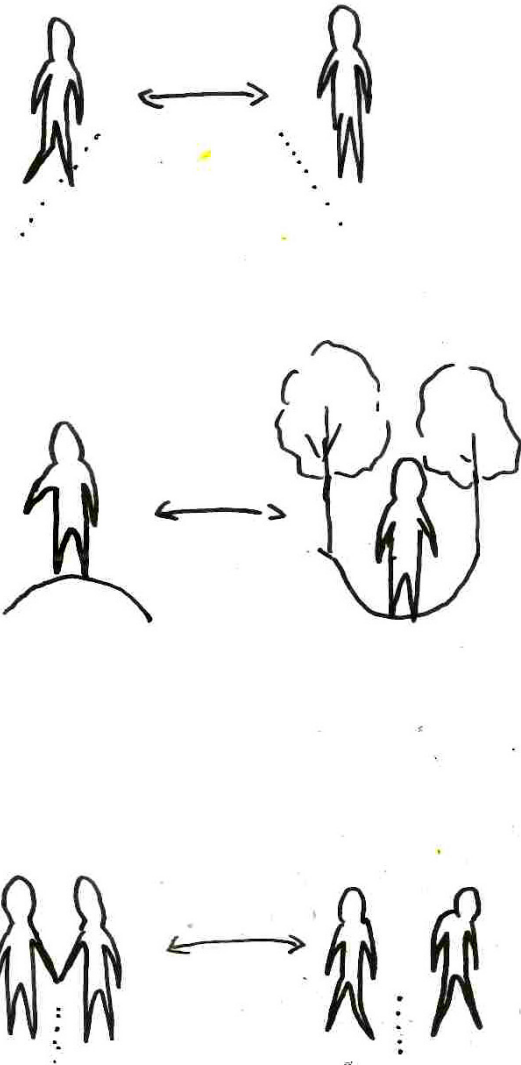


Figure 37: An abstract visualisation of the opposing concepts for my design: Moving and staying, exposure and enclosure, meeting and passing.

PLAN MAP



Figure 39: The plan map of my design for the Crombacherbeek

The straight line across the valley which forms the bicycle route also means a chance to overcome the barriers of and alongside the valley in the form of a bridge. This bridge is one of the centrepieces of my design, as it crosses all the barriers, and its height, especially in relation to the lowest point of the valley, causes a dramatic sight from both the valley and the bridge. The bridge in this sense will be an element of passing and moving, creating a seamless connection between the two regions, as it also means exposure, as one almost 'flies' across the valley. The bridge also features a walking deck which is accessible by two diagonal slopes from the park. This walking deck becomes an element that is the opposite of the cycling bridge, meaning meeting and staying. Here, the bridge also gains the function of a watchtower, as one has a beautiful view across the valley. Part of the construction is supported by wooden beams extending the bottom and top of the bridge, which run in a diagonal criss-cross pattern along the sides of the bridge. This pattern is the play of lines of the brook valley as seen from above.

Figure 40: Isometric view of the two layers of the bridge: one for moving, one for staying.

