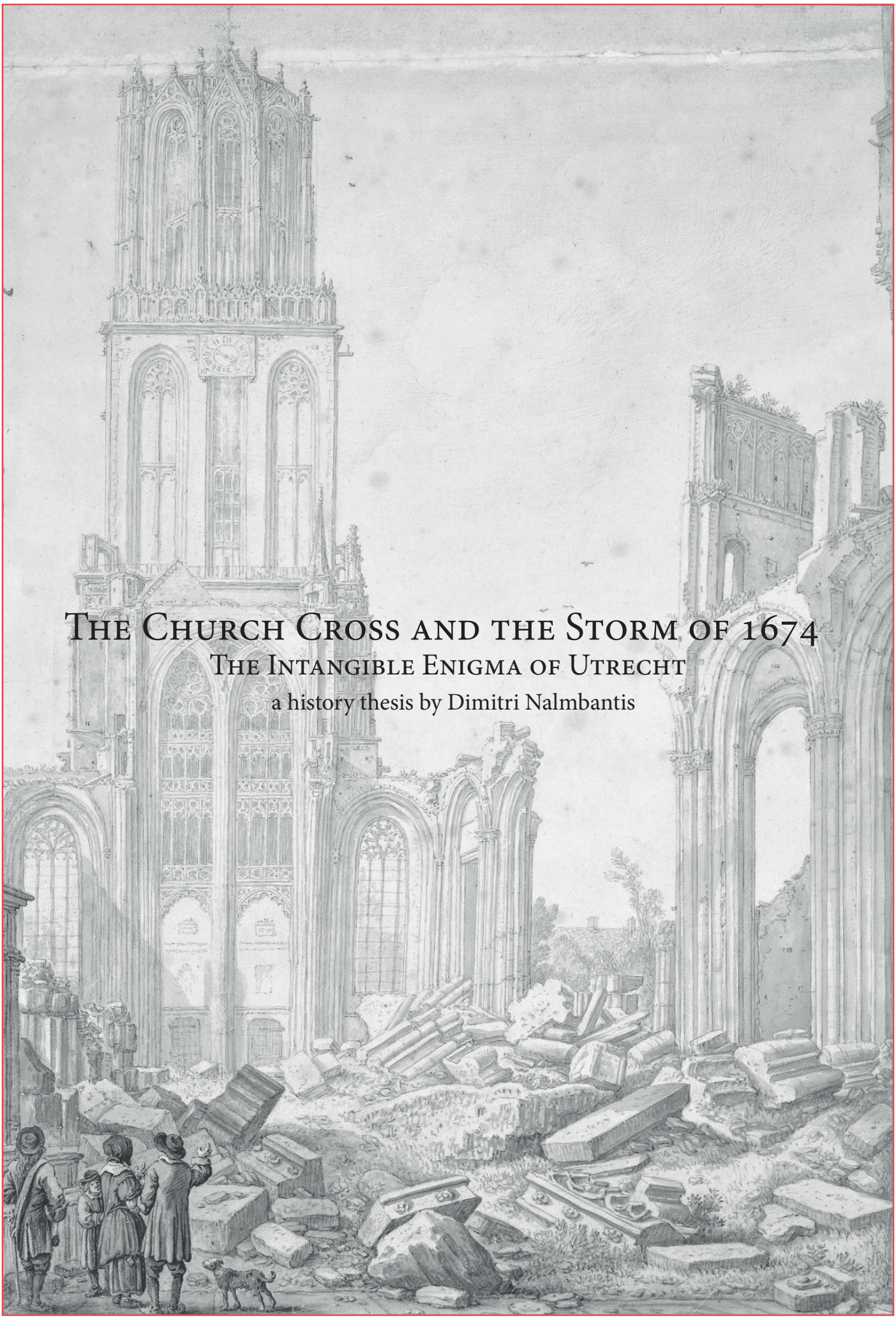

The Church Cross and the Storm of 1674

The Intangible Enigma of Utrecht

a history thesis by Dimitri Nalmbantis

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Preface

This dissertation is the outcome of two architectural history courses during the MSc Architecture at the TU Delft. The aim of the first course was to develop the research question and a proposal on a topic within the historical discourse of architecture. The second course concentrated on carrying out the research in the form of a dissertation.

