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Master's Thesis Interior Architecture Adaptive Reuse

“How can we evolve a harmonious integration of an isolated historical defence infrastructure within a current society? A recipe in which a burial site, a green landscape and a public character are blended into a seamless unity.”

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Master's degree Interior Architecture



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Promotor: *Godfrey Severe*

“In a sense the places of the dead are pivotal landscapes, places where life and death, past and future, the material world and the spiritual world are held in balance.¹”

¹ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 99.

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DEFINITIONS OF TERMS

Word	Description
<i>Artillery</i>	Everything that is related to the military weapons, including the men who are serving it.
<i>Artillery battery</i>	The artillery <i>battery</i> * fires into the flank or the back of the enemy. From this place, they can attack the ditch or the throat side of the fort. From the front side of the fort, the side of the enemy, the artillery battery is almost not visible and difficult to reach.
<i>Battery</i>	Formation of different muzzles aiming the same target.
<i>Casemates</i>	A chamber in the fortress, provided with firing openings, that offers protection against attacks from the enemy. These rooms were the most important spaces to get protection, so they need to be hidden for the enemy.
<i>Concentrationism</i>	Instead of creating barriers, the fortifications would now be concentrated in one or more large strongholds.
<i>Entrenchment</i>	A small-scale fortress mostly built between two bigger fortresses, to enhance the defence belt.
<i>Fortress ditch</i>	A wide, deep and surrounding obstacle of the fortress, whether or not filled with water.
<i>Gallery</i>	A long straight hallway at both sides of the <i>principal front</i> * that leads to a <i>gun turret</i> *.
<i>Glacis</i>	The earth slope that covers the paved road on the field side. The road is used by the defending soldiers.

<i>Gun turrets</i>	A revolving armoured equipment that functions as part of the artillery. Also known as a revolving dome or an armoured tower.
<i>Head resistance line</i>	The outer fortress belt of the outer defence line located at a distance away from the place that needs to be protected.
<i>Infantry</i>	The infantry forms a military specialization that operates on foot. It is distinguished from cavalry, artillery, and tank forces. They are also known as 'foot soldiers' or 'infantrymen'. They rely on moving by foot between combats, but they may also use military vehicles or other transport.
<i>Infantry support centre</i>	The infantry suffered a lot during war periods, and they need to recognize, adapt and respond easily to local conditions (for example weather, changing weapons or tactics). The infantry support centre could offer a place to stay or to hide during harder times of war.
<i>Intervals</i>	The space between two fortresses where the field army of fortification troops work.
<i>Inundations</i>	A flooded part of the nearby environment of the fortress.
<i>National Reduit</i>	A place, protected by one or several fortress belts, that functions as a last safe place for the army, the government and the royal house.
<i>Postern</i>	The central hallway, serving as a bombproof corridor, which connects the <i>throat front*</i> and the <i>main front*</i> .
<i>Principal front</i>	The main building of the fortress which offers sleeping rooms and other facilities for the soldiers.

<i>Rampart</i>	A closed defence wall that protects and surrounds a stronghold, an <i>entrenchment*</i> or, like in this case, a fortress against the enemy.
<i>Redoute</i>	Similar to an <i>entrenchment*</i> , it forms a small, individual and fully enclosed field ramp with only protruding corners.
<i>Reverse caponier</i>	An extension, at the front side of the fort, on which flanking artillery is placed as part of the defence of the fortress ditch.
<i>Throat front</i>	A part of the fort, located at the back, next to the artillery battery. During the fights, it housed the main facilities for the soldiers: bakery, lavatory, toilets and showers.

NOTES

The fortification will use a specific terminology which is not always familiar to the reader. All the specific expressions will be marked with an asterisk (*) and the description will be explained in a word list, just behind the table of contents.

All the maps and illustrations included in this thesis are facing north. This means that the north is always orientated at the top. In other cases, a north arrow will be added to indicate the right orientation.

ABSTRACT

The fortification forms an important part of the Belgian history. Especially when in 1906 a law was proclaimed that made Antwerp the second largest fortress in Europe². The technology, more specially the one of firepower, evolved rapidly and the reinforcements were quickly out of day. A decrepit fortress will be closed and, unfortunately, in many cases it stays empty for the rest of its lifetime. We can only be grateful of the strong construction of the fortresses so that we are able to keep these important story carriers of the Belgian history. In this master's thesis, the Fortress of Kessel forms the main focus.

Today, the large defence constructions belong to the fortification heritage of Flanders, an immovable heritage with its specific characteristics. The ones who maintain the fortresses regularly, try to guarantee their further life, but sometimes it is a lost case. An adaptive reuse can maybe offer a hand in saving them. In general, finding a suitable and meaningful reuse is a difficult task.

Thanks to the underutilization of the heritage sites, the maintenance is neglected which accelerates deterioration and therefore, threatens the continuity of heritage values. According to the limited human activity, many sites turned into nature areas, where animals, like bats, will hibernate during the winter. A fortification site consists of two main assets: the silence that prevails and the green surrounding landscape. Two important elements that we can barely find in the current society where everything focusses on the busy daily life.

Fortresses are essence of beauty, different life stories and the architectural merits and therefore, we can give a positive connotation or evaluation as unique buildings which are worth preserving. At the same time, they can function as a refuge at the border of a society to introduce a silent, green space for the community.

² At that time, Paris was known for its fortress and it was the largest of Europe.

MOTIVE AND PROBLEM STATEMENT

Fortresses are ultimate carriers of a certain memory. They carry on a remembrance value of the Belgian history and they are the prove of some architectural merits and therefore, fortification buildings are worth preserving. The upcoming interest reflects into an increasing number of reused forts. People get aware of the 'hidden charms' of such a defence structure.

Due to contradictory opinions of local inhabitants regarding the fortresses, it is difficult to find a suitable and meaningful reuse. Finding a repurpose becomes even more complicated according to the typology with characteristics like thick walls, long hallways and facades covered with ground.

Two current problem statements are explained below, but the reuse of a fortress can give a hand in solving both issues which become more and more problematic.

1. A solitary building, a 'stranger' within the society

The meaning of a 'fort'³ or a 'fortress'⁴ is as followed when we look in a dictionary:

Fort [fawrt, fohrt] - **Fortress** [fawr-tris]
noun (see 1. and 2.) noun (see 3. and 4.)

1. *a strong or fortified place occupied by troops and usually surrounded by walls, ditches, and other defensive works; a fortress; fortification.*
2. *any permanent army post.*
3. *a large fortified place; a fort or group of forts, often including a town; citadel.*
4. *any place of exceptional security; stronghold.*

³ Word Reference. (n.d.). *Fort*. Retrieved on 2020, April 17, from <https://www.wordreference.com/definition/fort>

⁴ Dictionary. (n.d.). *Fortress*. Retrieved on 2020, April 17, from <https://www.dictionary.com/browse/fortress>

By looking at the definitions of a fortress, we can clearly see the importance of such a defence building. Their importance cannot only be found in the defence of a country, but also in the protection of the soldiers' lives. Each fortress was originally a place where soldiers lived and where they fought for their own lives. This place was the only "security" that soldiers had, but even this place could never be trusted for 100% when they were attacking.

During discharging of their duties, soldiers were confronted with a continuous uncertainty of fighting between life and death. They had no family, no personal things and they only had one goal: trying to survive, together with the other soldiers.

Soldiers shared everything in the fortress: their joy and sorrow, their love and fear, their happiness and their tears, their lives and in some cases unfortunately also their deaths. Starting from the idea that a fort and its inhabitants, the soldiers, once formed a solid community on its own, we can conclude that a defence building can be more than just a monofunctional defence construction. In the contemporary society, this reflected into the increasing reuse of fortresses.

But even if a more current usage towards these forts is proposed, most of them are continuing their solitary life. This is caused by several reasons like for example the remote location or the specific buildings typology, but it is remarkable that these buildings formed the communities at one point in history.

Nowadays, the civilian community is located around the fort and the fort itself remains standing on its own without an adequate or vibrant relationship or interaction towards the current community. The fortresses are seen as '*strangers*' within the surrounding society. The distant relationship between the society and the fort need to be restored by attuning them to each other.

2. The problematic issues of the monofunctional urban cemeteries

Unfortunately, it is an undeniable fact that everybody has to deal with a loss in their lifetime, the terrain of death is the only standard that remained the same over rapidly changing centuries. It forms a common ground that exists in different cultures and several time periods. Within this story, one of the first types of burial

grounds was the urban cemetery, a small plot within the centre of the former society. The burial ground was surrounded by a wall and the gravestones were arranged in clear rows with straight pathways in between.

With the upcoming industrial revolution in the 19th century, the fast-growing population reflected in an increasing number of deaths. The civic burial grounds became quickly inadequate in terms of capacity. Due to their unhealthily overcrowded character they ended up in a bad condition: unreachable pathways, broken graves, collapsed coffins and graves were stacked upon each other or reused for new burials (Smith, 2017). In the Western vision, an urban graveyard has always been a monofunctional place in the middle of the city. Due to its small scale, it can only be used as a final resting place and there is no room for an additional program.

A solution for the problematic situation of the urban burial grounds was found with the rural cemeteries. They created new burial sites at the outskirts of the city to offer a green, healthy environment as a last resting place. The silence that prevails and the green, open landscape makes the burial ground a multifunctional place where people could also come to for leisure purposes or to escape their normal life.

In the current society of the 21st century, a similar problem appears with the urban cemeteries. Many civic cemeteries suffer from traces of negligence, a lack of maintenance or inadequate capacities are causing overcrowded spaces. Several municipalities search for different approaches to redesign the burial ground or to reuse the graves. Throughout the years, the outlook of the cemeteries became anything but attractive due to the weeds which take over the entire sites.

The contemporary living standards are completely different from the past. Everything changes and happens at a very high speed and people don't have the time to mourn. Saying goodbye to someone you love and the entire grieving process that is associated with it, takes time. It's like saying '*time will heal*', but this also means that the mourners need to take their time to process everything. They need to escape from their daily life to search for a suitable mourning space.



Figure 1 The cemeteries of the municipality of Nijlen are showing the neglect of maintenance.

RESEARCH QUESTION

The integration of fortresses in the present-day community

The integration of a fortress into the current community is a challenging task, especially when people possess contradictory opinions about it. It makes it even more difficult to find a suitable and meaningful reuse for defence buildings like this. There are people who protest for the fortresses, while others are looking at the fortresses from a more negative perspective, wondering what the fortresses could mean for their society.

The present-day community is known as a critical public. This means that the search for a suitable function is certainly not easy in order to offer a useful program for everyone. By looking at projects with a hybrid character, we can try to reconcile the different parties. We can look at general functions which can be useful for the whole community and especially useful in terms of bringing the society together.

In a community, we all share the same milestones in a lifetime: we have birth and unfortunately also death. Maybe these steps can form the starting point for a meaningful program of the fortress to integrate in into the current community.

The research question

The problem statements above show two main issues of the society of the 21th century: the neglected monofunctional urban cemeteries in the middle of the city and the abandoned historical heritage buildings at the outskirts of the society. The aim of this thesis is to search for a suitable solution for both. Rethinking the Belgian cemeteries can have a positive influence on the revival of the historical burial sites. The demolition or removal may not be a suitable solution, but different approaches can be sought to maintain them in other locations inside or outside the city centre.

Many underutilized buildings, abandoned areas, defense infrastructures or unused heritage buildings are located at the periphery. Due to the increasing interest in the adaptive reuse of such a building, a repurposing will help to save them for the future generations.

The case in this thesis, the Fortress of Kessel, is still waiting for a purpose that will guarantee its further lifetime. Due to the problematic situation of the urban cemetery of Kessel, both places can work together as a common solution.

The terrain of death will be broadened with an addition location and the mourners can use the green, healing landscape of the fortress to process everything. It can function as a meaningful mourning place.

To unite the fortress and the society around it, it would be interesting to offer the historical narratives a further life. Within this reuse approach of the fortress we need to benefit from the main assets of the location: the silence that prevails and the green environment. These two advantages are going hand in hand with a grieving process or a burial ground where both aspects are needed.

The previous way of thinking makes sense, but there is an essential question that is associated with it: *“How can we evolve a harmonious integration of an isolated historical defence infrastructure within a current society? A recipe in which a burial site, a green landscape and a public character are blended into a seamless unity.”*

RESEARCH METHODOLOGY

The structure of the thesis is crucial to find a meaningful answer to the research question above. The main starting point within the story is the Fortress of Kessel and the entire history that is associated with it. The first chapter will give an overview of the historical situation of the Belgian fortification history, followed by a detailed explanation about the Fortress of Kessel and how it evolved its current appearance.

Even if all the Belgian fortresses have the same purpose in defending the country, each fortress has a specific history to tell. The defence infrastructure is attuned to the local conditions and the surrounding landscape which makes each fort a unique architectural element. The fortification uses a specific architectural language which is explained in a following chapter to make the reader familiar with the terminology.

A last part about the Fortress of Kessel, and maybe the most important part, shows how the fort is currently used by a large population of bats. Due to its solitaire appearance, the fortress is seen as a 'death' building or as a 'stranger' within the society and the bats form the 'natural life' or current inhabitants of the fort. The bats will serve as an important starting point within the reuse of the defence structure. The landscape around the building will attract the bats, especially the silence that prevails and the natural green shapes.

After the motive for this thesis and the previous chapters, we can conclude that we have to deal with three main ingredients: a burial ground, a green environment and a public or hybrid character. Three elements which were crucial within the rural cemetery movement. The concept of the park cemeteries will be explained with a theoretical part with several vision of two main scholars: Worpole, K. and Smith, J. To connect the theoretical part with the real-life practice, two case studies will be analysed: Skogskyrkogården in Sweden and De Nieuwe Ooster in The Netherlands. The lessons are drawn from historical narratives, research, theory and the practice-oriented examples in which the architecture addresses the current societal needs without undermining the heritage values, and the context with the flora and fauna.

After the analysis of the park cemeteries and how they integrated the three ingredients, we will reconnect the lessons with the Fortress of Kessel. By attuning the burial ground, the green environment and the public character to each other, we can offer a meaningful reuse. To obtain visions or opinions of inhabitants, the municipality or other stakeholders, a short questionnaire was forwarded but the feedback was too minimal to rely on. The absent responses signify that people may not appreciate the importance of the Fortress of Kessel or they do not value the property enough which in a way strengthens the repurpose program for the fortress.

The conclusion forms a plea to rethink and broaden the monofunctional (Belgian) cemeteries and to look for a suitable adaptive reuse function for a defence structure that serves as an ultimate carrier of a certain memory, *our* memory.

HISTORICAL SITUATION

The beginning of the Belgian land defence, 1830 - 1906

Belgium is a small country that is difficult to defend: it had no extensive water barrier like in the Netherlands, it has hardly any natural boundaries and it has no Alps like in Switzerland. Especially the Great Powers realized this (R. Gils, 2006).

After the Belgian independence in 1830, the country acquired a neutral status and her independence would be guaranteed by the former major countries: France, Great Britain, Prussia, Austria and Russia. If Belgium would be attacked, the army must resist long enough to offer time for to the major countries to search for a political and military solution that also considers the survival of Belgium (Gidsenwerking Fort Kessel, n.d.).

In the middle of the 19th century, a new strategic concept in terms of land defence was found, namely the *concentrationism**. The strongholds will exist of an entrenched camp that functions as a refuge for the field army. From this specific place, they could operate safely (R. Gils, 2006).