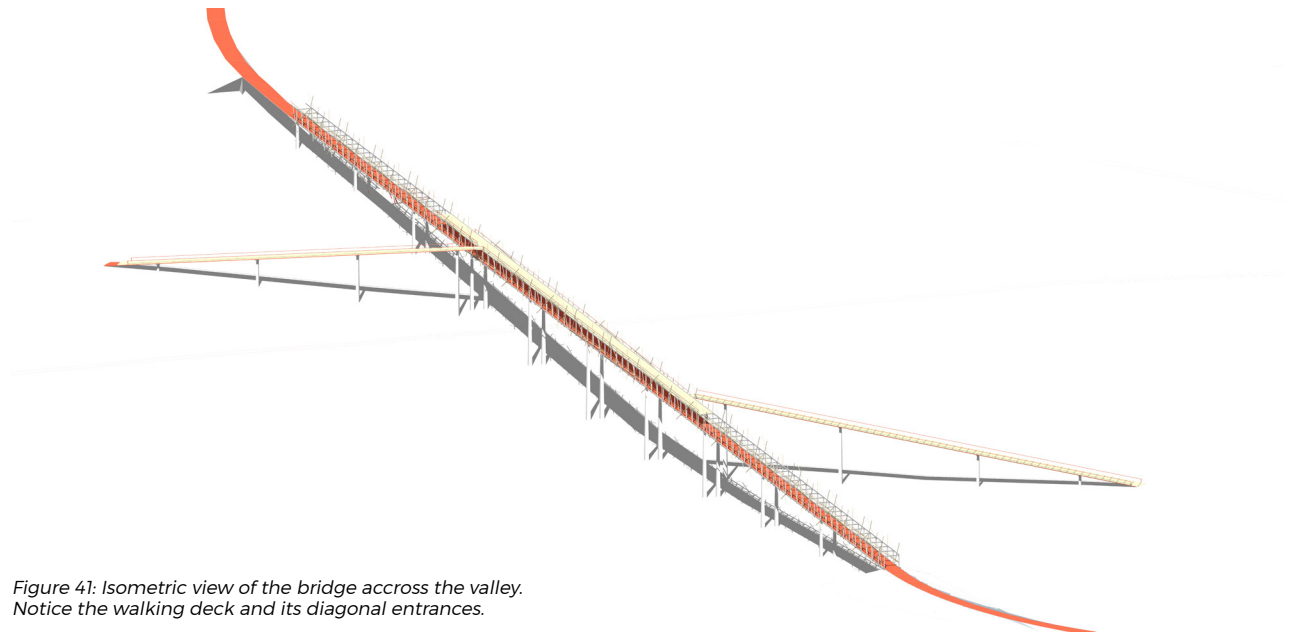
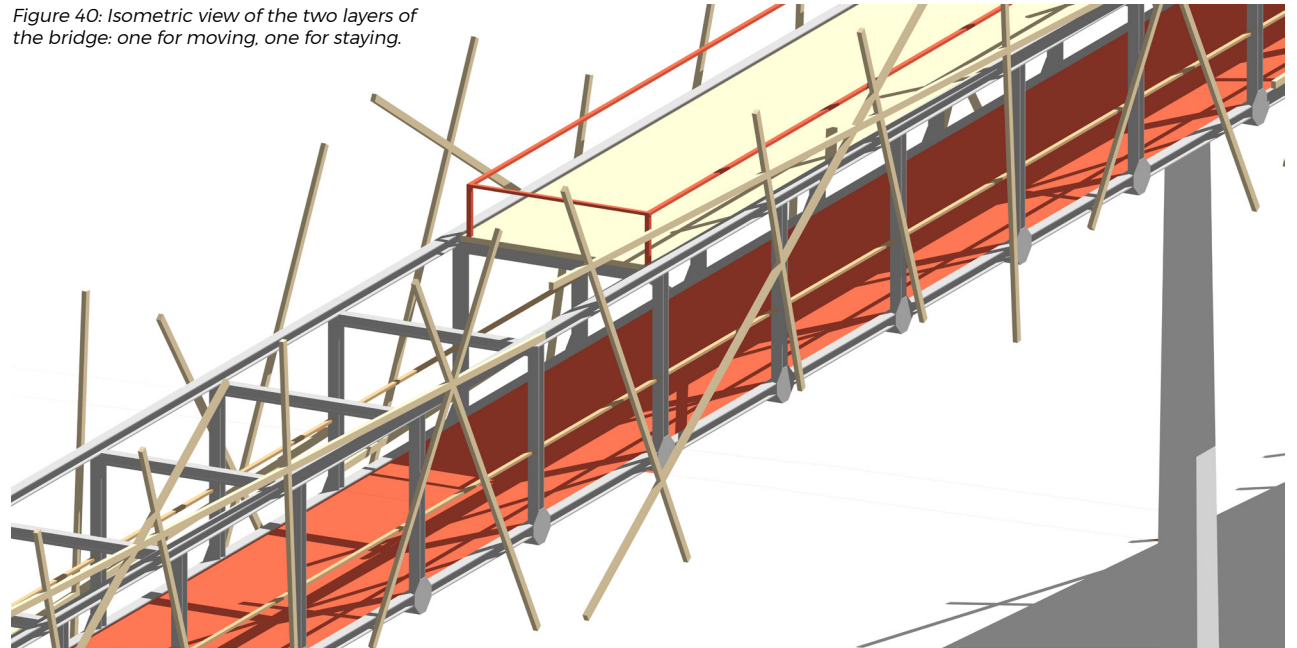


Figure 41: Isometric view of the bridge across the valley. Notice the walking deck and its diagonal entrances.



Figure 42 & 43: Visualisation of the two layers of the bridge. Above, the walking deck, below, the cycling bridge.