A main motive was to make the report understandable for inhabitants of Utrecht to raise consciousness of the historical context they live in. Architectural historians, especially those interested in the impact of architecture on the urban scale, can find relevant information throughout the entire report, but especially in chapter 2.

I owe my gratitude to Dr. Everhard Korthals Altes, who as the tutor helped me a lot with his historical knowledge, and advised me to conduct research on a relevant topic.

Abstract

In Medieval Utrecht, five churches were built to form a Christian cross in plan. After centuries of turmoil, in 1674, a storm with multiple tornadoes passed right through the city, damaging most of the churches badly. During these thirty minutes of extreme weather conditions, the skyline had lost most of its church towers, spires and roofs. Since the city was poor, most of the churches were rebuilt in a simple way. This was completely in contrast to the majestic potential to have all churches at the ends of the cross built monumentally with two towers and needle spires, generating a great symmetry with the tallest tower, the Domtoren, in the middle. This would have made the invisible cross plan to be unmistakable in the skyline. On street level, the Domkerk lost the entire nave, and the Pieterskerk's front facade, including the two towers, collapsed. The latter created a beautiful opening straight towards the Dom, but after renovations the design of the Pieterskerk didn't make sense anymore on a larger scale. The storm and the following actions made it impossible for the city to make use of the architectural potential, resulting in the invisible enigma the cross forms in Utrecht today.

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Introduction

The inner city of Utrecht is known for its monumental churches amidst a vernacular context. Catholics in the late Middle Ages built five significant collegiate churches in the city. The importance of Catholicism was huge until the late 16th century, when the Protestant Reformation took place. One century later, the city was occupied by the French for several years, leading to a poor financial situation when the occupiers left. When the inhabitants of Utrecht thought it couldn't get any worse, disaster struck again. It was August 1st, 1674, when a heavy summer storm hit the Netherlands. Utrecht was damaged the worst, with reports of reckless tornado's swirling through the city centre damaging everything that lay on its path. Especially the taller parts of the city, mostly churches, constructively failed to resist the weather conditions. The nave of the Domkerk, the largest church of all, got blown away by the strike of a tornado, resulting in a disconnection of the church tower at the front and the choir at the back.

A personal motive is that I noticed how the new generation of inhabitants in Utrecht didn't know about this crucial piece of their city's history. While mostly caring for what's happening currently, people don't even seem to realize how exceptional some situations in the city are. Utrecht historian Van Hulzen (1948) wrote the following:

"Knowledge of your own city is needed to see the characteristics of the other… Yet, people do not obtain knowledge without trying to understand the history of the city."

In literature, it is mentioned what parts of the churches got destroyed but there is no qualitative comparison of the before and after situation to research the impact on the image. By putting the changes after the storm in a historical context of the importance of Christianity between Protestants and Catholics, and an architectural evaluation, it enables a new understanding of the churches of Utrecht. Therefore, the main question of this thesis will be: *how did the devastating storm of 1674 change the image of churches in Utrecht?*

The chapters for this thesis are:
Introducing the Period around the Storm
Change of Skyline
De Domkerk
De Pieterskerk

The dissertation will be conducted through a literature analysis on historic books and reports, and a study on paintings that were made of the city in the concerning period. With these elements, I'll be able to practice the following methodology. The mentioned historical sources contain factual information. Through a combination and right follow up of information, a relevant narrative on decisions and ideas will originate. By comparing these sub conslusions to the paintings and analytical drawings, it will become clear what the effects were of the ideas that eventually led to preservation, renovation, removal or even historic unawareness after the storm.