In terms of this concept in Belgium, the idea of the *National Reduit**, a stronghold that functions as a last refuge, came up. Despite of the fact that Brussels was the capital of Belgium, the government decided to develop Antwerp as National Reduit. They choose the port for military, political and economic reasons (Gidsenwerking Fort Kessel, n.d.).

The previous decision was against the will of the inhabitants of Antwerp. They were not satisfied with this idea, because the city of Antwerp would be enclosed by the fortresses and there was the possibility that the city would be totally destroyed by a war (Gidsenwerking Fort Kessel, n.d.).

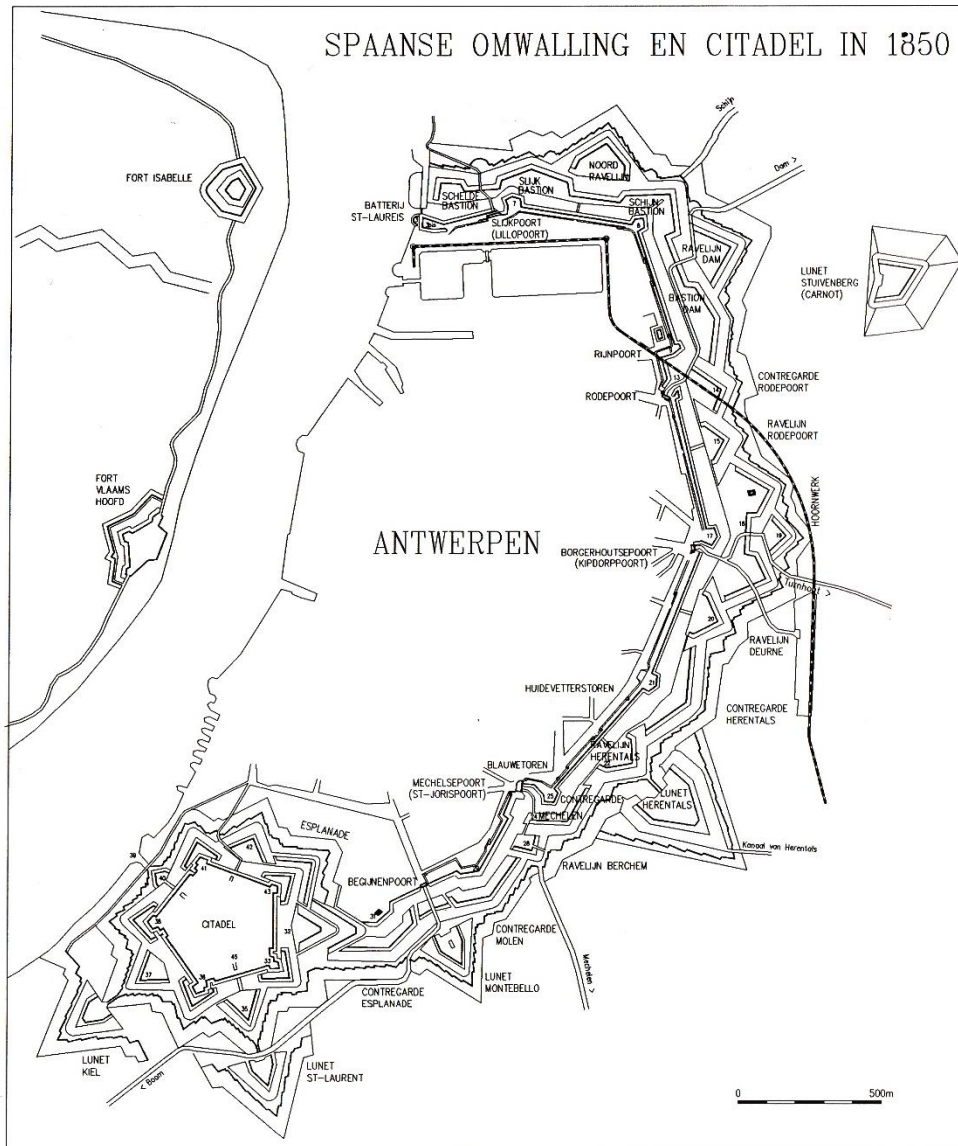


Figure 2 Situation in 1850: Spanish rampart is surrounding the city of Antwerp.

In 1859, the building process of Antwerp as a National Reduit started. The old Spanish *rampart**, dating from 1542, was destroyed to create a new one, namely the Large Rampart. A fortress belt with a length of 18 kilometres and 8 fortresses (fort 1 to 8)⁵ was created at just a few kilometres before the new Large Rampart. This fortress belt would protect Antwerp against a firing with *artillery**. Floodable areas in the north, in the east of the city and at Linkeroever in Antwerp avoid that the enemy could enter from these areas because these floodable sites function as a sort of natural buffer that you could not pass easily (Gidsenwerking Fort Kessel, n.d.).

The 8 forts are located at a distance of 2km from each other to offer a continuous firing line. Fortification troops or the field army defend the *intervals** between the different forts. The distance between the fortresses and the rampart, with the agglomeration behind, would be between 2,7km and 4.5km (S. Van Clemen, 2008). During the French-German war of 1870, the artillery became better. This means that the fortress belt was lying too close to the city and there was no guarantee that the city could be protected against a bombardment (Gidsenwerking Fort Kessel, n.d.).

The National Reduit needed a transformation: they created a few new fortresses, but this was not enough to avoid any kind of damage. The government army was obliged to put the defence line more to the front, more to the Rupel - Nete line. Unfortunately, there was not enough money to realize this plan. The superfluous military terrains were sold, and the proceeds were used to realize a few brick forts: Fort of Lier, Walem and Steendorp (Gidsenwerking Fort Kessel, n.d.).

A series of new projectiles⁶ were used from 1885 and there was the increasing need for a stronger equipment. To give an answer to this question, men started with building new *gun turrets**. In 1902, they started with building two new fortresses: Fort Stabroek and Sint-Katelijne-Waver (Gidsenwerking Fort Kessel, n.d.).

⁵ Fortress 1 is removed to create the Shopping Center of Wijnegem. The other forts are still standing.

⁶ In the past, the projectiles were filled with gunpowder but since 1885 they used other explosives with a bigger impact.

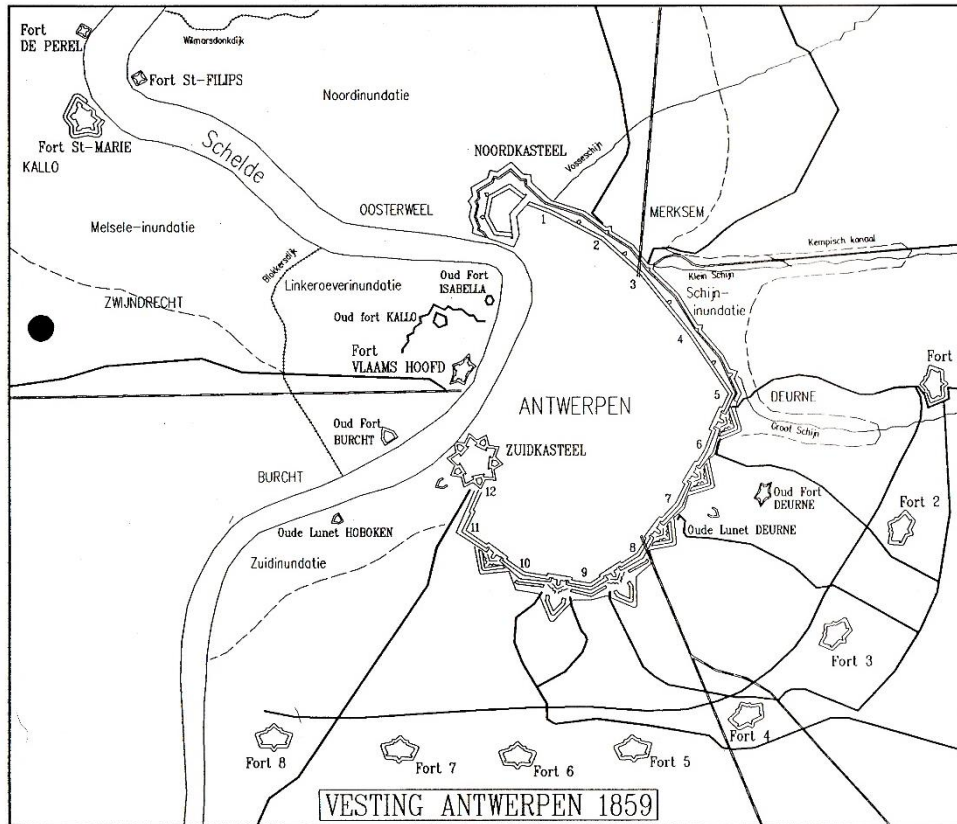


Figure 3 Map of Antwerp as National Reduit in 1859: Large Rampart and the Fortress belt (fort 1-8).

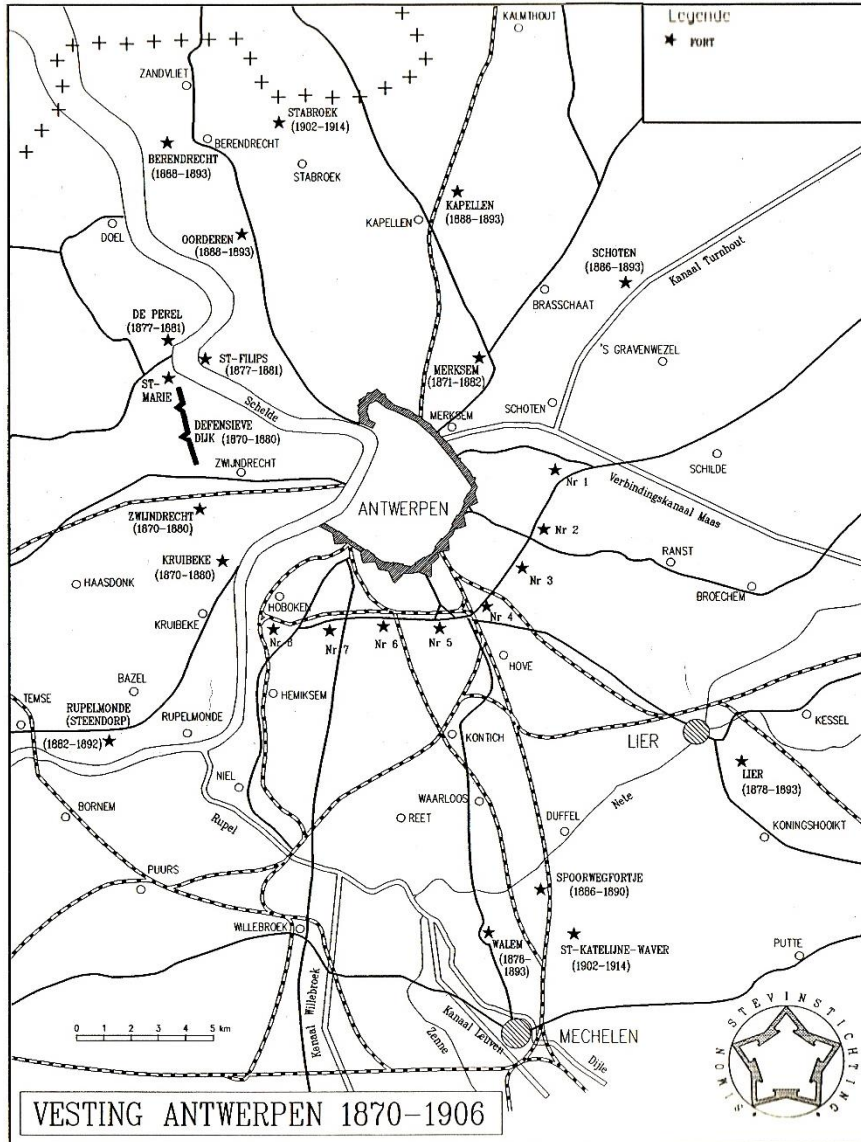


Figure 4 Map of Antwerp between 1870-1906 with the Large Rampart, the Fortress belt and the fourteen new fortresses further away from the city.

Towards the draft legislation of 1905

In 1900, the minister of war brings together a mixed committee to discuss the enlargement of Antwerp. A 100 kilometres long fortress was proposed with the fourteen already existing fortresses of the Outer line and fifteen new fortresses which would form the main head resistance line. Only five years later, in 1905, the government presented a draft legislation which was slightly amended. The Outer line was built with thirteen large fortresses and three smaller fortresses and fourteen entrenchments (R. Gils, 2006).

The expansion of the Fortress of Antwerp, 1906 – 1914

In 1906, under the threat of the deteriorating international situation, new laws were voted in favour of the further expansion of the Fortress of Antwerp (Gidsenwerking Fort Kessel, n.d.). At this moment, the Fortress of Antwerp exists of a Safety Rampart, a fortress belt (the Outer line) and a few *inundations**. The Safety Rampart is formed by two parts: the modernized forts 1-7 in the south and a closed defence wall in the north. A concrete layer is added to the forts 1-7 to protect the brick vaults (R. Gils, 1996).

The Large Rampart became out of use and they created, at the location of the Outer line, a *head resistance line** of 100 kilometres. This new outer fortress belt or new outer defence line exists of 11 concrete fortresses and 12 concrete *entrenchments**. The fortresses are positioned at a distance of 5 kilometres from each other and in between two of them, they created a *redoute** to defence the *intervals** (Gidsenwerking Fort Kessel, n.d.).

The scheme below shows the situation in 1914 when the First World War is starting. The fortress belt was, at most points, not totally finished when the war broke out. The crews of several forts tried to finish their construction works at a very high speed, which reflects in a poor finish, making some attacks more impactful than desired.



LEGEND

- ★ Fort
- Redoute/Entrenchment
- Entrenchment of the safety rampart
- ⊙ Coast battery

Figure 5 Fortress of Antwerp in 1914: realization of the design of 1906 with the new fortress belt which forms the head resistance line.

Current usage of the Forts of the head resistance line

After many years of violence and tragic stories, the fortresses are carrying a long history, which is educational, and at the same time, very confronting for us. All forts have one common starting point, namely defending the Belgian country. Nowadays, they all drifted apart and each fort has found its own way in the contemporary society. The forts have the same story to tell from the past, but some ended up in various functions, while others remain obsolete.

When we look at the current map of Antwerp, we can still clearly define the forts in their bigger environment. And at a bigger scale, we can still see the whole fortress belt and its impact on the surroundings. But on a functional level, the forts are showing a patchwork of different functions and approaches to give them a further life. Below, there is a short summary of the current usage of a few forts. A detailed plan with all the current usages of the forts can be found on the next page (fig. 6).

- The forts of Brasschaat, Broechem, Erbrand, Haasdonk, Kapellen, Kruibeke, Schoten and Zwijndrecht are, together with the redoutes of Landmolen and Lauwershoek, still in military hands or they are private ownership which means that all of these are not accessible for the public.
- The fort of Breendonk, which functioned as a concentration camp during WWII, is a National Monument. Other museum can be found in the forts of Kessel, Liezele, Lillo, St. Philips and in the older Fort 2.
- Because of the denser city around the older forts of the inner fortress belt, most of them are reused for recreational purposes to give resting place inside the busy city of Antwerp.
- Fort La Perle, fort Oorderen and fort Berendrecht are, together with a few redoutes, removed for the extension of the port of Antwerp.