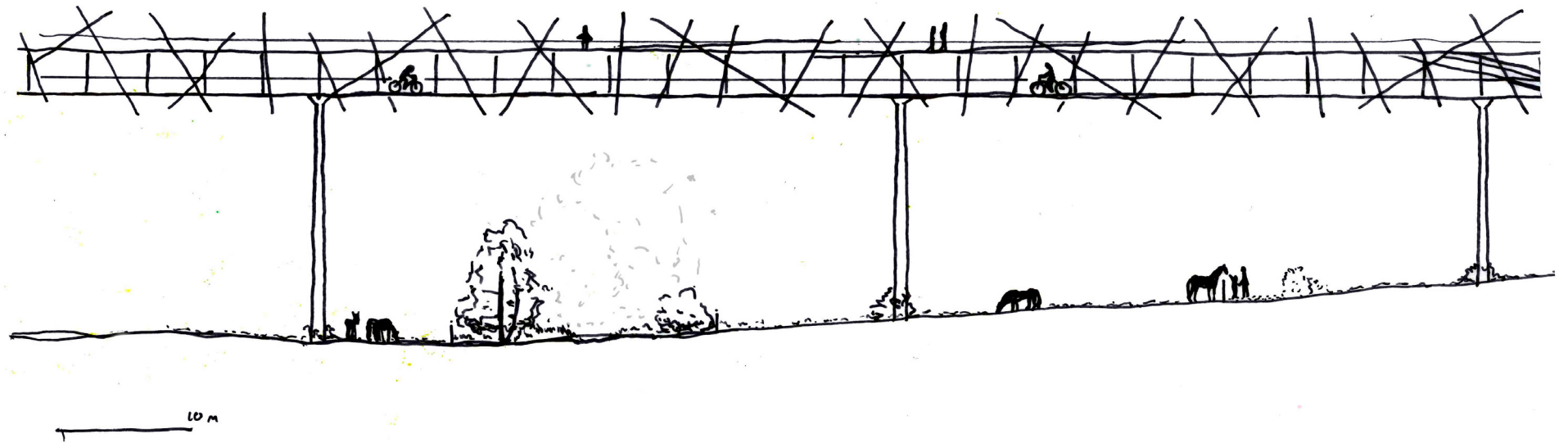
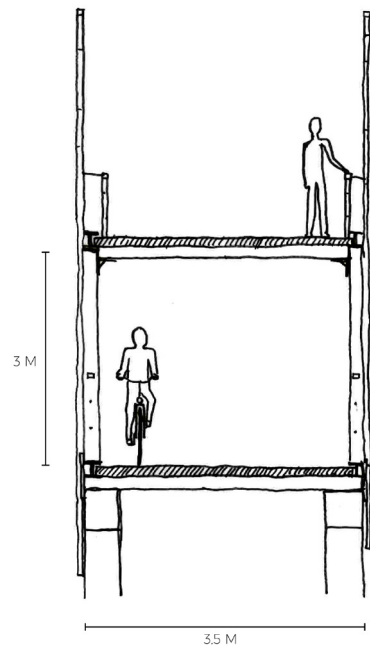


Figure 44, 45 & 46: Above, a section of a part of the valley, with the bridge and the valley below.

To the right, A section of the two levels of the bridge.

Utmost right: A visualisation of the location of the bridge in the valley.

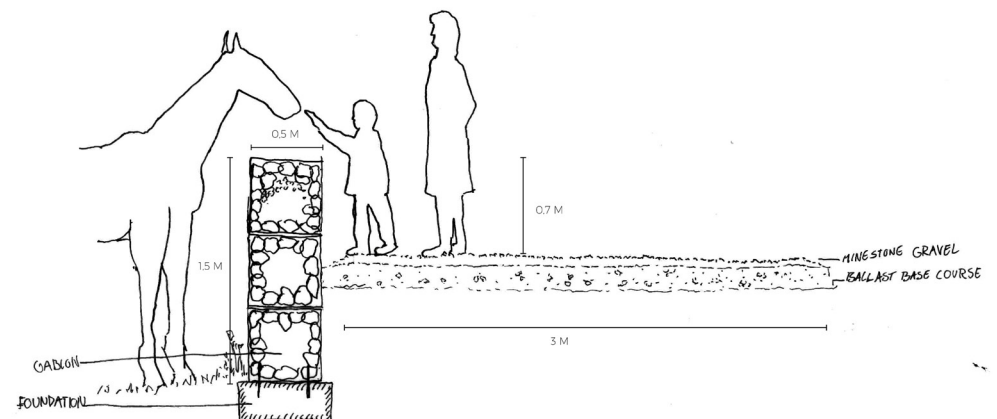


The other lines that connect cultural landmarks will be footpaths, making it possible to 'walk the line' of history and cross the stream and the border. The footpaths are made out of red gravel, which makes the lines stand out. This gravel comes from 100 meters down the road of the valley, where the spoil tip of the Willem-Sofia mine is being excavated. By a natural burning process the black gravel gets a red colour. Because the paths are drawn as straight lines from a top down view, it ignores the landscape qualities and therefore presents itself as a path that is not very logical, making the visitor wonder why it is there and how it came to be. The path exaggerates this illogical form by lifting itself up a little from the natural gradient of the terrain, partially ignoring the height difference. It also ignores the allotment of the horse meadows as it passes straight through the grounds. To fence the paths off from the horse meadows, gabions are placed along the path instead of regular fence. The height difference of the path in combination with the gabions creates the opportunity for a partial ha-ha, a landscape feature that fences off animals by a height difference as a vertical barrier.