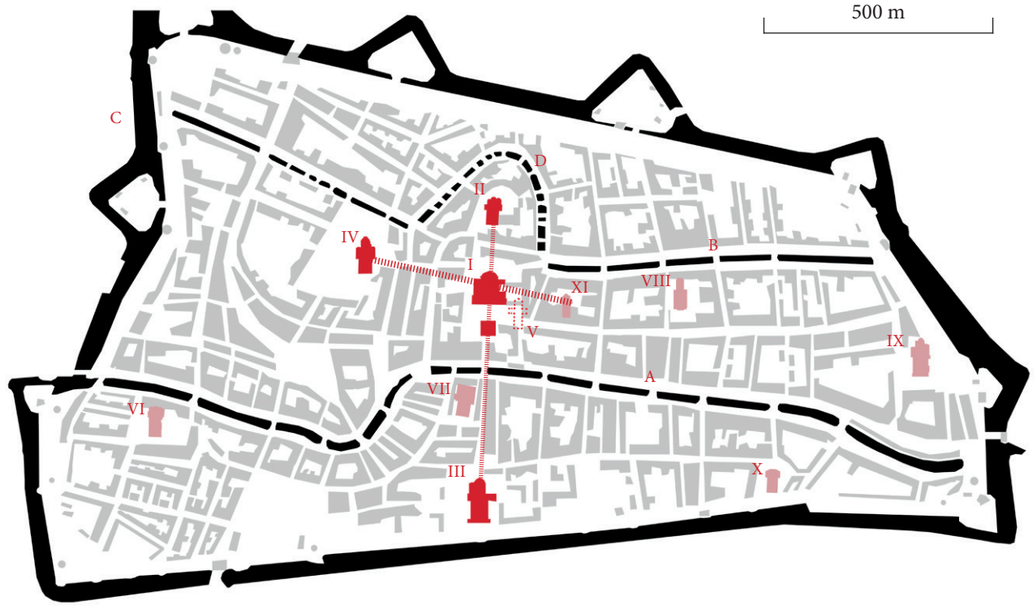
To structurise the research, firstly the needed context for the understanding of the history of the churches and the storm needs to be provided. This contains the key moments and ideas. The individual churches will be researched in the later chapters. In the first place, the entire church-centric skyline will be examined through panoramic drawings of the city in search of a changing image altogether. This will be divided in three physical elements of churches that are crucial for the skyline. Subsequently, the next chapter will focus on the Domkerk since it importantly changed the typology of its surrounding public space. The Pieterskerk will also be explored in depth because its position and spatial relation to the Domkerk gave new insights to the perception of the positional plan of the 11th century churches.

Chapter 1

Introducing the Period around the Storm

Jan van Vianen, 1695 (Rijksmuseum)

Medieval Utrecht, a city where the atmosphere was created through impressive typologies of canals, organic streets and majestic churches. Even from a far distance, these churches would be vertically visible on the horizon, a symbol to the heavenly Jerusalem, a safe haven in dangerous times (Van Hulzen, 1985). In 1050, bishop Bernold had the plan to build several collegiate churches in a particular configuration after the death of the German emperor in Utrecht (RTV Utrecht, 2018). In this glory time, the diocese expanded to large areas of the Dutch regions. Five of the city's churches used to be Catholic collegiate churches before the Protestant Reformation in the late 16th century ("De Reformatie", n.d.), making Utrecht an important city for Christianity. These churches of Utrecht were the: Janskerk, Mariakerk, Domkerk, Pieterskerk and the Salvatorkerk. To put this into perspective, Medieval Cologne which was characterized as a holy city, had only two collegiate churches (Chaix, 2002).



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I	Domkerk	A	Oudegracht
II	Pieterskerk	B	Nieuwegracht
III	Mariakerk	C	Singel
IV	Janskerk	D	Kromme Nieuwegracht
V	Salvatorkerk		
VI	Jacobikerk		
VII	Buurkerk		
VIII	Catharinakerk		
IX	Nicolaïkerk		
X	Geertekerk		
XI	Paulusabdij		

1 | Utrecht figure ground map, with cross plan | own illustration, based on Van Vianen, 1695

The position of these churches in the city's plan was to form a Christian cross with the Domkerk in the centre (1), following bishop Bernold's plan. The surrounding churches will be referred to as the perimeter of the cross in this research. The form of a cross was not planned precisely since the Salvatorkerk was built against the Domkerk, and the Janskerk was positioned two hundred metres from this middle point. As a result, the bishop planned the Paulusabdij to literally finish the cross, even though this location was still not forming a perfect symmetry. Furthermore, collegiate churches have major differences from monastery and parish churches. An important aspect that collegiate churches did have was an immunity sector. This was a separated district within the city where the religious law of the corresponding church applied. These immunities were often surrounded by a waterway, for instance the Kromme Nieuwegracht (D) circling the immunity of the Pieterskerk. While this was the case, some buildings were still present between the churches. Therefore, it can be concluded that the symbolic value of the Christian cross was the main goal instead of a monumental experience of axes placed in the form of a cross.