The reuse of the fortresses has become increasingly popular in recent years. Some are preserved as a museum to show as much as possible of the history, while others are redesigned into more absurd functions such as a disco or animal stable. Despite the good intentions to breathe new life into each fortress, most forts remain on their own and are hardly integrated into the community.



LEGEND

- ★ Fort
- Redoute/Entrenchment
- Entrenchment of the safety rampart
- ⊙ Coast battery

FUNCTIONS

- ★ Adventures/sports/games
- ★ Other (disco, storage, stable, private housing...)
- ★ Recreational purposes
- ★ Nature reserve/Habitat for bats
- ★ Museum/Visits with guide
- ★ (Inaccessible) Military or private domain
- ☆ Demolished fort/entrenchment

Figure 6 Fortress of Antwerp in 2020: current usage of each fortress.

HISTORY OF THE FORTRESS OF KESSEL

Location

The fort was built as one of the 11 new concrete fortresses of the big defence line around the city of Antwerp. They wanted to create this fort at a specific and strategic location, namely in the valley of two water streams: Grote Nete in the south and Kleine Nete in the north. In the north you will have the Fortress of Broechem and in the south you can see the Fortress of Lier (Gidsenwerking Fort Kessel, n.d.).

According to the strategy of the entrenchments which will support the bigger fortresses they would have created two smaller entrenchments in between these three forts. But as a result of the water streams, they decided to create no entrenchments. In times of war, the water streams can overflow and the fields around it would be totally filled with water to create a natural defence line (Gidsenwerking Fort Kessel, n.d.).

The building processes

After the approval of the law, the defence constructions were declared as public utility by Royal Decree and the necessary sites could be expropriated. The expropriation plans were drawn up by the War Department and communicated to the relevant municipal authorities. The surface area differed per fort, from 16 to over 22 hectares. The differences were related to access roads and small plots which were purchased in their entirety in order to avoid that landowners would end up with unusable plots of land (R. Gils, 2006).

Straight after the moment that the desired land was acquired in 1908, the firm Bolsée started building the fort on April 5, 1909. After creating a new paved road, the current 'Fortstraat', tons of material were supplied by several types of vehicles or they used the nearby railway.

Hundreds of (construction) workers were working on site for years: foundations and cellars were excavated, formwork was moulded together, and the concrete was poured. This last material was very new at the time (Gidsenwerking Fort Kessel, n.d.).



Figure 7 Old picture of the natural defence line with the flooding areas.



Figure 8 Old picture of the excavation of the fortress ditch.

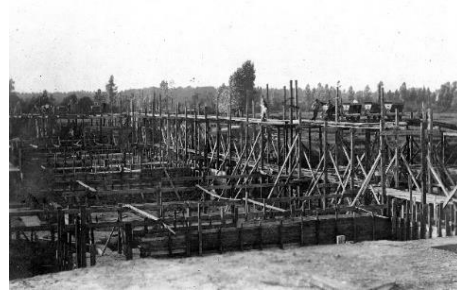


Figure 9 Old picture of the formwork.



Figure 10 Old picture of the excavation of the fortress ditch.

When the structural work was done in 1912, they started with digging the *fortress ditch** of 50 meters width and 2,5 meters depth. The lack of machinery was the biggest problem and this manual job took a lot of time. All the soil from the ditch will be reused at a later stage to cover the *casemates** and corridors of the fort (R. Gils, 2006).

From April 1913, men started with placing the floors, windows and doors, followed by the furnishings of the rooms. Straight after that, they placed all the necessary armament like guns and other canons (Gidsenwerking Fort Kessel, n.d.). The making and placing of the armament was not included in the contract with the firm Bolsée. A problem that came up was that the ordinary budget of war was in charge of the armament and ammunition. This reflected into an insufficient and inadequate ammunition in the forts at the outbreak of the war in 1914 (R. Gils, 2006).

The First and Second World War

At the point of the outbreak of the First World War, the Fortress of Antwerp exists of a Head Resistance Line (the outer line), a Safety Rampart at the place of the former fortress belt of 1859 and a few *inundations** (R. Gils, 2006).

When on August the 4th, 1914 the German troops crossed the Belgian border and the war broke out, the Fortress of Kessel was not finished. Commander Piraux and his men did everything to make the fort ready for the upcoming battle (Gidsenwerking Fort Kessel, n.d.). At the beginning of the First World War, trenches were dug, and barbed wire was placed from the Fortress of Kessel to the fortress of Lier, almost no passage remained (Forten Gordels, n.d.).

The church tower of Kessel would be the perfect place to attack the Germans. It was not thought that the fortress could be taken during the war. The concrete walls and armoured domes would be resistant to cannonballs. However, the reality turned out to be different (Forten Gordels, n.d.).

From September 29, 1914 the fort actively participated in the war to beat the Germans. Because of the active interaction of the fort, the Germans decided to siege the fort. On October 4, 1914 at 6 a.m. in the morning, the strongest German and Austrian artillery fired at the fort, attacking it with 30.5 cm and 42 cm projectiles. Not less than 123 of these "*Big Bertha's*"⁷ were fired. The fort has become indefensible because of the very serious destruction caused by the bombing (Gidsenwerking Fort Kessel, n.d.).

The continuous bombing had a devastating effect on the morale of the fort garrison. Due to the breaking of the constructions, the faith of the soldiers in their protection disappeared. The explosions caused heavy vibrations and air displacement: when the artificial ventilation failed, the released gases caused symptoms of poisoning such as vomiting. There was a clear sense of powerlessness. The well-known concept of the 'concrete armoured fortress' ended abruptly (R. Gils, 2006).

Antwerp also failed as National Reduit. Only for two months, the stronghold was a safe refuge for the government and the army, but its location was eccentric in comparison with the northern of France. The whole strategy seemed to be a promising concept, but it was not satisfactory in 1914, not even in France. Too many defenders and soldiers passed away. (R. Gils, 2006).

At 11 o'clock, October 4, only 5 hours after the first attack, the fort is destroyed and on October 5, 1914 the fort became into German hands (Gidsenwerking Fort Kessel, n.d.). After the siege of Antwerp, the German commander-in-chief decided to reuse the Fortress of Antwerp again as part of the defence. Several forts, including the Fortress of Kessel, were restored by German workers and German inscriptions appeared on the walls (R. Gils, 2006).

⁷ The "Big Bertha", a.k.a. 'Dicke Bertha', refers to a siege gun that, at that time, was the largest and most powerful in the world. Created by the German firm of Krupp, the Big Bertha was designed in the aftermath of the Russo-Japanese War. It was used to (successfully) demolishing the fortress towns in Belgium around the beginning of the First World War: first Liège and Namur, followed by Antwerp in the next month (Duffy,2000).



Figure 11 Old picture of one of the 'Big Bertha's'.

The interbellum became the transformation period of the fortress. From 1934 the Fortress of Kessel was redesigned as an *infantry support centre** to form a part of the fortified position of Antwerp. Machine gun bunkers are built on the sites of the former gun turrets.

During the Second World War, the city of Antwerp had the need to be defended, but the defence process was given a low priority. Some of the fortresses of the Outer line were reused for various reasons: The Fort of Breendonk was used as a concentration camp or the forts of Oelegem, Haasdonk and Liezele were used as depots (R. Gils, 2006).

On May 13, 1940, when the Belgian army left the position on the Albert Canal and deployed on the bunker line between Koningshooikt and Wavre (K.W.-linie), the Fortress of Kessel was isolated from the rest of the army. On May 16, 1940, early in the morning, the fort is blown up and abandoned by the garrison. The Germans occupied the Fortress of Kessel that same day (Gidsenwerking Fort Kessel, n.d.).

The Germans saw the opportunity to make a few adaptations at the Fortress of Kessel in terms of making it stronger and better. Most of the transformations were small-scale interventions and are still visible nowadays. The interventions are dating from the First and Second World War.

To conclude its history, the fortress had a military purpose for the Belgian army until 1940. In the beginning, it was an important fortress for the artillery in the First World War, but there was no important role during the Second World War.

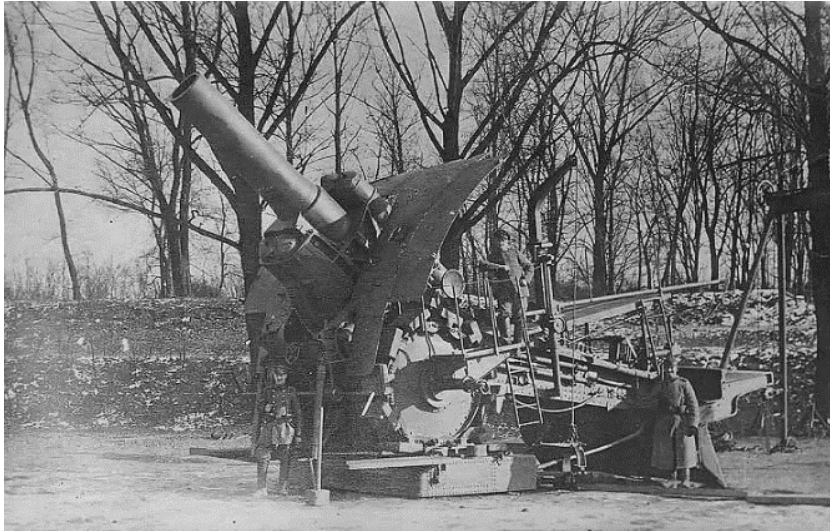


Figure 12 Old picture of the machinery of the 'Big Bertha's'.



Figure 13 Old picture of the damage of the 'Big Bertha's'.

Further life of the Fortress of Kessel

After the Second World War, the military function of the Fortress of Kessel came to an end. A family lived at the fort until 1973, which is an interesting narrative of how civilian adapt the military space. The fortress, with its tragic and horrible history, could gradually climb out of its downwards spiral. It started to grow, and it gradually transformed into a recreational area. In 1973, the municipality of Kessel (nowadays a sub-municipality of Nijlen) bought the site to ensure its continued existence.

Nowadays, we can see two main functions of the fortress. On the one hand, it is the favourite residence for bats, especially during their winter sleep. At the other hand, we have the guides of the Fortress of Kessel and they are active from April 1 to September 30. Since June 5, 2018, the fortress and the 'Fortstraat' are both protected as heritage sites.

TERMINOLOGY

General categorizing

The new forts of the head resistance line, called the concrete armoured forts, are from different importance, depending on their role and location in the defence against the enemy (R. Gils, 1998).

The large forts (1st order) will we created mainly in the supposed attack zone where the largest defence is needed. They will offer:

- two cupolas for two 15cm canons;
- two cupolas for 12cm howitzer;
- six cupolas for 7,5cm canons (R. Gils, 1998).

The small forts (2nd order) will offer:

- one 15cm-cupola;
- two 12cm-cupolas;
- for 7,5cm-cupolas (R. Gils, 1998).



Figure 14 *The existing situation of the Fortress of Kessel with a view towards the artillery battery.*



Figure 15 *The existing situation of the Fortress of Kessel with a view towards the part of the principal front that is damaged during the First World War.*

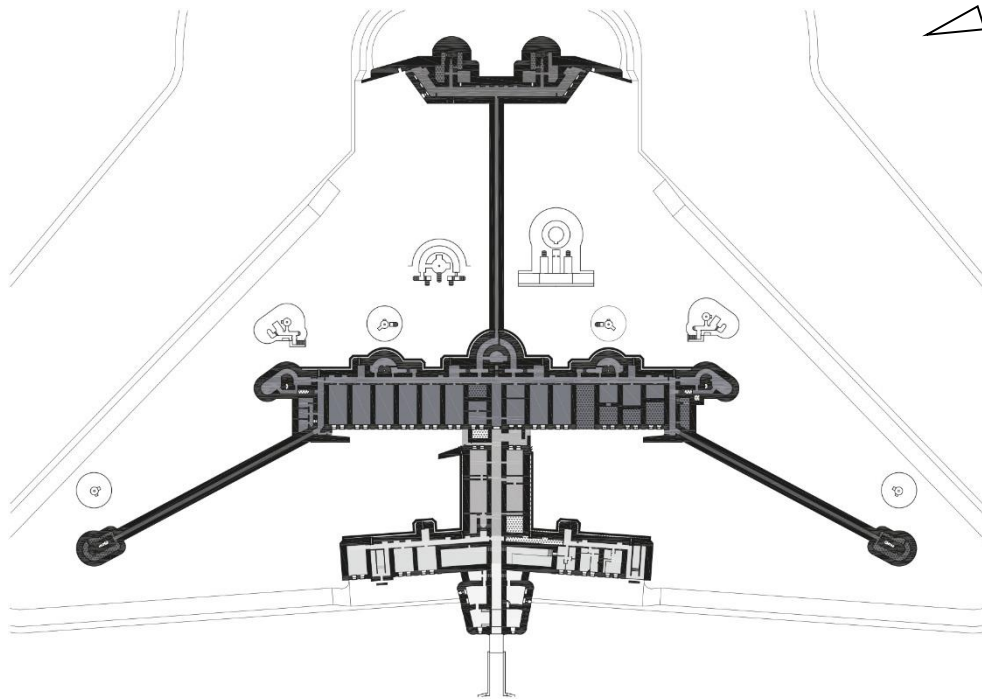
The Fort of Brasschaat and the Fort of Kessel are both of the 2nd order and are both showing the typology of a fort with an attached *reverse caponier**. Two cupolas on the reverse caponier will fire the ditch of the fortress, while the two flanks of the caponier will keep an eye on the side ditches. Also, the *throat front** and the *artillery battery** will be kept on fire by the other cupolas. Nowadays, the Fort of Brasschaat is still in military hands so the Fort of Kessel is the only one of this specific typology that can be shown towards the community (R. Gils, 1998).

Specific parts of a fortress

The Fort of Kessel is, like already mentioned before, a fortress of 2nd order with an attached *reverse caponier**. This means that there are some specific characteristics, like mentioned in the previous chapter, but each fortress also exists of some general building parts. The drawing on the next page (fig. 16) marks all the different building components to make sure that the reader understands.

Entering a fortress happens at the back side where a removable bridge is created. From that point, you enter the *artillery battery** of the fort which attacks the back side of the enemy. The *artillery battery** forms the place where the artillery can be placed to defend the *throat front** of the fortress. Once you have entered the fort, you will perceive the central hallway or the *postern** which leads you towards the *principal front**. At both sides of the *principal front**, we have a *gallery** which leads towards a gun turret. Specific to this type of fortress, namely the 2nd order with an attached *reverse caponier**, we have a last hallway, covered by earth, that brings us to the front of the fortress and the *reverse caponier** where the important artillery is placed to defend the fortress *ditch**.

All the previous parts will form the building of the Fort of Kessel. The green environment will cover most of the defence structure to mislead the enemy. They need to be unsure and confused about where there is a building part and where there is nothing else but ground. Also, a *glacis** is created at the front of the fortress to hide it more towards the environment and its corresponding roads. All these elements show the importance of the landscape and its sloping, hilly character.



LEGEND







- | | | |
|---|--|--|
|  Artillery battery |  Central hallway, postern |  Reverse caponier |
|  Throat front |  Principal front |  Gallery |

Figure 16 Terminology of the building parts of the Fort of Kessel.