Figure 47 & 48: Above, a visualisation of the paths as lines. Notice the transition into the darker tree groups.

Below, a technical section of the path. The gabions create a partition between the path and meadows, also featuring a partial ha-ha.



The line element in the form of footpaths means moving, as one uses this direct walkway to cross the border. But one also moves from the the exposure of the meadows at the flanks of the valley to

the enclosure forested stream on the lowest point of the valley. Tension builds as one moves downward into the darker and mysterious wilderness. The tree groups become wormholes, the hidden

passages to the underworld the ancient Greeks thought of, making the moment of passing through them a 'katabasis' as described in chapter 6. When one has moved through the darkness, one finds himself on the 'other side', where he will move upwards.



Figure 49 & 50. Above, a section of the valley. Below, a visualisation of the inundation fields in front of the weir.

In the 'wilderness' of the tree groups, one also crosses the stream. The stream shapes the border as its physical representative in the landscape. This makes this landscape feature a crucial point in my design. One crosses an obstacle that separates one side from the other, similar to the river Styx the ancient Greeks imagined. The use of a stream in the border landscape reminds us of the dynamics of water features talked about by de Vries (2013). He also describes the stream as an element of moving and staying, of exposure and enclosure and of meeting and passing. This versatility of water is utilised in my design by placing weirs on the places where the lines cross the streams letting the water through by a heightened tube underneath the path, and reshape the edges of the stream with a shallow gradient. The stream widens and fans out before the weir, creating an inundation field on the shallow gradient surrounding the weir. This has both

a symbolical purpose and a practical purpose. The Crombach can be seen as a line on the map, which is simultaneously the border. This line is in motion, like Ingold (2007) describes in chapter 6 as a line drawn on a map, but the water of the stream is also in movement. Letting the water 'stay' in some places, the stream expands, widening its streambed and simultaneously, the border. The weir placed perpendicular on the border, is the border the water has to overcome is the weir.

The placing of the weir also has other effects on the landscape: letting the water gradually change levels and letting the water flow out over a larger area with a gradient, creates a vast diversity in valuable species of vegetation, and therefore fauna. Furthermore, weirs have a regulating effect on the drainage flow of the stream, making it more constant. This can help to prevent flooding further downward in the stream system.

Entrances on the north side is hard to reach since it is bounded off by the Hamweg, a fairly large motorway. The nuisance of the noise of the busy road is blocked off by a gabion wall, running along the edge of the valley along the

road. This creates a mystery to the driver who passes by, wondering what is beyond this border of a wall. He gets little peeks into the valley through the moments where the red footpaths, the lines, 'break' through the wall. These points also mark the entrances from this side. To exaggerate the presence of the entrances even further, the red footpaths, the lines

are extended to surpass the edges of the road and the footpaths along the road. This does not only connect them, but also surpass them to again mark themselves as not just being a regular path, but also a line that connects on a larger scale by stopping abruptly in the field besides the road, reassuring its illogicality to the local landscape features. This happens on

Figure 51: A visualisation of the end of the line, at the plateau on the south side.



the south side of the plan area as well, by stopping abruptly in the middle of an agricultural field, with a gabion at the end explaining the meaning of the line. The lines cross several features of the stream valley by chance. Apart from the stream and the meadows, they also cross the (carré) farms sometimes. This opens up the chance to use these farms in my

plan. Nowadays, farmers are often seeking ways to incorporate other functions into their business, like campings, restaurants, bed and breakfasts or shops. My design offers the chance to let their farms utilise this concept. Some buildings already have integrated functions or a more open and character, like the riding school on the north side. Other buildings, the carré

farms, can use the historical character and the feature of their inner square to link more uses to their farm. In my plan, I envision this as the inner courtyard of the farm having a public character, making it an enclosed space purposed for staying and meeting. It can contain a (pop-up) restaurant, with the courtyard as its terrace. The old barns of the farm can be transformed into workshops, offering workspace to local craftsmen and women. These can be the students from the Akademie für Handwerksdesign, the academy for craftsmanship and design in Horbach nearby, or students from the technical studies of the Aachen University or Zuyd Hogeschool, which can also attract students from the MAFAD (Maastricht Academy of Fine Arts & Design). This makes the carré farms that lose a large part of their function due to modernisation in agriculture into buzzing cultural hubs, and a place in my design to stop for a drink, a good night's sleep, or to buy a locally made artisan product. Both residents, tourists, and students can use this space. Crossed by the lines that shape my design, the footpaths steer the visitor to these farms automatically.