After the Reformation, mainly after 1580 in Utrecht, Catholicism became forbidden in town. Catholics still practiced religion in hidden churches while the Protestants took over the collegiate churches (Van Hulzen, 1962). In both 1566 and 1579, churches of Utrecht became victim to an iconoclasm. Everything that reminded of Catholicism got removed, decorated walls and pillars were made white and escutcheons were hung on pillars (Wilmer, 2005). Even more, in 1587, the entire Salvatorkerk got demolished. The Reformation also put a gradual abolition of the immunities in progress. Streets and buildings were allowed to be built within the former immunity grounds. This meant that within the singel (surrounding waterway), the inner city became one consecutive area (Van Hulzen, 1985).

Shortly after the Eighty Years' War, Utrecht was occupied by French troops in 1672. This year is being referred to as ''het rampjaar", which translates to ''year of disaster". The city remained under French command for almost a year and a half (Graafhuis, 1963). Since the French were Catholics, Dutch Catholics were more in favor of the French than the Republic of the Netherlands. The occupiers forced the Protestants to relinquish the Domkerk to the Catholics. Nevertheless, Utrecht became poor because of the French. The inhabitants were struggling with payment of high taxes and there was a food shortage (Beckman, 1979). After the intense occupation, the armies left the city late 1673.

Only half a year after the occupiers left, the city was battered by another disaster. This time it was not caused by Protestant Reformers or Catholic occupiers, but by God himself. On August 1st, 1674, the warmth of the summer day got penetrated by the air of a cold front (Den Tonkelaar, 1980). This clash resulted in a heavy summer storm, passing Utrecht at 20:00. According to the KNMI, drawings and witness reports helped to identify the caused damage as a result of multiple tornadoes in the region of Utrecht and Amsterdam (n.d.). The witness reports say that it stormed for a duration of about 15 to 30 minutes. Besides the unbelievably strong gusts and the locally extremely strong

lift of the storm, there were also torrential rains and large hailstones. Many houses were damaged, roofs collapsed, chimneys were blown off and roof tiles fell on the ground, while other houses remained intact in a random pattern (2). Hence, this helped meteorologists to understand that the city had to deal with tornadoes. More damage was done to the riskier constructive buildings of the city, mostly churches while they formed the taller parts of Utrecht. Churches that were seen as a safe haven, came out to be the most vulnerable. Their spires got blown off, towers collapsed, roof structures failed and famously the nave of the Domkerk became nothing more than ruïns (3). This led to a disconnection of the choir and transept with the tower (Domtoren), which prodigiously was still standing. The once proud bishop city has changed drastically over the course of half an hour.

The morning after, inhabitants were able to see the damage caused by the catastrophe that had taken place. Famous Utrecht painter, Herman Saftleven, didn't hesitate to take his board and started drawing (RTV Utrecht, 2013). Saftleven's drawings became some of the most famous and extraordinary in the history of Utrecht. The Protestants viewed the storm as a punishment by God, whereas they despised the free behaviour of the Catholics since the French occupation. Because the city became poor one year prior, they could not pay for most renovations. In the upcoming chapters the churches will be compared to their before and after situation.