THE GREEN OASIS

The 'natural life' in a 'death' building

Like mentioned in the introduction, the underutilization of heritage sites like the fortress will offer the perfect circumstances for nature sites. Due to the absence of human interventions and the human activity, nature can take over the whole site. When we speak about nature, we are not only talking about the green flora, but we are also talking about the fauna with its animals and other living creatures which will love the green environment as their habitat.

The Fortress of Kessel is nowadays used by a large population of bats. The damaged parts of the fort contain many cracks, chinks, crevices and narrow openings which are the favourite hibernation places for bats. That is why the right part (fig. 17) of the *principal front**, which was largely damaged during the First World War, is one of the most important places for bats to stay.

In recent decades, bats are having a hard time as their habitat is shrinking or in some cases their habitat is totally disappearing for example cutting down more and more trees and forests. This concerns their hunting areas, summer stays and especially their hibernation areas. In addition, the increasing use of pesticides is another factor that effects the shrinking bat population. Due to the decreasing population, all sorts of bat species are protected in Belgium, both at Flemish and European level (P. De Rynck, 2016).

Bats are well-known insect eaters and the presence of prey such as mosquitoes or beetles is therefore crucial in their further existence. As a result of the food shortage in the winter period, the bats hibernate. During the fall, they build up a fat reserve that allows them to survive from October to March or April without eating. Their energy consumption is as low as possible during the hibernation period with a slow heart rate and a low body temperature to not lose their food reserves unnecessarily (P. De Rynck, 2016).

Bats have high expectations for their hibernation locations which makes it even more difficult to find a suitable place. Nevertheless, the crevices and narrow openings of the fort meet the following three basic requirements:

- A high enough humidity that avoids drying out.
- A more or less constant temperature between 0°C and 10°C. Due to the openings in the building, there is a continuous air flow to provide fresh air. The bats are staying in narrow openings so that they don't feel the air flow.
- Undisturbed rest. When bats are disturbed too much, their hearts beat faster and their body temperature rises which cause them to lose energy.

Each fortress will, without doing any efforts, fulfil the requirements perfectly.

Due to the big, massive construction and the large amount of stones which fell down with the bombardments, there is a stable internal climate which is crucial for the bats (P. De Rynck, 2016).

Due to the solitaire character, the fortress can be seen as a sort of '*death*' building within the surrounding community. People who are living around the fortress experience it as a nonsense place, a place where nothing is happening and where the community isn't invited at all. In one sense they are right, but there is also another side to this story. The soldiers may be gone after all these years, but for a large bat population the fortress is their home during the whole year. The bats live a '*natural life*' inside this vacant defence building.

This contradiction between life and death brings us back to contradictory life of the soldiers where unpredictable fights between life and death went hand in hand with their daily lives.

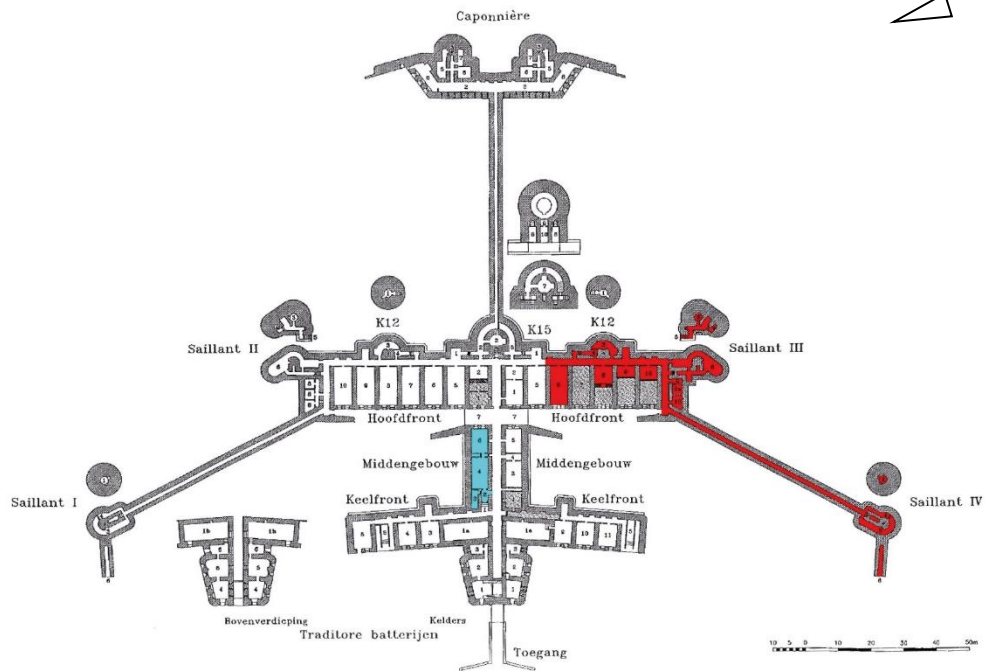
A suitable reuse for life

Searching for a suitable and meaningful reuse for the Fort of Kessel is, like already mentioned and additionally confirmed by the previous stories, a difficult task. There is only one secure starting point: the life of the bats. The shrinking population of bats can be helped by providing a large part of the fortress to stay the night in the summer and especially to hibernate during the winter period. Enhancing the living qualities for the bats by for example creating more places to stay can be a meaningful start.

The other part of the fortress can be given to the community. Within this idea we need to take care about the nature and the main requirements of the bats. A reuse function with a lot of people every day or with a large group of noisy children won't be ideal, on the contrary, it would scare away all bats.

Where the bats and the community meet, we will find the nature and the hilly, sloping terrain. This green oasis gives the bats a nice environment, especially when more trees would be planted, like how the vegetation was in the past. But also, the community could find a place to breathe, a place to come to themselves. Everybody needs such a moment on a regularly basis and this could bring the fortress back in a positive perspective. When people look at the fortress again as a meaningful place, a place to think about their life, they will give the fortress a fresh start and new meanings and they offer the fort a second chance to prove itself.

All of this sounds like the perfect solution, but how can we try to succeed this plan? How can we bring nature and inhabitant together within a meaningful reuse? How can a green oasis go hand in hand with a public function without losing its quiet and peaceful character? The search for a hybrid green environment could be a solution to bring people and animals together in an environment which is useful for both.



LEGEND

■ Educational rooms

■ Particularly vulnerable part.

No activities during the hibernation period.

Figure 17 Most important living parts and places to hibernate for the bats.

PARK CEMETERIES

A hybrid cemetery

The concept of park cemeteries attempts to answer the questions posed above. In Belgium all the inhabitants know a cemetery as a monofunctional place where everything is committed to death. In the Western vision, a cemetery needs one function: the burial ground of the one that we lose. Next to the cemeteries, almost every Belgian city has its own public park where people will come and sit together.

All over the world, these green and livable urban parks within the city will have other life stories to tell. Once in their lifetime, they were used as something totally different. We can look at how the urban parks in the United States once functioned as a rural cemetery, a place where they focused on saying goodbye to their loved ones. By looking at the rural cemeteries in the US, we create a totally different view towards these places where also a public use will be integrated.

We can search for a way to rethink the Belgian cemeteries where the monofunctional character is still present. The rethinking process could also have an impact on the revival of our cemeteries which suffer from decay, neglect of maintenance and overcrowding with a shortage of available places for new burials (fig.18).

Even if this renewing rural cemetery movement started to decline after a while, we cannot deny the well-intentioned intentions in terms of the green oasis of peace and the public character of the cemeteries.

Not only for the inhabitants, but also for many landscape designers, these rural cemeteries left a big influence behind. Designers like F. Olmsted, known for its design of the Central Park in New York, borrowed ideas and principles from the rural 'parks' (Smith, 2017).



Figure 18 *The cemeteries of the municipality of Nijlen are showing the neglect of maintenance.*

The beginning: the urban cemeteries

Even if there are thousands of years between the first formal burial sites and the most modern of cemeteries, both will have several practices, beliefs or specific systems in common. This is a result of the fact that in many burial sites the ancient and modern cultures are going hand in hand while the dead from different periods accumulate. Many cultures deal with the same topics as how the bodies will be laid in the ground or how they practice individual, familial and group burials. Also, the way a burial site looks or how a culture indicates the gravestones or marking stones are often common across time (Worpole, 2003).

The terrain of death seems to be one of the only things where the whole worlds has to deal with, even if we deal with it in several ways through different times and also different cultures. Worpole describes this situation with the following words⁸:

“While successive generations, whether settlers, migrants, raiders or colonists, may have often adapted or destroyed pre-existing settlements built for the living, burial places have often been left untouched, or even extended as the founding sites for new ones. A respect for the terrain of death, along with the individual grave site, seems to be one of the continuities of human landscape and culture, though there have been monstrous exceptions on occasions, where the vandalism or destruction of an enemy’s graves or burial sites has been regarded as a final humiliation.”

Just like the previous common grounds which have coexisted in several cultures in different time periods, the same goes for the urban cemeteries which are present for several decades and everybody knows them. It’s a common fact, it’s a place where people gather at a tragic time in their life, a moment of grief. Unfortunately, with the fast-growing population due to the industrial revolution, the urban cemeteries turned into unhealthily overcrowded places because of the increased numbers of people that passed away. Graves were emptied to reuse them for new burials or graves are stacked upon each other to save time (Smith, 2017).

⁸ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 18.

The urban cemeteries have left their great, renewing function that they once had in terms of being a last resting place surrounded by the living city. They become more and more problematic into the current society. Worpole clarifies this situation⁹:

“The urban cemetery serves other purposes today. It is a reminder not just of another world, but of a different topography, not so much the country in the city or rus in urbe, but a vegetative, entropic, timeless world that is beyond human or bureaucratic control. The cemetery evokes a sleeping world, a horizontal world, a world of permanent darkness and rest. The contrast between the world of the cemetery and the footloose, upright, hurrying bustle of the streets around it is always affecting.”

“There is something especially poignant and distressing about vandalized and abandoned cemeteries, as if the present had spat contemptuously on the past.”

Towards a solution with the upcoming rural cemeteries

To solve the previous problem, they started to create rural cemeteries which were located further away from the city: far enough to separate them from the real city centre but at the same time close enough for mourners and other visitors. A typical characteristic of these urban cemeteries is the public use that is introduced to attract a wider range of people. They will function as a sort of civic institutions, designed for the public, a place which is used by the living for more than only burials. All of this makes us wonder why we choose a remote location if it is intended for the wider public (Smith, 2017).

The rural cemetery was fundamentally different from the urban cemeteries. These last ones were small plots surrounded by the city, the gravestones where in almost every case arranged in rows and they ended up in a very bad state with collapsed coffins, broken gravestones and unreachable places. There were not only health concerns on the urban cemeteries, but also in the crowded city itself. The rural

⁹ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 29 & 34.

cemeteries at the outskirts of the city could offer a healthy, open space where people could go to. It could function as a refuge where the inhabitants could go to whenever they want to escape from the crowded, busy city centre.

The growing population reflected in a geographical sprawl which meant that the city boundaries needed to be farther out on a regularly basis. During the 19th century, many cities engulfed the countryside and the outskirts of the city, including the graveyards. This meant that they were no longer located at a further distance, but they were slowly becoming a part of the edges of the expanding cities (Smith, 2017). We can conclude that several reasons form a well-thought story that forms the basis for the creation of rural cemeteries. Especially health concerns and the public use will focus on the living and their life qualities. A cemetery will no longer be monofunctional, it will go beyond its original function. In the words of Smith¹⁰:

“Perhaps the greatest paradox of the institutions created as part of the rural cemetery movement is that burying bodies is not really their primary product. These cemeteries were used to bury people, of course, but that alone was not their only business. This not to say that burial was unimportant to these cemeteries; it was, and a function their organizers and leaders took seriously. At the same time, founders and their successors understood that these were not just graveyards. They were creating green spaces that people would use on a regular basis, spaces that would convey and reinforce an emerging set of values out of the Jacksonian era.”

It feels wrong or unnatural to describe a cemetery, of more in general a burial site, solely as a social place where people come together or solely as a ritual space. Many people look at the death as a transition from the social world back to the natural world. This concept relates back to the development of the ‘natural’, ‘woodland’ or ‘rural’ burial grounds. This anthropological thinking shows clearly the relation between a cultural, social and natural purposes which form the main starting points of the rural cemeteries where life and death are lying side by side (Worpole, 2003).

¹⁰ Smith, J. (2017). *The Rural Cemetery Movement: Places of Paradox in Nineteenth-Century America*. London: Lexington Books, p. xii.



Figure 19 In 1831 the first rural cemetery of the United States: Mount Auburn Cemetery. This drawing (oil on canvas) is made by Thomas Chambers.

The transition towards (urban) parks

In the United States, the rural cemeteries functioned as predecessors to the urban parks. Landscape designers, who were active in the 19th century, wrote about cemeteries and parks in the same way. They had the same goals and the same opportunities to offer. Especially when they started to include benches and other resting places, paved pathways or water fountains into the cemeteries (Smith, 2017).

By the end of the 19th century, in the 1890's, the relationship between both was closer than it could ever be. Some started to speak about 'Park and cemetery' instead of 'Modern cemetery'. In the 19th century end-phase people got more aware of the green spaces which were needed for inhabitants. The rural cemeteries offered the perfect solution and became even more designed as a park (Smith, 2017).

The double usage of '*park cemeteries*' shows the importance of the landscape which offers the perfect circumstances to connect both. Designed landscapes can have an impact on a human life in several ways. The underestimated powers of a green cemetery became clearer after the development of cemeteries with a specific and well-designed landscape. Worpole shows the link between parks and cemeteries¹¹:

"It is important to understand the consolatory or therapeutic role which certain kinds of designed landscapes can play, matters that are surely central to the design and meaning of the modern cemetery or funerary setting. While some will gain a kind of melancholy frisson from contemplating an overgrown or neglected cemetery, others might profit spiritually and emotionally from landscapes and memorial forms that seek to build bridges between life and death. This is precisely why, from the late seventeenth century onwards, cemeteries have slowly acquired their own garden language and aesthetic. ... Loudon, however, went further than this, regarding the well-designed cemetery as being as much, if not more, a place for the living as for the dead. Here, he surmised, people would stroll in agreeable surroundings, and have their fears of death tempered by artifice and elegant design. The spiritual or 'healing' properties of landscape have, in recent times, begun to be re-absorbed into the vocabulary of civic culture."

¹¹ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 57-58.

The downwards spiral

The previous paragraph is showing how the rural cemeteries are turning into real parks. Already in 1861, with the upcoming widespread development of these public parks, the rural cemetery movement started to decline. Next to this, the high cost of the maintenance of the large landscapes was also becoming a problematic economic issue (Smith, 2017).

After some years, the rural cemeteries were showing the first traces of decay and they ended up in a downwards spiral. They started to become more and more unpopular which meant that they ended up cluttered and unkempt. Most of them were replaced as lawn cemeteries, a simpler and less attractive version of the rural cemeteries. Like their name is literally showing, they exist of a grass field and graves with no specific design elements (Smith, 2017).

And of course, the more public parks opened, the more people went to visit them for leisure and other recreational purposes. This in itself also entails ambiguous visions as such parks also require maintenance and have the same economic issues. But one of the main aspects which influenced the attraction of the clean urban parks, it the fact that the 'death' is no longer present.