There are also places where the lines cross each other, and sometimes cross each



Figure 52: A visualisation of the inner courtyard of a carré farm, providing integrated functions.

other multiple times on a small scale, as happens on the east side of my design. The three junctions enclose a triangular space, which automatically, being connected by multiple paths, becomes a square, a meeting point. This triangular space can be found on the lowest part of the valley, meaning it is subject to high water tables, even though the stream runs around this space. My design for the space is a triangular deck, where people could sit, lay, or play around on. The middle of the deck is open, creating an opening for the wet soils and for its vegetation to 'break through' the deck.

In summary, my design plays with the spatial, small and human scale with the concept of the border. These concepts can be the borders in our minds, reflecting on what national identities mean to us and how small borders and barriers present themselves in the landscape and how to cross them. Meanwhile, it incorporates ideas and strategies to draw the Parkstad region and the Aachen region closer together by a feeling of small-scale community and a cross-border regional identity.

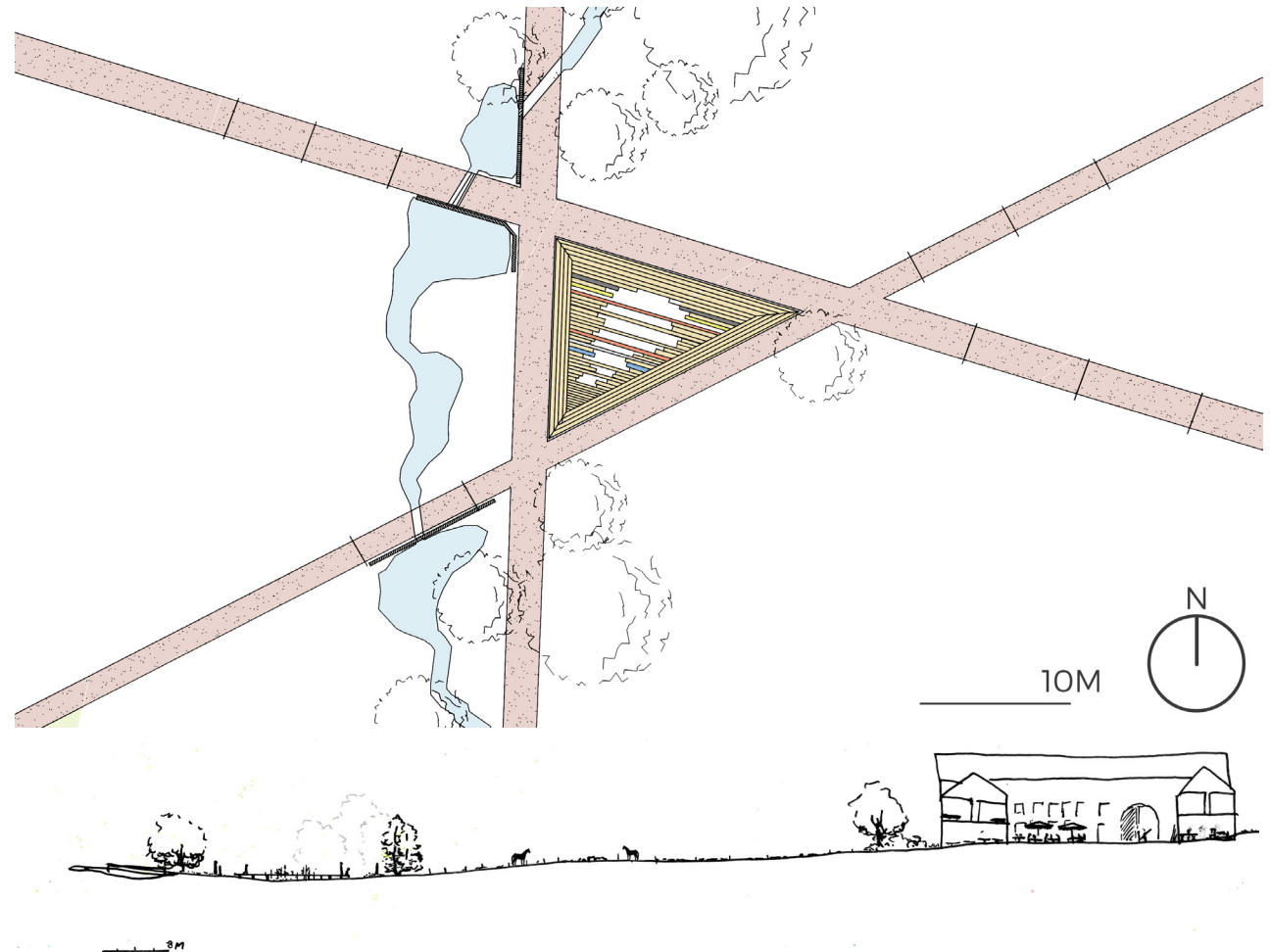


Figure 53, 54 & 55: Top, a detailed top-view of the deck at the intersection of path on the east side.