2 | Bemuurde Weerd |
Herman Saftleven, ca. 1674 (Utrechts Archief)

3 | Domkerk ruins |
Herman Saftleven, 1674 (Utrechts Archief)

4 | Ruins of houses |
Herman Saftleven, 1674 (Utrechts Archief)

5 | Destruction along the Vecht |
Herman Saftleven, 1674 (Utrechts Archief)

Chapter 2

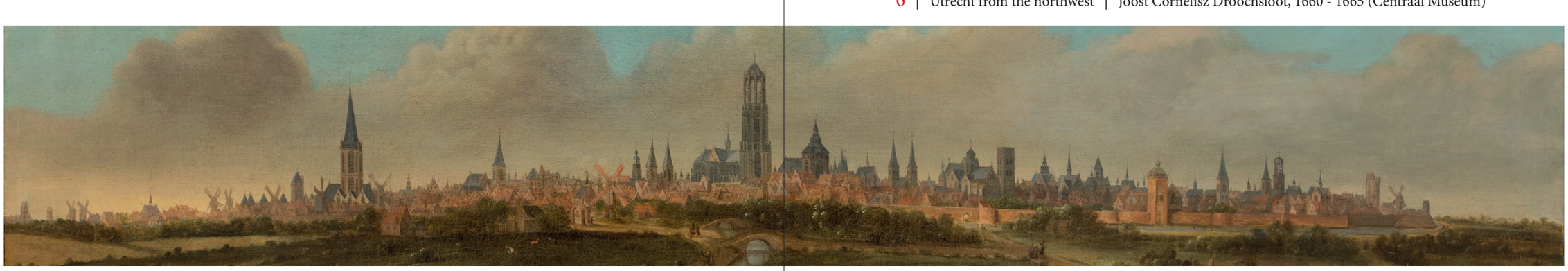
Change of Skyline

Herman Saftleven, ca. 1648 - 1677 (Centraal Museum)

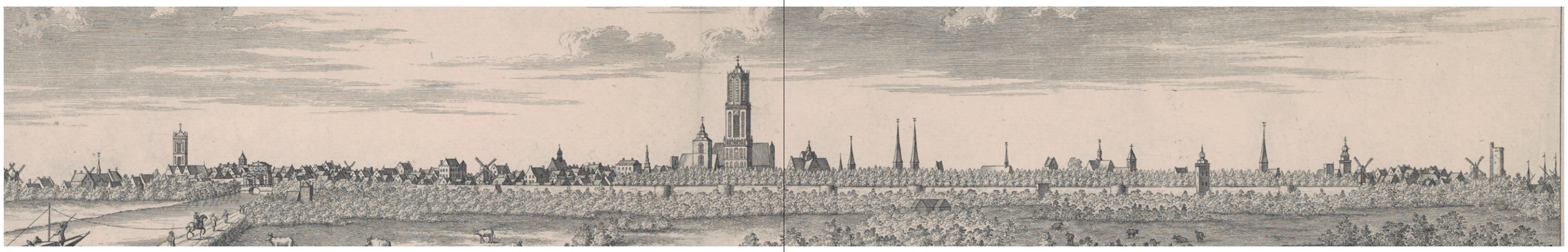
To understand how the city's churches changed, but also the skyline altogether, this chapter will explore the topic from the perspective from outside of the city. Imagine the flat Dutch countryside where the cities were already visible on the horizon on a clear day. The city silhouette would always be the first thing that people could see upon arriving in Utrecht. Therefore, the skyline was an important factor of status for Dutch cities (Van Deijk, 1996), and Utrecht arguably had the greatest in the 17th century. In the third and fourth quarter of the century, most panorama's were made. Wilmer says there is no evidence for a singular reason that many panorama's were made then, although she assumes it is because of a never realised city expansion (2005). This means that it wasn't done specifically with the reason of comparing the city to the situation before the storm.

Dutch churches that originated in the middle ages were built in three main stylistic periods. These are Romanesque, Gothic and Romanesque-Gothic (Van Deijk, 1996). The Romanesque period was from the 10th until the 13th century, and was characterised by very thick constructions and round arches. The Gothic style emerged in the Netherlands in the 13th century. Verticality, buttresses, rib vaults, needle towers and pointed arches formed the structural essence of the church (Sutton, 1999). Since the change from Romanesque to Gothic was gradual, Romanesque-Gothic churches became intermediate to both styles.