We cannot deny that many people are looking at a cemetery from a more negative perspective because they see death as a tragic part of their life, and we cannot say that they are totally wrong. But we still need to learn to give death a place in our life because it forms one of the main occurrences of a human's life.

Unfortunately, we see this upcoming trend in ignoring death more often in modern cities. This is totally in contrast with the historic cities where dead part of the society and takes up as much cultural space as the living part. This occupied space by the death can be found in several ways: memorial places like buildings or squares, burials in and around churches, monuments in the public space or more standard graveyards or burial sites. The same 'presence of death' hardly exists any more in the modern cities where everything is destined for the living.

In the words of Worpole¹²:

“The scale of these landscapes devoted to the dead, compared with those devoted to the living, is largely unmarked in landscape or architectural thinking.”

But, contradictory enough, these burial sites are one the most compelling sites of human existence. They are gathering places and, when they are not for the living, they always form a gathering place for the ones we have lost, or more in general a gathering place for loss. Many people are triggered by cemeteries, because they have something unique, something that we don't find elsewhere in life.

Especially the compelling character of the terrain of death is something special that attracts many people in an unconscious way. Worpole (2013) refers to people who are traveling to particularly unknown places in the world and many of them are drawn to a cemetery, a burial ground or another kind of resting place. Maybe we got the feeling that only these places are showing the authentic and original settlements of a place? Or maybe we are attracted by its enduring and times character that brings us closer to the landscape and perceived humanity of the world.

Burial places will bring ambiguous feelings to the front because they are intriguing and repulsive at the same time. The design of the burial site as well as the surrounding landscape will also play an important role on the experience of the visitors and mourners. The only thing that is sure, is the fact that burial places are closely related to a human's life and that these places can offer solace for the living. So, it is impossible to ignore and avoid these terrains of death in our lifes, we have to learn to embrace them into our current society.

¹² Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 23.

'FORGOTTEN' STORIES TO RESCUE THE DEATH

'Forgotten' stories of the rural cemetery

Unfortunately, the rural cemetery movement started to decline for several reasons (see chapter before *'The downwards spiral'*), but we can learn many lessons from this well-intentioned movement which is already forgotten by many people.

The first lesson that we can learn is the way in which the rural cemeteries succeed to **bring people together** at a place with a negative connotation, a place where people are looking at with a critical view. Within this idea, we can find a second lesson which is closely related to it, namely the **hybrid character** of those 'park cemeteries'. Thanks to this hybrid appearance, people no longer look at a cemetery from a negative perspective. They start to see potential in burial sites, they open their eyes and they see that a cemetery can be more than a monofunctional place. It becomes clear that a cemetery can offer space for the wider public and that the **publicness** can lift up the burial sites to a higher level into the community. They become more integrated into the daily life and they will be part of the public sphere.

Like the success story in the early years of the rural cemetery is showing, it is perfectly possible to give a double usage to cemeteries. But of course, the mindset of people will have a large influence on the usage of the terrain of death. Until today, many people face death with fear, but we must try to shift this way of thinking.

People should learn to accept death in their lives, not only for themselves, but also to give their loved ones a place in their lives after they passed away. This forms an important step in the grieving process and can be heavily influenced by architecture and the environment where people will linger in during this period. A third lesson is the relationship towards the green surroundings and the **healing effect of the landscape**.

The original places of rural cemeteries at the outskirts of the city were promising locations to escape from the busy, crowded city and to take a moment for yourself,

a moment to breathe. The never-ending landscape and the silent environment offer the perfect circumstances to come to yourself. Going for a walk, doing a small picnic or just sitting and relaxing in the green oasis can do more than words could describe.

Reconnection of life and death

The promising life stories of the rural cemeteries, or the park cemeteries more in general, can be summarized briefly (for a more detailed explanation, see the previous chapter). The finding from the analysis above exists of three main elements which are related to each other. This clear relationship is what we call the architectural input which will guide the cross-case analysis later on in this thesis. The three main elements that indicate these places are the following ones:

- A green, healing landscape or park which brings back the power of nature.
- A cemetery which is an important last resting place for lost life.
- A public use which creates the hybrid character of the terrain of death. It can be a small intervention like a second function in the landscape, but it can also go further by serving chapels, pavilions or other buildings which serve as gathering places for the living.

By combining these three ingredients, we get the perfect recipe with which we try to solve the contemporary problems around neglected and forgotten cemeteries. Worpole talks about the same three elements¹³:

“It was clear that in nearly all of the current literature dealing with urban and planning issues for the twenty-first century, the role and ritual space of the cemetery had been ignored. Yet anyone who has visited a churchyard, cemetery or crematorium garden – and we mostly visit these places at times of distress or upheaval – cannot but be overcome by the range of emotions that occur there and nowhere else in the natural landscape or the spaces of the city. Because these emotions are so powerful, and indeed basic to human identity, it seemed to me to be crucial to retain, and even enhance, the space of the cemetery in the city and the landscape.”

¹³ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 7-8.

In his book *Last Landscapes*, Worpole (2003) talks about the unbalanced relationship between modern architecture and landscape design. He shows that the aesthetic languages and form for responding to death are not exhausted, on the contrary, many new designs for green spaces, parks and even private gardens are dealing with new forms that respond sensitively to personal loss and public memory. But the biggest problem is that the world of the modern architecture is drifted disastrously apart from the world of the landscape design, and particularly the world of the civic cemetery.

The aim is to reconnect the three ingredients as well as the worlds of architecture and landscape design. This brings us back to the rural cemetery where both worlds are going hand in hand by attuning the three ingredients to each other. The landscape will be the constant shape throughout the story and will embrace both the public functions for the living and the last resting place for the death. The transition from a monofunctional place towards a multifunction site will serve a reconnection between architecture and landscape, between life and death.

The following words of Worpole describe the role of the pivotal landscapes¹⁴:

“The places of the dead are assemblages of signs: shifts in landscape form, openings and enclosures, arrangements of stone and sculptings, and, in more modern times, inscriptions and texts. We are able to read these signs in retrospect because they were designed and inscribed as messages to the future; indeed, many epitaphs make direct appeal to the sympathies and interests of future generations. This is why Panofsky argues that funerary art and architecture evokes both a sense of loss while, at the same time, seems to look forward to a different future, in this world or the next. In a sense the places of the dead are pivotal landscapes, places where life and death, past and future, the material world and the spiritual world are held in balance.”

¹⁴ Worpole, K. (2003). *Last Landscapes, The Architecture of the Cemetery in the West*. London: Reaktion Books, p. 99.

FROM THEORY TO REAL LIFE PRACTICE

The previous chapters focused on the theoretical side of the present problematic situation of the civic cemeteries and the solution which maybe can be found in the hidden or forgotten concepts of the rural cemetery movement. To make this theory more understandable, we will look at projects which used the previous concepts in a successful way. They dealt with a green landscape, a last resting place and a touch of publicness to bring these different worlds together again. Or in other words, they succeed in mixing up all the ingredients to make the perfect recipe.

Both case studies show how planners, architects and landscape designers take the issue of how to create new kinds of cemeteries within the modern society seriously. This is necessary to avoid the real danger of creating cities without memory or cities in denial of death and humanity. Only a few (landscape) architects have tackled the previous themes in a successfully way (Worpole, 2003).

The *Stockholm Woodland Cemetery*, called the *Skogskyrkogården*, is perhaps the most successful and most instructive landscape project. Or to use decisive words of Marc Treib¹⁵, an architectural historian who speaks in *Last Landscapes* of Worpole (2003, p. 32), "*The most perfect and profound modern landscape on the planet.*"

The second case study, *The Nieuwe Ooster Cemetery*, shows the importance of previous layers in terms of landscape design, chosen vegetation and a hybrid program for the burial site. The cemetery consists of several layers from the past and more current periods, but the architects really focussed on keeping the identity of the site as a blended entity by attuning the different layers to each other.

¹⁵ Treib, M. (2002). *Platser, places, Svensk Byggtjänst*.



Figure 20 Map of Europa indicating the locations of the two case studies: Skogskyrkogården in Sweden (number 1) and De Nieuwe Ooster in The Netherlands (number 2).

SKOGSKYRKOGRÅDEN - SWEDEN

History

The history of Skogskyrkogården, Stockholm Woodland Cemetery, goes back to the beginning of the 1900s when the other cemeteries in Stockholm became insufficient and inadequate. At the time, most of the burial grounds were created like park cemeteries with impressive monuments and big avenues with narrow side paths, all of this within a green environment (Stockholms stad, n.d.).

When the Stockholm City Council decided to create a new cemetery to complement the older ones, they moved away from the ideal park cemeteries where the landscape was manipulated and transformed to its 'perfect' appearance. They wanted to work with the landscape in an honest way by using the original forms. The new Stockholm cemetery is centred on the underlying and existing landscape.

The main goal was to create a renewing place where the cemetery and natural landscape were blended into a seamless unity. It is clearly related to the park cemeteries, but in a different landscape approach. They use an honest approach by using all the opportunities that the existing landscape offers (Stockholms stad, n.d.).

In 1912, a few years after the decision of the Stockholm City Council, they allocated a piece of land that consisted of mainly gravel, sand and coniferous trees. The Stockholm City Council decided in 1914 to announce an international architecture competition where the participants needed to take a few principles into consideration. To summarize the task briefly, the architect(s) should design the whole site with preserving the original natural values, without taking anything away of the already existing landscape or artistic expression (Stockholms stad, n.d.).

The local topography and the woodlands should be taken into advantage, which does not mean that participants need to restrict their ideas, but they need to attune everything to the landscape. They need to blend all the elements in a harmonious way without unnecessary manipulations of the landscape (Stockholms stad, n.d.).

After the announcement of the competition, the council received 53 entries. Unfortunately, many participants failed to understand the 'way of thinking' behind the cemetery and most of the entries went straight to the dustbin. A second negative influence on the competition entries was the First World War which led to many entries of domestic origin. Only one proposal was centred on the typical Nordic woodland. After that Gunnar Asplund and Sigurd Lewerentz introduced their proposal, they were awarded with the first prize in 1915 (Stockholms stad, n.d.).

After the completion, the Stockholm City Council was satisfied with the final appearance. The cemetery became a unique harmonic unity where architecture, nature and ornamentations are blended into each other. All these elements are in stark contrast with the overcrowded civic cemeteries with their endless rows of monuments in a monofunctional environment (Stockholms stad, n.d.).

The timeline of Skogskyrkogården

After that the first prize of the competition was awarded in 1915, the cemetery gradually took shape during the next 20 years. During these two decades, they built every small detail of the cemetery: starting from the pine-covered boulder ridge to the hilly landscape and its several buildings (Stockholms stad, n.d.).

1915 – 1920

Even if the council was satisfied to see this project with a real Nordic approach, a large amount of adaptations were needed before it was finalised. It took until 1917 to make the design build ready. In 1920 they finally started with the completion of the new cemetery (Stockholms stad, n.d.).

1920 – 1932

A recognizable image of a graveyard is the wall around it which clearly shows the enclosed resting place. A similar handmade limestone wall around the Skogskyrkogården is realized by unemployed people who are living in the neighbourhood.

The period between 1923 and 1932 is known in Stockholm for its enormous unemployment. Next to the wall, the Woodland Chapel was inaugurated in 1920 and the Chapel of Resurrection was also completed in 1925 (Stockholms stad, n.d.).

1937 – 1940

After three intense years of construction, the Woodland Crematorium and its three chapels were completed, including the three associated chapels: Chapel of Faith, Chapel of Hope and the Chapel of the Holy Cross. This was also the last phase of the building process to the whole new burial ground was ready in 1940 (Stockholms stad, n.d.).

1961

Lewerentz designed the Remembrance Garden and the inauguration took place in 1961. There was no other garden like this in Stockholm, so it was a renewing element at the time (Stockholms stad, n.d.).

1994

People became aware of the cultural importance and natural relevance of Skogskyrkogården. This is why the cemetery is added onto the list of UNESCO World Heritage (Stockholms stad, n.d.).

2014

The New Crematorium, designed by the architect Johan Celsing, is officially inaugurated. The three chapels, originally designed by Gunnar Asplund, are still used for the ceremonies. Only the crematorium building is changed to fulfil the new environmental requirement (Stockholms stad, n.d.).



Figure 21 The surrounding wall of the cemetery.



Figure 22 The Remembrance Garden by Lewerentz.



Figure 23 The Woodland Crematorium by Asplund.

The architectural language more in detail

The competition entry, a collaboration between the architects Asplund and Lewerentz, is showing general lines that they created together as a designing team. But each architect has also individually left his mark on the identity of the site.

Lewerentz, a famous landscape architect, has created the Almhöjden meditation grove, the Skogskyrkogården memorial garden and the Chapel of Resurrection. Asplund designed the other architectural buildings like the Woodland Chapel, the Woodland Crematorium with the three chapels and the Tallum Pavilion (Stockholms stad, n.d.).

When Asplund died in 1940 straight after the completion, Lewerentz was already out of picture due to his earlier dismissal. In retrospect, both facts had a positive impact on the cemetery. It could be "frozen" in its current situation, without any modifications. Today, the needed adaptations like the new crematorium are taken, but they still try to be true to the original design. In 1961, Lewerentz turned back to the cemetery to resume his work by adding for example the Remembrance Garden (Stockholms stad, n.d.).

Woodland Chapel

The first architectural project, and immediately also the smallest, is the Woodland Chapel, designed by Gunnar Asplund. He created a stone chapel, but his idea was rejected because it would be too expensive. In addition, he designed a wooden chapel which was totally surrounded by trees. The woodland, together with the routing and the pathways played an important role in the experience of the mourners (Stockholms stad, n.d.).

The square floorplan of the chapel is in contrast with the dome on top through which light floods in at an indirect way. Due to their small scaled detailing, the symbolic ornaments are hardly recognizable for visitors. For example, the keyhole of the front door has the shape of an eye of a skull which refers to the opening up for death (Stockholms stad, n.d.).

Chapel of Resurrection

After they realized that the Woodland Chapel became too small, Lewerentz is commissioned to design a larger one. Visitors and mourners are guided to the inside by a portico at the front. In the interior, there is almost no ornamentation while the detailed mosaic floor is asking for some attention. Lewerentz created a specific one-way to give mourners a separate entrance and exit. They leave the chapel at another side, a side which returns them to their daily lives (Stockholms stad, n.d.)

The Woodland Crematorium

The Woodland Crematorium shows a clear architectural language of functionalism, a breaking through style at that moment. The crematorium is created with a flexible and practical floorplan, one of the main aspects of functionalism.

The ceremonial part of the funerals can be held in one of the three chapels. To provide these ceremonies without any disturbance, Asplund created small gardens and waiting rooms between the chapels. The mourners in the waiting rooms have a look towards the hilly and sloping landscape around them (Stockholms stad, n.d.).

The interior of the chapels are designed with a complete lack of sharp elements. By creating almost no corners, the space has a soft character which is needed by a grieving function. This gentle approach is enhanced by the open, rolling surrounding landscape. All the smooth shapes are going hand in hand (Stockholms stad, n.d.).

The chapels have different building heights which emphasise the slopes which are running towards the columbarium's where the final step in the grieving process, namely the placing of the urn, will take place. A unique and hidden treasures of the chapels can be found in the floor patterns. Asplund created an inlaid stone floor in front of the pews with the intention to offer a healing view for the mourners when they are in a deep moment of sorrow (Stockholms stad, n.d.).