Middle: large scale section of this part of the valley, including the deck and a carré farm.

Bottom: A detailed technical section of the deck.

12. EVALUATION



Figure 56. The Crambach valley

In this chapter I will evaluate my design to answer my general research question: How can a landscape design contribute to reinterpreting the borderscape of Parkstad-Aachen as a landscape of meeting instead of separating? I answered my knowledge question consisting of what borders and borderscape mean in all aspects of landscape, and we analysed the borderscape of Parkstad Aachen itself. I used the answers from the questions and tried to find the intersection of these answers into the landscape by design, seeing if we could strive toward a landscape of meeting instead of separating. By answering my knowledge questions, it became apparent that the border is more complex than a line that only separates. This also means that designing a landscape of meeting in a border region becomes more complex, where the question what borders are mean to us is constant. It is however true that a lot of problems related to border regions and Parkstad in particular, can be attributed to a significant lack of 'meeting' the neighbouring nation state.

Striving towards a communal identity and letting the people of the Parkstad-Aachen region think about the meaning

of borders is a solution posed in my design. Thinking about cross-border identities and the concepts of borders can be cause for reinterpretation of borders in my opinion. If that reinterpretation leads to a landscape of meeting, is however another question. Meeting is in my case defined as an act of coming together, meaning interaction not only between people, but also concepts and landscapes. The 'stitching' of two regions is an attempt to do so, but just like the two pieces of cloth the two regions will be connected, but will not be immediately a whole. Perhaps the stitch is something that by connecting two pieces, puts emphasis on the connection of two different pieces. In our case, the difference in nation, cities, cultures and people. But meeting in my case never meant presenting the region as a whole. It is also starting a conservation between two sides where similarities and differences are celebrated.

It also remains the question what my single landscape design with its scale and its features would mean in the process of reinterpretation. Because of its locality the design may be seen as just a drop in the ocean, by only taking a small piece of the complexity of border landscapes. In this sense, one may advocate large

scale regional plans, consisting of zoning plans and ambiguous planning methods. There is definitely something to say for this view, and I agree that just my design does not directly solve all the border-related problems in the region. However, local interventions on a human scale can be a crucial part in solving these problems. This is what Jaime Lerner calls 'Urban Acupuncture': tiny pinpricks of interventions de-stress the whole of its problems (Lerner, 2014).

13. CONCLUSION

So to answer our final question: How can a landscape design contribute to reinterpreting the borderscape of Parkstad-Aachen as a landscape of meeting instead of separating? The answer is by using a local intervention centred around the border which works as a showcase of border concepts and experiences. By also using a communal identity and space for meeting, people can identify themselves, causing them to open up and meet one another.



Figure 57: The Crombach valley

14. DISCUSSION

Similar to all designs, a single design means a single viewpoint on a solution to problems, made by a single person. This means that this is by far not the ideal or only solution for a reinterpretation of the border. I researched the border and implemented my view on it in the design. I am however not an expert on border related studies, neither am I an experienced professional landscape architect. This may affect the detailed elaboration of my design and question its validity. The practicality of my design can be questioned. For example, paying for the implementation of this design and the willpower for local governments to implement it, are things that are unclear. I have also talked about the institutional differences between countries that make cross-border projects difficult. Apart from practical aspect of the design, the contents can also be discussed. The features of the design that play with the concept of the border will be something that not everyone will be able to relate with. The same goes for the play of lines, as their meaning is hard to discover. However, even without relating to the themes of identities and borders one can still enjoy the park for its picturesque values.

Figure 58: The Amstelbach near Haus Heyden

15. REFLECTION



This design and report was made within eight weeks as my BSc thesis. This relatively short time in my eyes came to me as a challenge, but I appreciate the way the short time forced me to make quick and decisive choices for my design and kept me close to the core theme in the writing process. A short period of time does however require good planning. I have to admit that this could have been done better, as my working process was quite relaxed in the first couple of weeks and intensified reaching its peak in the last week. Nonetheless, a thesis means hard work anyways, so this did not come to me as a surprise. I could have spread the workload more evenly thought by making larger steps in the design and writing process earlier. This way, I could have stayed more true to my planning schedule I set up in my proposal.