The most interesting position for a panorama is arguably from the west. Here the city stretches the longest over the horizon, with the symmetry of the Domkerk in the middle. Yet, this image can never be obtained from one viewpoint since the painter would've been so far that he hardly could spot the details. Therefore, panoramic drawings of Utrecht are often composed from multiple perspective standpoints (Wilmer, 2005). This will result in a type of projected elevation drawing with a small amount of perspective. By taking these standpoints from a similar distance to the city, the proportions of the landmarks are accurate to each other. Although, stressing this in advance, there are some concerns for a detailed analysis. By taking multiple standpoints, there are also multiple



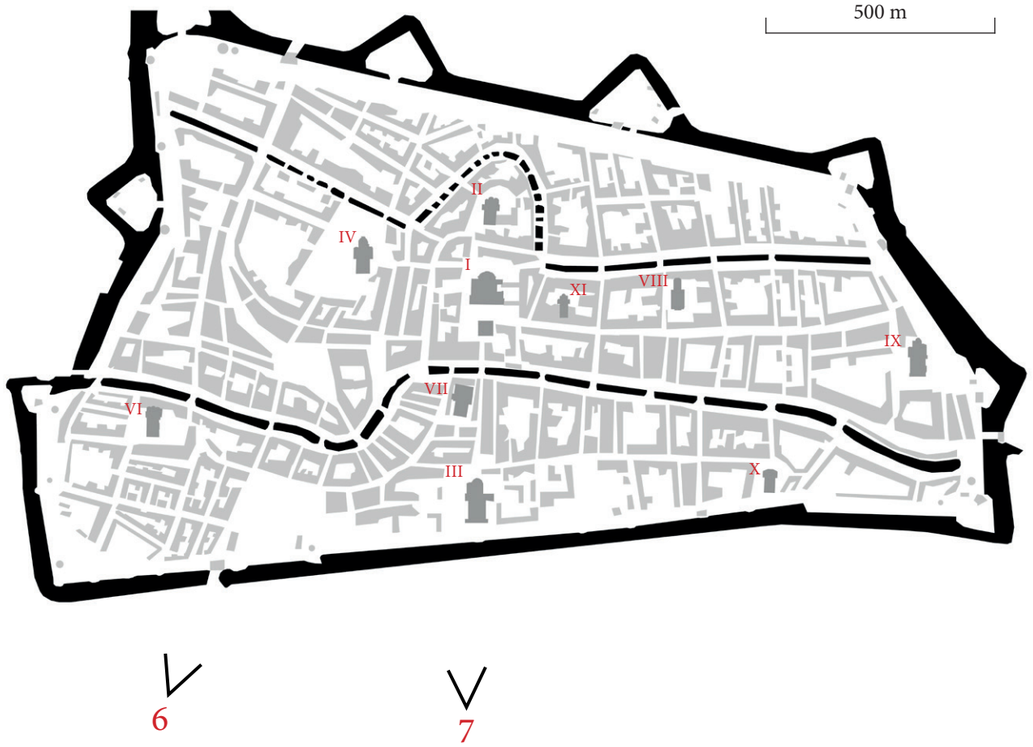
6 | Utrecht from the northwest | Joost Cornelisz Droochsloot, 1660 - 1665 (Centraal Museum)



7 | Utrecht from the west | Thomas Doesburgh, 1696 (Centraal Museum)

vanishing points in the paintings. This can result in a distorted view and inconsistent direction of churches. The churches of Utrecht were like many other churches built with the choir to the east, pointing to the sunrise symbolising a light axis (Jong, 1998).

To explain the impact of the storm to the change of the skyline more focused, the following paragraphs will discuss three different aspects of visible architecture on the skyline. These aspects are spires, towers and roofs. Each of these paragraphs will be explored mainly through the lens of the church that suffered the most on the discussed aspect.