The Tallum Pavilion

The Tallum Pavilion, like it is known nowadays, was initially completed in 1923 as a staff and service building. The challenging design of Asplund with unusual forms, a

wooden building which consist of four pointed pavilions and the roofs decorated with metal showed immediately that this building was not a part of the real grieving process. It was totally in contrast with the main principles of the other architecture. Duo to the increasing public interest, the pavilion was renovated in 1998 to offer space for an information centre (Stockholms stad, n.d.).

The realisation of the three ingredients

Harmony with nature

By the start of the design process, both architects started thinking about the experience of the visitor, namely the mourners and their feelings. This is expressed the most in the landscape with all its leading routes and resting moments. Lewerentz is known as a landscape architect and he took the lead in the landscape design.

The processional routes through the landscape function as a guidance for the mourners. The pathways supports them by offering the appropriate sphere to prepare themselves for the ceremony. After the funeral service, the attention is drawn to the green, healing environment to help the mourners in giving their loss a place in their life (Stockholms stad, n.d.).

One of the clearest examples of the helping character of the routing, is the Seven Springs Way, a straight path leading from the meditation grove towards the Chapel of Resurrection. The vegetation next to the path plays an important role in the experience of the visitors. In the beginning, the path is lined with weeping birches, then ordinary birches and, the closer you get to the chapel, the more conifers (pines and spruces) are showing up. The further you are at the pathway, the darker it gets and the more melancholy feelings are generated (Stockholms stad, n.d.).

This way of planting trees makes the mourners more solemn for the upcoming ceremony. After the ceremony, they leave the ceremonial space at the opposite side to take another route back. The introduction of one-way circulation and the different atmospheres before and after a ceremony will help the mourners to gradually return to their daily lives (Stockholms stad, n.d.).



Figure 24 The pathway towards the Chapel of Resurrection.



Figure 25 The gentle stair towards the meditation grove.

A similar approach can be found in the route which leads towards the Woodland Chapel. The area around the chapel is enclosed by a low concrete wall. The woodland plays, again, an important role in the experience. The trees are planted dense within the surrounding wall to make the mourners ready for an intense emotional ceremony. After they left the ceremonial space, they enter a wide, open landscape to symbolize the way towards their open, unknown lives (Stockholms stad, n.d.).

A last example of the intense relationship between the landscape and the experience is the staircase which leads towards Almhöjden, a meditation area. Each step of the stair, from the bottom to the top, is different. The higher you climb, the lower each step. Visitors are, especially when they are in an emotional condition, tired and they don't want to make a big effort. By gradually lowering the steps, the mourners are slowly entering the landscape and its meditation space (Stockholms stad, n.d.).

It is clear that a landscape can no longer be seen as a monofunctional green space within the cemetery. It rather is the other way around: the cemetery is part of the bigger landscape. And of course, this was the main goal when the competition for the cemetery was launched. The impact that a landscape can have on people and especially on their peace of mind and their composure is clearly expressed into the Stockholm Woodland Cemetery (Stockholms stad, n.d.).

Cemetery or last resting place

Not only the formation of the landscape, but also the nature forms a central element. The open grasslands where not only mourners but also regular visitors are coming to, offer the perfect circumstances to escape a busy city or to run away from your busy life. The openness of the grass fields combined with dense pockets of trees supports different moods in a human's life.

While visitors walk through the site, the only visible thing is nature to signify the importance of the green, healing character. The graves are 'hidden' more deeply into the woodland to show that it is not the graves, but the nature which is the central focus (Stockholms stad, n.d.).



Figure 26 *The rolling, hilly landscape with open grass fields.*

An important mindset by the creation of the graveyards is the fact that all people are equal to each other, not only the living but also the death. To reflect this idea into the cemetery, no grave is larger than any other one, they all have the same appearance. Another element is, in contrast to any other cemetery, that the graves are small, and they have a simple outlook to not attract too much attention (Stockholms stad, n.d.).

The graves are integrated in a forest of around 10.000 pines. Some trees are still dating from the beginning and are almost 200 years old. Unfortunately, there is a decline in the amount of trees due to several diseases and the increase in grave digging. Of course, it is important for the whole natural character of the site to ensure the growth of these trees. To guarantee the many trees towards the future, they started with planting trees from cone seeds. We know that it will take several years for the new plants to grow, but this is also part of the whole process that not only people have to pass, but also trees (Stockholms stad, n.d.).

The landscape, together with all its forms, shapes and vegetation, will focus on the grieving process of the mourners. But the vegetation also plays an important role for the graves and the death. The many pines create a décor, a scenography where the graves can be placed into as a sort of props or attributes.

Next to that, the pines have different heights which also creates different levels. The lower to the ground, the denser they are. The lower trees offer a green canopy for the graves below (see figure 27, next page). The higher the trees get, the more they open towards the sky. A sort of reference towards heaven, the place of the dead.

There are no pathways integrated towards the graves as a sign that the greenery is the main central focus and not the graves. Paths would ask for attention and people will, unconsciously, follow them towards the graves. The community of the living is crucial, and they need to give their attention to the healing environment. They cannot stay too close to the graves or the ones they lost, because the main focus is that mourners need to get slowly into their normal lifes. They need to give their loss a place instead of staying in their deep moment of sorrow (Stockholms stad, n.d.).



Figure 27 The integration of graves into the landscape.



Figure 28 The integration of graves into the landscape.

Publicness, double usage, hybrid character

Like already mentioned in the chapter *'Forgotten' stories to rescue the death* there are a few lessons that we can learn from the rural cemetery movement. Maybe the most important lesson can be found in the way that they succeed to bring people together at the burial sites to not only say goodbye. During the promising time of the rural cemeteries, a hybrid character was introduced to give people more opportunities or several reasons to come to the burial sites.

A burial site, especially when people think about the overcrowded civic cemeteries, is known for its monofunctional condition. A public character is created at Skogskyrkogården where people are not only coming during grieving periods. The new cemetery of Stockholm is the total opposite. It is a multifunctional place in terms of landscape, as well as in terms of architecture.

When we look at the landscape more into detail, we can clearly see that it has several purposes to fulfil. The main purpose focuses on the experience of the visitors and the mourners, more specific on the landscape and its capacity to reconcile mourners with their loss, with their grieving process.

At the same time, the open landscape offers a quiet space to free your mind, to take a moment to breathe or to just walk around. A last purpose of the landscape can be found at Almhöjden, the meditation area of the Woodland Cemetery. The hill where the meditation space is created, built by Lewerentz, emphasises the gentle character of the landscape. On the top of the hill, you have the quietest space without disturbance from outside. Not only meditation in terms of grieving can be organized, but also other ways of general meditation can help visitors (Stockholms stad, n.d.).

The architecture at Skogskyrkogården also shows a hybrid program. Everything is available on the site to attract a wider audience: from intimate ceremonial spaces to a crematorium or to a visitor centre with an exhibition space, a tourist information desk, a gift shop and an outdoor café. The publicness of the Woodland cemetery is high, but one thing is sure. They added functions with a gentle atmosphere to keep the noisy and unpleasant crowd events far away from a silent grieving place.



Figure 29 Visitors Centre designed by Asplund.



Figure 30 Interior of the exhibition space.

DE NIEUWE OOSTER – THE NETHERLANDS

History

The history of the Ooster Cemetery started in 1866 as the second burial ground of the municipality of Amsterdam. Due to the industrial revolution at the second half of the 19th century, the fast-growing population reflected in an increasing number of deaths. Both cemeteries of Amsterdam became, like many other cemeteries at that time, inadequate in terms of capacity (Tot Zover, n.d.).

The municipality started looking for a new burial location and this is how the creation process of the new Ooster cemetery began. The starting point was a competition launched by the municipality of Amsterdam to create '*a burial ground as a rural park*' (Tot Zover, n.d.).

The new cemetery, located in the former independent municipality of Watergraafsmeer, was initially designed by the landscape architect Leonard Anthony Springer who won the competition in 1889. The municipality was satisfied with his vision and design strategy. Springer introduced a mix style where an organic landscape park and two geometric cores are blended together.

The further implementation should be done by a sober, gentle approach to emphasise the intimate atmosphere that is needed at a grieving location (De Nieuwe Ooster, n.d.).

Springer proposed an asymmetrical design, closed off from the outside world by introducing a green edge created with plants. Next to the green landscape, he integrated symmetrical buildings for a mausoleum and a crematorium. Due to financial issues, both buildings were rejected, and he had to redesign those areas. In addition to being a landscape architect, Springer had a large knowledge about vegetation, so the previous building locations were turned into central lawns surrounded by specific groups of trees (De Nieuwe Ooster, n.d.).

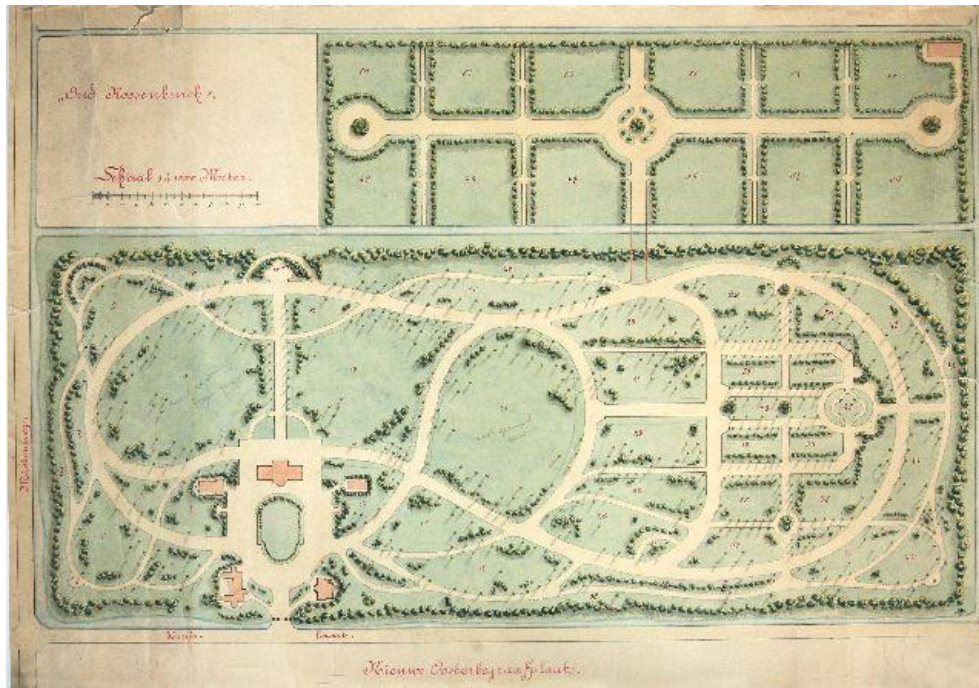


Figure 31 Initial landscape design of Springer in 1889.

The population of Amsterdam kept on growing quickly and in 1914, the cemetery was full. The municipality decided to approach Springer again to design an extension for the burial site. Due to the lack of other large cemeteries in Amsterdam, a similar problem appeared in 1928 and there was the need for a second extension. This phase of the cemetery was no longer designed by Springer, but an unknown man of the municipality of Amsterdam took care of it. Unfortunately, it was not the end of its enlarging. Two smaller extensions were realized to come to its current dimensions of a burial site of 33 hectares since 1954 (De Nieuwe Ooster, n.d.).

In more recent years, between 2001 and 2013, the landscape architects Karres and Brands are awarded with the first prize for a new competition that was launched for a (hopefully) last restoration of various buildings and the landscape design, but it was especially organized for the creating of a new ash destination area, a place where the last human remain can be placed uniquely.

The winning proposal not only focussed on a well-thought restauration and the new ash destination, but also on a masterplan for the entire site with several new elements which are introduced onto the burial site to make the cemetery more up to date for the current community standards (De Nieuwe Ooster, n.d.).

The most renewing part that Karres and Brands introduce, cannot be created separate from the older parts of the cemetery. To keep the entity, the blended unity between an organic landscape park and two geometric cores that Springer once created, the awarded landscape architects thought about a masterplan, a structural vision for the entire site (Gouden Piramide, 2014).

The new ash destination zone is created with the 'barcode'-concept. This concept emphasises different sequences, just like the lines on a barcode, but it also functions as a sign of a symbol of equivalence and the current multicultural society. At the same time, it works as a contrast between the flowing pathways and organic shapes that Springer introduced to give a clear separation between the designs of different architects in different time periods (Gouden Piramide, 2014).

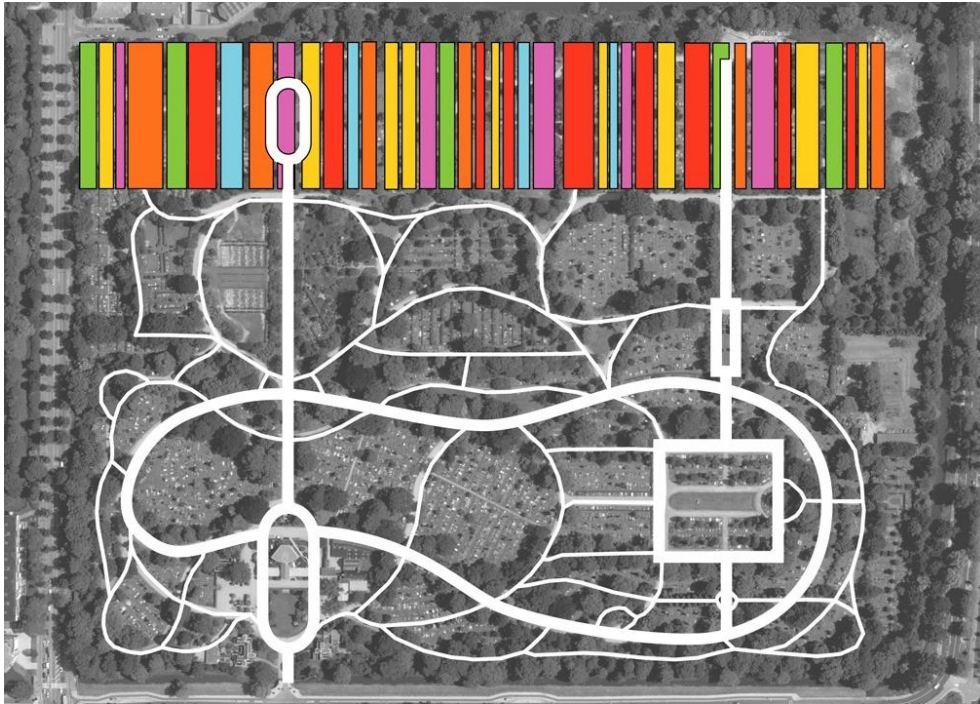


Figure 32 Structural vision of Karres and Brands architects.

The three different zones of the whole cemetery (two of Springer and the new one of Karres and Brands), and also the three different periods in which they were created, are connected together with two main axes. Karres and Brands built further on the different zones of the cemetery, zones which were unconsciously created throughout the cemetery's history, but it is important, especially because you can feel it in the landscape. For example, the oldest trees can be found in the oldest part (Gouden Piramide, 2014).

Due to the structural vision for the entire burial site, the architects knew that the development could take several years. This is why they also integrated a sort of planning for the different zones, a sort schedule at long term. So, the masterplan consists of three main zones and three different design approaches:

- The first zone, the oldest part of Springer, would be restored.
- For the middle part, the extension by Springer from 1914, the emphasis should be on re-interpretation.
- The third zone, the extension of 1928, never had a similar spatial or architectural quality as the previous ones. The barcode-concept would be introduced in this zone of the memorial park (Gouden Piramide, 2014).