I found the approach for this thesis interesting and I am deeply interested and motivated in the theme of 'research by design', but at the same time design by research where I focused on in my report. Starting with a research where you really dive into a single subject before starting to design has great value to me, and in my own view I have succeeded quite well in this approach. This is why I will use it more

often in future design studies. In this thesis however, it was still a bit of a try-out. This is why I also made flaws in my approach, in the way that I spent a too much time and effort on the research. This may cause the thesis report to be a bit unbalanced, focussing more on the theme than the actual design. I have to say however that everything I read helped shaped the design of this thesis. I find literature study very interesting, but can lose myself into certain topics, especially in this thesis chapter 6, the chapter on the mindscape of borders, where the reader may get a bit lost in my thoughts. I also find it hard to write in a clear and structured manner. Instead, I write while I am at the same time wandering through my thoughts. Although this may be helpful when writing a novel, it is not very helpful in structured academic writing. I hope to improve this skill over the years.

In my opinion I showed my design skills quite well by this thesis. I think it also gained more validity by using the theoretical framework for my design. I may in my design have lost myself a bit in the poetic and philosophical aspects, but this does not necessarily mean that technical aspects and experience have not been addressed. In my proposal I said I wanted to learn more about human

scaled design and to really dive into the (technical) details. Although I could have worked it out more, I think this attempt has been quite successful. What I learned very unexpectedly is the basics about construction and bridges by designing the cycling bridge. I wanted this bridge to really be in sync with the landscape, which worked out quite well in my opinion. I would find it interesting to learn and work more with construction in my designs.

Overall, I find it interesting to set up design as an academic research and is definitely something I want to become better at in the future. I am, however, quite proud on the result of this concept in my thesis. There are things I will constantly have to work on, such as my scheduling skills, writing in a structured, academic way and balancing theory and design.

16. REFERENCES

- dell'Agnese, E & Amilhat Szary, A (2015) Borderscapes: From Border Landscapes to Border Aesthetics, *Geopolitics*, 20:1, 4-13, DOI: 10.1080/14650045.2015.1014284
- Augé, M. (1995) *Non Places: Introduction to an Anthropology of Supermodernity* translated by John Howe, Verso, London.
- Bouchiba, N. (2007) *Regionaal verkeers-en vervoersplan Parkstad - Eindrapport; Parkstad Limburg*
- Bouwens, S. (2004). The dynamics of cross-border labor: Commuting from the Dutch to the German part of the Euregio Meuse-Rhine, 1960-2000. *Journal of Borderlands Studies*, 19(2), 135-153.
- Buursink, J. (2001). The binational reality of border-crossing cities. *GeoJournal*, 54(1), 7-19.
- Coenen, J.; Berlingieri, F.; Bergstra, T.; Buteijn, Y.; König, I.; Lahaye, P (2015) *Handboek IBA, Parkstad Limburg Zomer 2015; IBA Parkstad en auteurs, own publication.*
- Ehlers, N. (2001). The utopia of the binational city. *GeoJournal*, 54(1), 21-32. ISO 690
- Eker, M., van Houtum, H (2013a) Atlas of the border landscape: form and diversity in. Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap = Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.
- Eker, M., van Houtum, H (2013b) Scenario's in. Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap = Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.
- Harbers, A. (2003). Borderscapes, The influence of national borders on European spatial planning. in *Euroscapes, Must Publishers/Architectura et Amicitia*, 143-166.
- Hardi, T. (2012). Cities, regions and transborder mobility along and across the border. *Discussion Papers*, (82), 5-27.
- Hevner, A. R. (2007). A Three Cycle View of Design Science Research. *Scandinavian Journal of Information Systems*, 19 (2)
- van Houtum, H (2013) De grens als een moreel ontwerp: 'Daarginds ligt een ander land' in Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap= Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.
- Houwen, J.; Blokland, A.; Matti, T. (2014) *Landschapsbeleid voor het drielandenpark / Landschaftspolitik für den Dreiländerpark / Une politique paysagère pour le Parc des Trois Pays / Landscape policy for the three countries park. ESPON, Three Countries Park, authors and designers.*
- Ingold, T. (2007). *Lines: a brief history.* Routledge

Jacobs, A. J. (2012) Borderscape als ruimtelijk ontwerp, AGORA, vol. 28, iss. 4, (2012), pp. 9-13

Jacobs, M. H. (2004). "Metropolitan Matterscape, Powerscape and Mindscape." In Planning Metropolitan Landscapes: Concepts, Demands, Approaches. Pp. 26-38. Wageningen UR, Wageningen

Jongmans, A. G., Van den Berg, M. W., & Sonneveld, M. P. W. (2012). Landschappen van Nederland: geologie, bodem en landgebruik. Wageningen Academic Publishers.