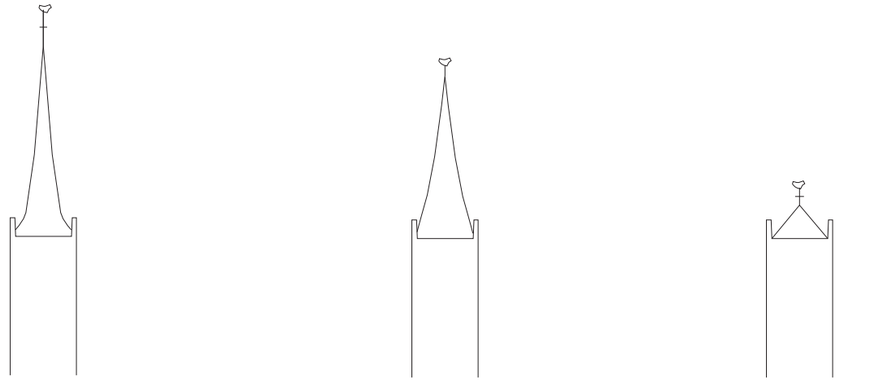
8 | Utrecht figure ground map, with panorama locations | own illustration, based on Van Vianen, 1695

6 | Utrecht from the northwest | Joost Cornelisz Droochsloot, 1660 - 1665 (Centraal Museum)

7 | Utrecht from the west | Thomas Doesburgh, 1696 (Centraal Museum)

2.1 - De Jacobikerk - Spires

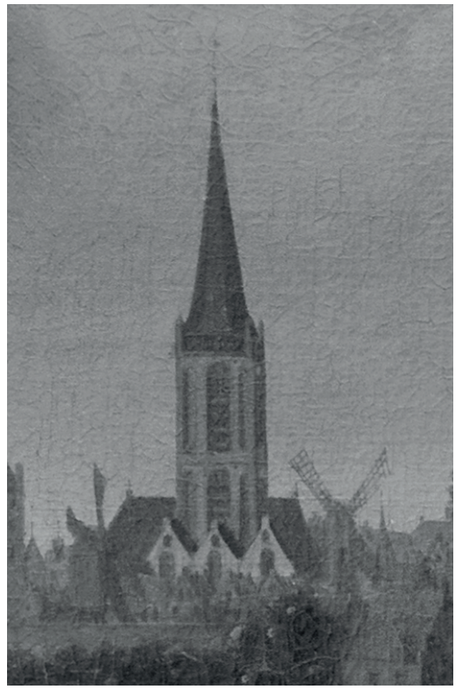
The Jacobikerk was mentioned for the first time in 1173. It was originally built as a Romanesque church but was later completely replaced by a Gothic church and an expansion to surround the church tower in the 14th century (Van Hulzen, 1985). In the drawing by Droochsloot (10), the tower is built up in two similar looking stacked compartments and a pointy spire on top. The pointy spire is called a needle spire. Especially the first version being a Gothic one, since it was technically and visually advanced. In 1558, this Gothic needle spire was irreparably damaged by a prior storm. A replacement spire, which was lower than the original, was built almost right after (9). Even though this new spire is less tall, it still is designed with the same emphasis on verticality since the spire is pointy again. Therefore, it can still be classified as a needle spire, yet it is not from the same level as the Gothic one.



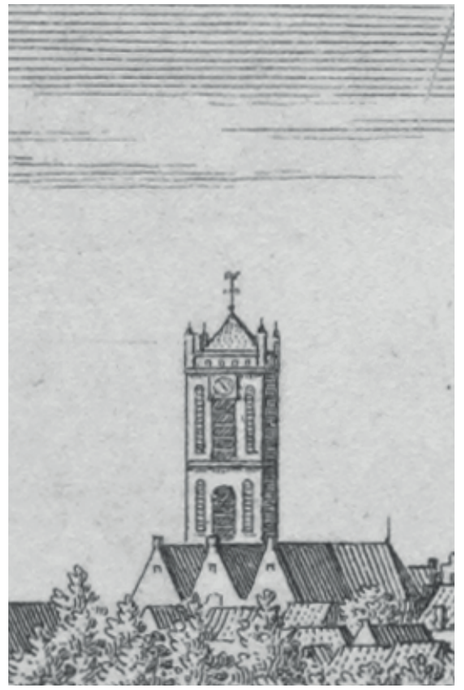
9 | Changing spire of the Jacobikerk | own illustration

The storm of 1674 destroyed the spire of the tower completely. The tower was also destroyed from the top until the bells, resulting in the bells to fall down the tower, damaging the roof and most windows (Van Hulzen, 1985). The damaged church bells were molten down to pay the renovations needed for the essential elements of the church to function. This led to a cheap solution of the lost church spire. The church, once known for its needle spire, has a new spire in a stump shape (11). A so-called tent roof (Wilmer, 2005).