The landscape architects describe their work as 'the past gives structure to the future' which reflects in the different approaches (Karres and Brands, n.d.).

The entrance area, which is located in the restoration zone, is heavily redesigned. In collaboration with Bierman Henket Architects, they made a masterplan for the entrance zone. The main goal was to make the original structures, designed by Springer, visible again. The same goes for the buildings and their architecture which had to be restored in its full glory. To achieve this, many additions were deleted to return back to the essential elements. This also reflects in the restoration of the auditorium which Bierman Henket took for their account.

It is clear that the major redesign of the old Ooster Cemetery was to show that the burial site is, next to a quiet place for mourning, also an attractive memorial park where everybody feels welcome and not only when they are grieving (Gouden Piramide, 2014).



Figure 33 Overview of the new ash destination zone with the barcode-concept.



Figure 34 *New entrance area with a view towards the auditorium and the crematorium at the back.*

The timeline of De Nieuwe Ooster

The (building) history of the Ooster Cemetery is not easy to summarize. We need to deal with several architects and many adaptations or extensions to come to the current appearance of the cemetery. Through its remarkable history, we can find one general principle: the landscape, the graveyard and the related buildings were the priority in every step of the development process.

1889 – 1894

Springer worked on the needed adaptations of his proposal to get it ready for construction. Already one year after that he was awarded with the first prize, the building process started in 1890. The first burials took place in 1894. At this time, the only buildings at the green cemetery were the services houses and the gravediggers house (Tot Zover, n.d.).

1894 – 1917

After some years of success, the cemetery became inadequate in terms of its capacity. In 1914, it was time to realize the first extension of the cemetery, also designed by Springer. It took three years, until 1917, to finalise the needed extensions (De Nieuwe Ooster, n.d.).

1928 - 1939

Amsterdam was expanded with some new small-scaled cemeteries, but the lack of larger burial grounds caused a new need for an extension of the existing ones, like the Ooster Cemetery. Springer was no longer approached, and an unknown staff member of the municipality took care of the extension (De Nieuwe Ooster, n.d.).

Around the same time, in 1938, the city architect Jan Leupen designed an auditorium space next to the entrance which replaced the existing entrance building. One year later, in 1939, the auditorium was ready for usage (Tot Zover, n.d.).

1940 – 1959

Since 1940 the municipality realized that the cemetery would soon become too small again and they started to think about minor additions or extension into the nearby future. The first one took already place in 1942, while another one followed in 1959.

1960 – 1994

After a second period of success, the increasing interest in cremations raised questions for the cemetery. Other cemeteries already adapted its environment to include (a) function(s) related to cremation. As a result, they designed a crematorium in 1994 (Tot Zover, n.d.).

2003

The New Ooster Cemetery is recognized as a national monument. Various buildings, graves and the entire landscape design is added to the list of National Monuments of The Netherlands (Tot Zover, n.d.)

2006 - 2015

Starting in 2006, a (hopefully) last restoration of various buildings and the whole landscape design took place by the landscape architects Karres and Brands. This reflected in several new elements and new functions which were integrated into the cemetery:

- a new office building with funeral services and an old shed was reused for a small auditorium space (designed by Bierman Henket Architects);
- the old director's house was turned into a café and museum called the 'Nederlandse Uitvaart Museum' (designed by Kerssen Graafland Archtiects);
- urn gardens
- the old crematorium is replaced by a new one to fulfil new environmental requirements (designed by Bierman Henklet Archtiects) (Gouden Piramide, 2014).



Figure 35 The reused storage as small auditorium space with coffee table.

The architectural language more in detail

All the following information is derived from the official website of De Nieuwe Ooster (n.d.). According to the description of the competition to create '*a burial ground as a rural park*', the main focus in the design proposal was the landscape approach of Springer. But of course, he was not the only architect which was involved. City architect Adriaan Willem Weissman designed several buildings in 1892. Most of them were grouped around the court in the front of the cemetery. The buildings had the following functions: a reception and entrance building, a director's house, three houses for helpers, storage spaces and a small auditorium.

One of the most obvious elements in the appearance of the buildings were the American and English influences, especially from the arts and crafts movement. For example, the reception building shows a clear country-house style and it was completely built out of red bricks with detailed ornamentations. When the lack of an auditorium space became problematic, they decided to demolish the entrance building which already was called 'outdated' and 'gloomy'.

The new auditorium was designed in 1939 by another city architect, namely Jan Leupen. Due to financial issues, he had to reuse the existing foundations of the reception building. This reflected in a design that was partly, or almost completely, determined. It was already clear that the auditorium should become a wide and shallow fan-shaped space where the mourners gather around the central spot where the coffin or the urn is placed. After the ceremony, the doors open gradually and the mourners have a view towards the 'Path to Heaven', one of the most important elements of the landscape design of Springer.

Just before the breakout of the First World War, the small auditorium space was put into usage. Straight after the war, the hall and the famous wall painting were added to the building. In this painting, the meaning of the burial ground is coming to the front: the grieving figures are waiting in a hall which will lead them towards the auditorium, a place where nature, quiet peace open lands, memory and memorial are coming together.

The connection that Leupen makes with its architecture is striking, especially with the fact that he had to reuse the existing foundations. The typical fan-shape of the auditorium space is emphasized by the painting and the painting itself is accentuated by the light which comes through the high, open windows (De Nieuwe Ooster, n.d.).

The realisation of the three ingredients

Harmony with nature

The landscape developed into a unique nature area. The memorial park is part of the bigger green structures through Amsterdam and not only focuses on a human's life, but it also offers advantages for the biodiversity. When the burial site closes at night, they expressly chose not to integrate artificial light. Of course, the dark cemetery will not scare people away, but they really wanted to make a place for the animals as well (De Nieuwe Ooster, z.d.).

The auditorium at the front court of the cemetery, designed by Weissman, functions as a central element within the landscape. Springer introduced a blended unity of organic, winding paths with two geometric cores where some buildings are located. In this idea, he made one exception to help mourners with their grieving process. After the ceremony, the doors of the building open gradually to give the mourners an endless view towards a straight, clean pathway, called the '*Path to Heaven*'. Mourners follow it with an open view towards the future and they need to be aware of the fact they are gently returning to their normal lives (De Nieuwe Ooster, n.d.).

The Ooster Cemetery has, next to its primary function as a burial site for standard graves and the human remain as a result of cremation, the memorial park as one of the most import pillars of the cemetery. The park offers circular walks to have a full experience of it, several tree trails to give people a closer look to the vegetation and some other welcoming events through the year (De Nieuwe Ooster, z.d.).

During the major restauration of the cemetery, the landscape architects Karres and Brands not only looked at the general picture. The green healing environment was already existing, so they had the opportunity to go more into detail and to look for small-scale interventions in terms of nature.



Figure 36 The pond with floating urns.

After that they introduced their bigger structural vision of the memorial park with its strong vertical lines, they stepped into detail of one specific part, namely the urn garden. The vertical sequences are also integrated here by offering several ways of placing the urn. Each sequence refers to another way: the urn can be placed into the magnolia forest, there are small urn gardens which can be personalized and filled in by the mourners, the architectural columbarium and there is a pond with 'floating' urns. Each way of placing the urn is touching another element of nature: ground, trees and flowers or water (Tot Zover, n.d.).

The new Ooster Cemetery is called 'a green oasis for rest and reflection', a place to commemorate and to experience a way of connecting life and death. It is a place where, according to the natural environment, the hectic character of a mourner's daily life fades into the background. They are able to free their minds as a result of the green landscape where the mourners can go to (Tot Zover, n.d.).

Cemetery or last resting place

At the time that Springer was designing, cemeteries were still organized in several subcategories, each for one social class of society. He organized the most important graves, the one of the highest class, along the main paths through the park, under trees which functioned as a natural canopy or against a background full of trees to give them a well-loved décor (Tot Zover, n.d.).

Unfortunately, due to the lack of capacity and the fast-growing population, several ornamental borders or detailed green strips are sacrificed to place more graves. However, these well-intended removals of green space were not enough, and Springer designed the first extension (Tot Zover, n.d.).

In retrospect, it is a pity that we have lost certain landscape elements due to the increasing amount of deaths. The green spots are occupied by gravestones and it is almost impossible to refill it with greenery. We lost important elements of the initial design of Springer, important landscape elements which had their own contributions in supporting the mourners during their grieving process.



Figure 37 Overview of the green burial site.



Figure 38 Overview of the green burial site.

The resting places and their typical ordering are still visible in the older parts of the cemetery. The nature has grown more spontaneous, trees are aging and showing traces of decay. It has more the atmosphere of the tragic part of our life, the saying goodbye. When you walk throughout the park in the direction of the new developed part by Karres and Brands, you feel the difference in the modern way of adding the green in strict, straight lines next to each other.

But an important common principle by the old and new part is the specific choice for the vegetation and the natural sources like the ground and water. Everything is chosen to help mourners with their grieving process in the best possible way.

Publicness, double usage, hybrid character

The jury rapport of the competition (2014) clearly says that it is no longer just a cemetery where everything is focused on the death. On the contrary, it functions as a place for the living and how they have to deal with their loss.

The new Ooster Cemetery is an attractive memorial park where the surrounding community and other visitors are coming to. In this project it is clear again that the most important lesson that we can learn about the rural cemetery movement is the way in which people can gather at a cemetery. And to make sure, they are not only gathering to say goodbye to a share loved one of their family or friends, but they come here together to picknick, to walk, to relax or to escape their daily life.

It makes it even more attractive to come to this place because of the different atmospheres throughout the memorial park. The two older parts offer organic shapes and winding paths, while the new part is created with clear straight paths and everything is designed in between lines. The older vegetation shows decay and has several stories to tell, while the new plants are clean and leading us to the future where visitors can see them grow. Each zone tells different stories about the past and will create new stories for the future.

The architectural buildings reflect the diverse character of the entire site. There are not only functions related to death like the crematorium, the ceremonial spaces or

the burial grounds, but there also is a visitor's centre with a museum and a café. Especially the last two functions show the double usage of the cemetery. A usage that gives the opportunity to come to the Ooster Cemetery in glorious days of your life as well. A hybrid program shows once again the importance of these places.

We can conclude that not only the architecture and the program inside these buildings create the hybrid and public character, but also the vegetation which tells different life stories attracts people to come and to discover about plants, trees, bushes and several kinds of flowers. It brings us back to the importance of the landscape, not only its healing character, but also the knowledge and the (bio)diversity that it carries on.

COMPARISON BETWEEN THE CASE STUDIES

General situation

Both case studies are created in a similar situation where the already existing (urban) cemeteries became too small, insufficient or inadequate in terms of capacity. The overcrowded and neglected situation at the civic cemeteries became more and more problematic and the municipalities decided to search for another way to create a burial site. Some solutions were found in the rural cemetery movement where they chose for a more remote location outside the crowded city centre. A similar approach is used by the creation of the two cases above.

Another common element for both cases is the competitions that were launched as a starting point to create the burial site. This immediately shows that they searched for a renewing way in designing a cemetery. They should be totally different than the urban cemeteries which are characterised by rows of graves and a few straight paths. The monofunctional structure was outdated and there was a huge need to a refreshing cemetery design. The descriptions of the competitions also included the importance of the landscape: *'design the site without taking away the existing landscape or its artistic expression'* for the Stockholm Cemetery and *'create a burial ground as a rural park'* for The Nieuwe Ooster Cemetery.

Comparison

In this chapter, the Skogskyrkogården and the New Ooster Cemetery will be compared to summarize the lessons that we can learn from them. The two case studies show the importance of the three main ingredients of a healing landscape, a burial site and a public character or hybrid usage. Especially the way in which they are attuned to each other, forms a strong concept or starting point for both cases. The relationship between the three ingredients and the way they are integrated into the bigger picture, is what we call the finding from the cross-case analysis above.

A concluding analysis of the three main ingredients follows to see how the cases relate or differ. The several parallels and differences will be listed in an overview.

1. Harmony with nature

Skogskyrkogården

In contradiction to the rural cemeteries where they manipulated the landscape to create an 'ideal' or 'perfect' appearance, Asplund and Lewerentz worked with a great respect for the underlying original landscape of the woodland. The only possible way to achieve a renewing burial site where the cemetery and landscape are blended is to be true to the original landscape and to play with its opportunities (Stockholms Stad, n.d.).

The healing environment is crucial for visitors and mourners and it is expressed in a landscape with leading routes to guide them through their grieving process. Processional routes with an attuned vegetation are the main focus. Trees are planted dense or they choose for conifers to guide the mourners towards an intense emotional ceremony. After the ceremony, mourners walk through an open field with a view towards the future (Stockholms Stad, n.d.).

De Nieuwe Ooster Cemetery

Especially during the recent restoration of Karres and Brands, there was a clear respect for the original plan of Springer. They worked with several design approaches, one for every part of the cemetery, to offer the most suitable conditions for the initial ideas. The redesign of the third extension is an exception, because they redesigned this part in a contrasting modern style. It needs to be distinguishable from the older parts (Gouden Piramide, 2014).

The original organic plan of Springer shows one clear 'stranger'. Behind the auditorium building, one straight pathway is introduced as a processional route. After the ceremony, mourners leave at this long straight path and it gives them a view towards the future.

2. Cemetery or last resting place

Skogskyrkogården

Everything is designed with the main focus towards the landscape and its healing character. Graves are 'hidden' deeply into the woodlands to not make them visible through the entire landscape. Mourners don't want to see graves everywhere throughout their grieving process. By not integrating paths towards the graves, they highlight the importance of the landscape (Stockholms Stad, n.d.).

For the graves itself, Asplund and Lewerentz introduced one main rule: all the graves are equal. They have the same height, shape and appearance. They want to focus on the current society, a multifunctional culture, but still, everybody is a human. Everyone deserves to be treated the same.

The burial sites are seen as attributes into a green décor made by several species of trees and plants. The pines create a canopy, while smaller plants form walls around them (Stockholms Stad, n.d.).

De Nieuwe Ooster Cemetery

When Springer designed the burial site, cemeteries were organized according to the social classes of the society. Due to the respect for the initial design, this organization is still visible, and the graves are spread out over the entire site. The recent part of Karres and Brands focuses more on cremation and several ways of placing the urn with the human remains. They choose to work with several elements of nature: ground, earth, trees, plants and water (Tot Zover, n.d.).

Even if there are graves everywhere, you can still feel the difference in time period. Each zone from another extension period, shows a different green décor. The oldest part shows old trees with traces of decay, while the new part shows a diversity of modern flowers.

3. Publicness, double usage, hybrid character

Skogskyrkogården

The Stockholm Woodland Cemetery functions as a multifunctional place in terms of landscape and architecture. The hybrid program is almost completely introduced by the functions inside the buildings, but also the landscape has several characteristics which attract a wider range of visitors.

The two greatest assets of this place are the silence that prevails there and the green surrounding landscape. The two qualities go hand in hand with the grieving process, but they also provide ideal conditions for relaxing or escaping from a busy daily life.

De Nieuwe Ooster Cemetery

Next to its function as burial site, De Nieuwe Ooster Cemetery functions as a memorial park. This park offers space for grieving, saying goodbye and memorial combined with places for leisure, relaxing and escaping. This is how the landscape functions as a multifunctional space between glorious and tragic moment of a human's life.