Jürgens, H (2013) Geschiedenis van de Nederlandse Grens: Vanzelfsprekend en betwist in. Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap= Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.

van Kampen, M (2013a) Oorzaak en toekomst van de ruimtelijke variatie: De macht van het verschil in. Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap= Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.

van Kampen, M (2013b) De grens als veelkoppig monster: Model voor dubbelzinnigheid in. Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap= Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.

Kerkstra, K., Vrijlandt, P., de Jong, H. C., & Houwen, J. (2007). Landschapsvisie Zuid-Limburg . Provincie Limburg/Wageningen Universiteit..

Lerner, J. (2014). Urban Acupuncture. Island Press. ISO 690

Provincie Limburg & Regio Parkstad Limburg (2004) Identiteit Parkstad Limburg. TAB

Strüver, A. (2002). Significant insignificance-boundaries in a borderless European Union: Deconstructing the Dutch-German transnational labor market. Journal of Borderlands Studies, 17(1), 21-36.

van der Velde, M. (2004). The power of cross-border labour market immobility. Tijdschrift voor Economische en Sociale Geografie, 95(1), 100-107.

Verlaan, J (2016, June 17th) Geen snelle treinen van Eindhoven naar Duitsland, NRC Handelsblad, p. 5

de Vries, G.W. (2013) Visies op het verdwijnen van het buitenland: het onbegrensde in Grensland: atlas, essays en ontwerp: geschiedenis en toekomst van het grenslandschap= Border land: atlas, essays and design: history and future of the border landscape. [Wageningen]: Blauwdruk.

16.1 IMAGE REFERENCES

1. http://manifestatie.iba-parkstad.nl/images/content/is_home.jpg
2. David de Boer, template from <http://www.d-maps.com/>
3. <http://images.nrc.nl/TBcebH6Ztjln4kcoiWJGuzlj9JM=/1280x/s3/static.nrc.nl/spoetnik/files/2014/12/duitse-grens.jpg>
4. https://www.kerkrade.nl/afbeelding/kerkrade3_321202
5. <http://resolver.kb.nl/resolve?urn=urn:gvn:SFA03:SFA022817922&role=image&size=variable>
6. David de Boer
7. David de Boer
8. David de Boer
9. David de Boer
10. https://uebergangshymne.files.wordpress.com/2016/04/tihange_9.jpg
Lothringer Strasse
11. Retrieved from Google Earth Pro
12. http://www.aachener-zeitung.de/polopoly_fs/1.455027.1353320573!/httpImage/image.jpg_gen/derivatives/zva_quer_540/image.jpg
13. <http://gpdhome.typepad.com/.a/6a00d8341c648253ef014e87d92621970d-pi>
14. https://nl.wikipedia.org/wiki/Eurode#/media/File:Eurode_Business_Center_-_geograph.org.uk_-_9264.jpg
15. <http://vignette2.wikia.nocookie.net/aliceinwonderland/images/e/e4/Alice-in-wonderland-disneyscreencaps.com-524.jpg/revision/latest?cb=20150405235807>
16. Ehlers, N. (2001). The utopia of the binational city. *GeoJournal*, 54(1).
17. David de Boer
18. David de Boer, Background retrieved from <http://www.opentopo.nl/>
19. https://upload.wikimedia.org/wikipedia/commons/b/be/Aachen_Germany_Imperial-Cathedral-01.jpg
20. David de Boer, Background retrieved from <http://www.opentopo.nl/>
21. Coenen, J.; Berlingieri, F.; Bergstra, T.; Buteijn, Y.; König, I.; Lahaye, P (2015) Handboek IBA, Parkstad Limburg Zomer 2015; IBA Parkstad en auteurs, own publication.
22. Walter Krutser, retrieved from Google Earth Pro.
23. David de Boer
24. David de Boer
25. David de Boer
26. David de Boer
27. David de Boer
28. David de Boer
29. David de Boer
30. David de Boer, Background retrieved from <http://www.opentopo.nl/>
31. David de Boer, Background retrieved from <http://www.opentopo.nl/>
32. David de Boer
33. David de Boer, Background retrieved from <http://www.opentopo.nl/>
34. David de Boer, Background retrieved from <http://www.opentopo.nl/>
36. David de Boer
37. David de Boer
38. David de Boer
39. David de Boer
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56. David de Boer
57. David de Boer
58. David de Boer
59. Janine van Bon