The multifunctional character is enhanced by the green surroundings of the park. The green edges function as a natural barrier between the daily life and the other world, a sort of refuge. Once you have entered the green walls of the cemetery, the grind of daily life will disappear to the background. The silence and green environment are something that you miss in your normal life and what can help you to process, structure and order your life.

Overview

<i>PRINCIPLE(S)</i>	<i>SKOGSKYRKO- GÅRDEN</i>	<i>THE NEW OOSTER CEMETERY</i>
GENERAL		
Located outside the city centre.	X	X
In contradiction to the neglected urban cemeteries.	X	X
Adaptions to fulfil current requirements are approved, but with respect for the original design.	X	X
LANDSCAPE		
Using the existing shapes of the landscape.	X	
Manipulating the original landscape forms.		X
Using well-thought vegetation.	X	X
Processional or guidance routes.	X	X
CEMETERY		
Pure focus on the landscape, not the graves.	X	
Graves can have their own identity.		X
Green décor with graves as attributes.	X	X
PUBLIC CHARACTER		
A multifunction space in terms of landscape and architecture.	X	X
Two assets: silence and green environment.	X	X

A FINDING FROM THE RESEARCH

The finding from the critical analysis of the case studies creates a clear view of the importance of the three main elements: a burial ground, a green landscape and a public character. They are closely attached and each one will have an influence on the others.

We can conclude that, especially in the case studies, the project will not be the same if one of the three ingredients was missing. The landscape affects the burial ground which is placed in the green environment, while the public use follows from the way that the landscape and the cemetery are attuned to each other.

Maybe, the most important part is 'hidden' in the collaboration of the three elements. Each element has its own character and its own contribution within the global picture, but they have one main principle in common: ***they have the capacity to reconcile the mourners with their loss, with their grieving process.***

LINK WITH MASTER PROJECT

General

The two case studies, as well as the rural cemetery movement, started from a common problematic issue: the overcrowded, neglected urban cemeteries. The places became overcrowded, graves were emptied to reuse them, or they were stacked upon each other. They ended up with a negative connotation. The rural cemetery was fundamentally different and offered, due to its location at the outskirts of the city, a green, healthy space where people could go to (Smith, 2017).

A similar problem appears in the 21st century and it reflects in neglected and inadequate burial grounds. The project site for the master project, the Fortress of Kessel, is, like its name is literally showing, located in Kessel, a sub-municipality of Nijlen. The urban cemeteries of Nijlen became too small in 2008 and when in 2014

the man who maintained the burial sites regularly quitted his task, the civic burial grounds ended up in a downwards spiral. In 2019, the situation got out of hand and the weeds took over the entire burial sites. The neglect and lack of maintenance enhanced the negative image of the urban cemeteries within the city centre.

Due to the overcrowded urban graveyards in Belgium, the relatives must decide whether they want to keep their loved one's grave or whether the municipality can reuse it. And even worse, if they want to keep the grave, financial compensation is required. Or in other words, you have to pay for the occupied place at the burial site. It is terrible that mourners have to think about all of this. Such choices should not be made, especially not when the relatives are still alive. Year after year, the situation becomes more problematic. Due to the urban sprawl of Belgium, it becomes more difficult to find a suitable place for a new burial ground.

At the same time in the 21st century, the reuse of historical buildings becomes more popular. People are aware of the importance of ancient buildings and they want to reuse them instead of demolition. Many reuse projects focus on the future and they want to create a new, unique function inside. But maybe we need to return to ancient functions, functions which are known for centuries all over the world. This is how we come to a burial ground, it is a common knowledge and it is one of the only things that stayed the same during fast-changing and fast-growing times.

Like mentioned in the chapter '*Historical Research*' several forts are partly, or in its entirety, reused with a memorial value for the historical stories and the soldiers that we lost. Of course, this is important to remember our history and everything that happened in the past, but maybe we can integrate another way of commemorating.

The well-preserved part of the Fortress of Kessel will be turned into a place where people will say their last goodbye, a last resting place, or more specific '***a mourning place***'. It becomes a place where the relatives will gather to continue the grieving process and to share memories with each other.

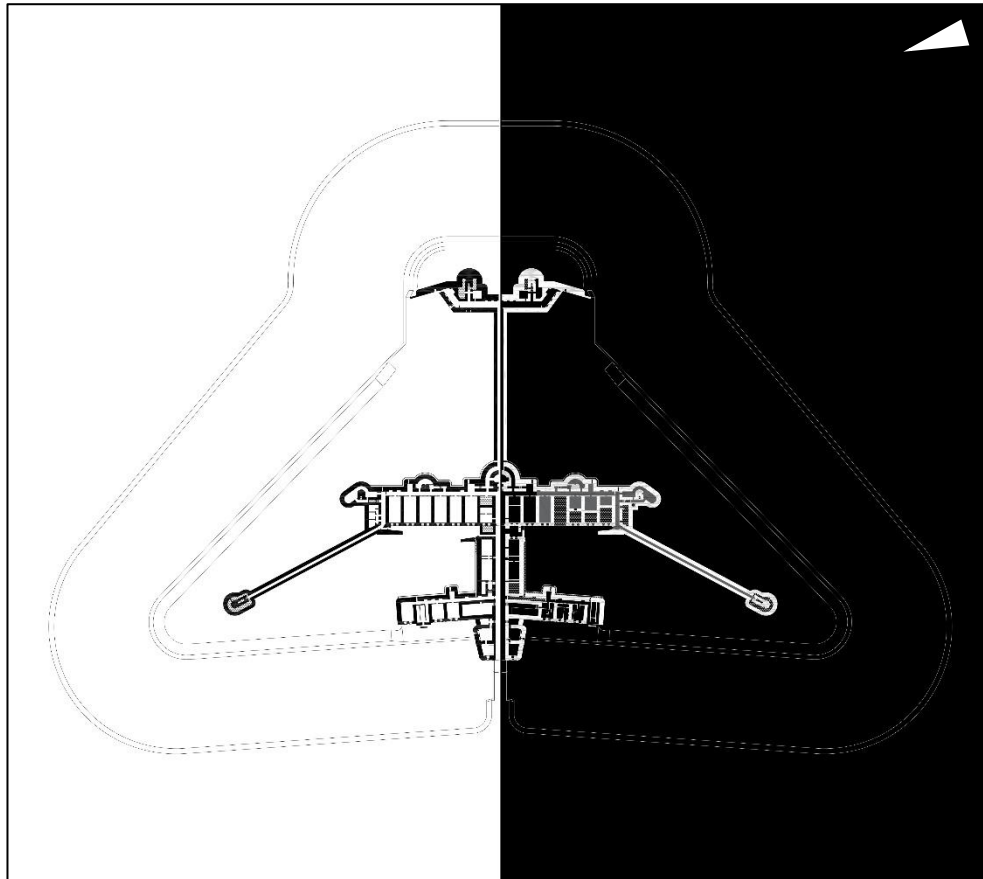


Figure 39 Conceptual drawing. Due to the contradiction between 'life' and 'death' and the symmetrical structure of the floor plan, both sides of the Fortress of Kessel are emphasized by using two different mirror approaches. The well-reserved part (left side) is reused to integrate it into the current society, while the damaged part (right side) is kept in its current situation to continue its important role as a home for the bats where nature and ruination can take over.

The conceptual name of '*a mourning place*' shows two important aspects:

- The old fort which mourns about its history.
- The reuse function of the defence building which offers place for the most important steps in a grieving process of a human's life. It is a gathering place for mourners to give their loved one a last destiny.

The concept for this project starts from existing stories that will be reinforced. For example, the memorial function will not be a disturbing element for the life of the bats. The people are emotional and there is a modest atmosphere, which means that noise is avoided as much as possible to not scare the bats away. Next to that, the function is important for the whole society, even for the ones who are looking at the fort from a more negative perspective. We have to be aware that some people dislike the fort because of its history, but by introducing a gentle function which helps everybody with grieving, the fort gets a positive image for its community.

The adaptive reuse function for the Fortress of Kessel offers a solution for both existing problems. The unattractive urban cemeteries will be broadened by introducing an additional mourning place at the fortress where the human remains can be integrated into the green surrounding landscape.

Everybody comes in contact with such a mourning function, so the fortress site offers several advantages for the entire community and the distant relationship between the fort and the surrounding society will decrease.

Three main ingredients

To turn the way of thinking above into a success story, the three main ingredients of a burial site, the green environment and a public character need to be attuned to each other and they need to be integrated into the local conditions.

The existing fortress location already offers a green, open, healing landscape and by giving guided tours through the fortress, the public character is also enhanced.

Both existing conditions can go hand in hand with a mourning function, a place where mourners can continue their grieving process.

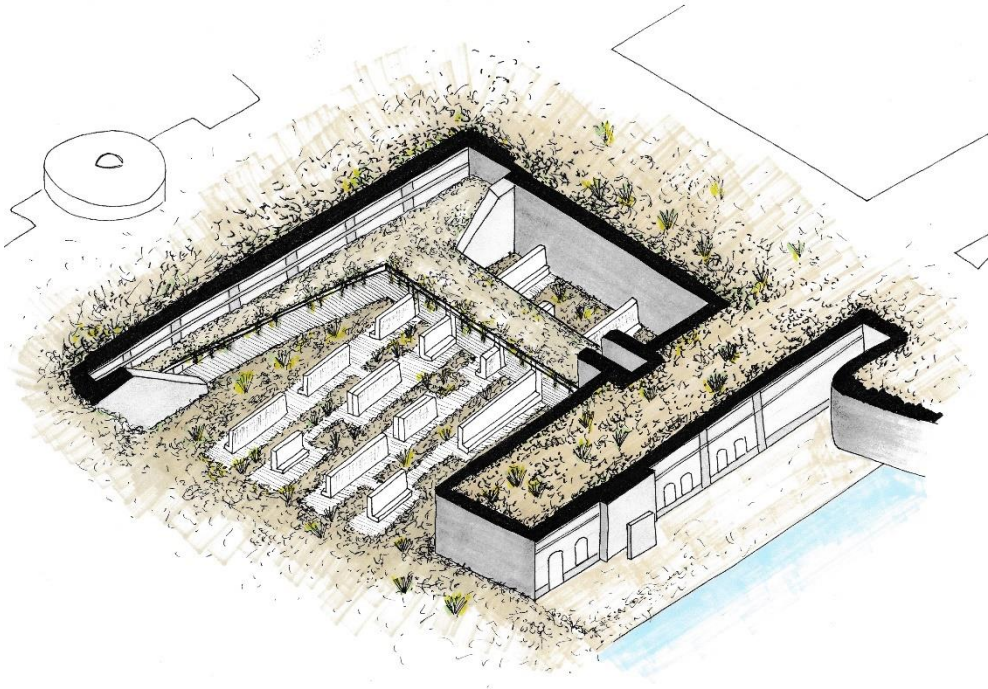


Figure 40 Sketch of the 'remembrance square' that is introduced at the court within the wings of the Fortress of Kessel. View towards the columbarium and the urn gardens in between.

1. Harmony with nature

The existing green landscape and its differences in height, will serve as a healing environment and a refuge for inhabitants that need to escape their normal life. The silence that prevails will work together with the green landscape to create a unique place at the outskirts of the society. They form the main assets of the Fortress of Kessel and they enhance the mourning function which needs these conditions.

The lowest level of the landscape is used as a remembrance square with several burial options for the urns. A columbarium, natural burials and urn gardens are introduced to give several integrated options within in the existing landscape. The middle level offers space for a garden ceremony and the highest level serves as a walking zone with open views towards the unknown future.

The circulation and processional routes through the building and the garden focuses on the experience of the mourners. It shows how life and death, or nature and humans differ or relate.



2. Cemetery or last resting place

A burial ground will be introduced into the green environment of the fortress, but it will focus on the human remains due to the upcoming cremation trend. Other ways of natural burials are maybe possible into the future. It is important not to contaminate the ground of the fortress to keep the natural environment as healthy as possible.

Several ways to place the urn into the landscape will be introduced as attributes into a green décor. The surrounding hilly landscape mainly exists of low plants and grass, but also the fortress ditch can serve as a last resting place of the human remains. To minimize the impact on the original landscape and to strengthen the primitive beauty, the existing shapes are used in an honest way without any unnecessary adaptations.

Using different elements of nature like the ground, trees, plants and also water, strengthen the green outlook of the fortress. People get more aware of the power of nature within their grieving process.



Figure 41 Section through the landscape to show multifunctionality of the different levels.

3. Publicness, double usage, hybrid character

The public character already exists with the guided tours that they offer to keep the fortress and its history alive for inhabitants and visitors from elsewhere. It is perfectly possible to keep this function combined with a new, mourning program. Even better, it will add an extra layer to the history, and it gives visitors a different look towards the fort and the possibilities of a defence infrastructure.

There is a cultural and natural relevance by looking at the bats with the existing landscape and the people. The fortress building itself shows a mirror approach to offer opportunities for both cultural and natural purposes. One part is totally occupied by the large population of bats. By closing it off, we can help the protected species to grow again.

The other part of the fortress will support the mourning program. The experience of the mourners is crucial, and it reflects into a conceptual loop which will guide the mourners throughout their grieving process.

The multifunctionality can be found in the program of the building and in the landscape. Ceremonial spaces and rooms for coffee tables are integrated within the building, while the remembrance garden and for example the columbarium are creating a hybrid green space.

By blending the three main ingredients above, we get a perfect, mouth-watering recipe for the entire society with a large respect for the existing conditions, the historical layers and the population of bats as the current inhabitants of the fortress.

CONCLUSION

Just like many other building typologies at the outskirts of the society (for example abandoned buildings or unused industrial buildings), the fortress is waiting for a new purpose to continue its role as an ultimate story carrier of a certain memory. The underutilization of the buildings at the border of the city centre are in contradiction with their previous lifetime. Once in history these buildings were the most important places due to their function and important role into the society.

The same goes for the Fortress of Kessel. When we look to the surrounding environment at a macro scale, we can clearly see that the fortification had a big influence on the development of the areas around it. But most important of all, it formed the community, a community of soldiers, at one point in history.

All these ‘forgotten’ buildings offer a green and silent environment where people can relax, gather, socialize and enjoy the splendour of nature. These are important conditions that we can barely find in the current society where everything focusses on the fast-growing and rapidly changing requirements of our daily life.

The three main elements that are discussed within this thesis are not something new. They were already important during the 19th century during the rural cemetery moment, but in the current high-speed society people don’t have the time to think about mourning, nature or doing something with others.

This thesis functions as a plea towards the future to rethink and to broaden the visions of the urban cemeteries by integrating them into abandoned or neglected buildings at the outskirts. By reusing existing heritage buildings with the three ingredients of a burial ground, a green environment and a public character as the central focus, we benefit from existing local conditions and it is possible to offer some breathing space into the current society.

Due to the architectural merits, the hidden beauty and the different life stories that buildings like the Fortress of Kessel can tell, each one is worth preserving, even if the reuse process is a difficult task.

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Figure 15

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Figure 19

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Figure 25

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Figure 39

Made by the author Vandeputte, S (2020).

Figure 40

Made by the author Vandeputte, S (2020).

Figure 41

Made by the author Vandeputte, S (2020).