Tent roofs were placed on multiple church towers as part of the Romanesque style around the 11th and 12th century. Some were replaced by needle spires later when



10 | Before the storm | Joost Cornelisz Droochsloot, 1660 - 1665 (Centraal Museum)



11 | After the storm | Thomas Doesburgh, 1696 (Centraal Museum)

the techniques evolved, like the Pieterskerk. Others were directly built with needles, like the Janskerk. Therefore, needle spires can be found both on Gothic and Romanesque churches. The Jacobitoren is the only tower to have changed from a needle spire to the older Romanesque spire typology, which by the late 17th century was very outdated to be built as a new structure. To make clear what spires the perimeter churches had until right after the storm, an overview can be found below.

perimeter church	*constructed with*	*before the storm*	*after the storm*
Janskerk	needle spires	one needle spire	no spire**
Pieterskerk	tent roofs	needle spires	no spire
Mariakerk	tent roofs	no spires	*
Paulusabdij	tent roofs	needle spires	*

* remained the same
** demolished for sale of material

That the spire of the Jacobikerk architecturally and spiritually might not have been that important anymore becomes also evident over a century later, when the tent roof got removed and the tower remained flat for a long time. It was only after 1953 that during a thorough restoration a pointy spire was placed on top again (Van Hulzen, 1962).

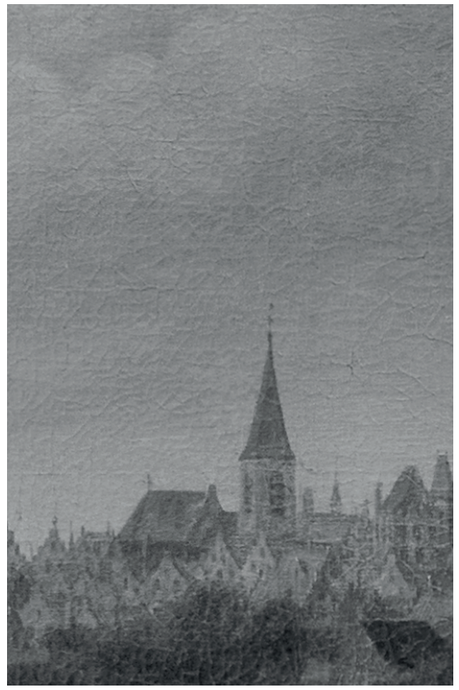
The Nicolaïkerk in the southern end of the inner city had two different types of spires on both towers. The northern tower had a needle spire and the southern tower was topped with a spire reminding of crossing towers (paragraph 2.2). The needle spire on the southern end was blown off by the wind, just like the Jacobitoren (Graafhuis, 1978). Two other needle spires in Utrecht have survived the storm: the Geertekerk and the Paulusabdij. This also helps to understand the weather conditions at the specific date, since the pattern of damage was spread in a random order.

2.2 - De Janskerk - Towers

As one of the five collegiate churches planned by bishop Bernold, the Janskerk was built in the mid 11th century as a Romanesque church in the centre of the immunity square Janskerkhof.

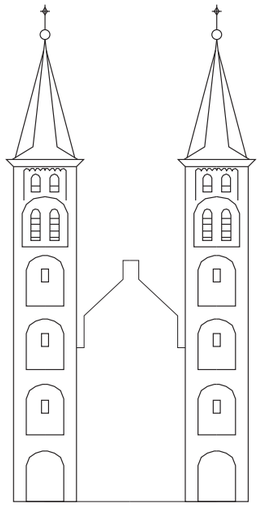
Since the choir in churches is facing the east, the west facade forms the ending to the nave. Mostly, this facade also has the main entrance. This creates a symmetrical line from the front to the back of the church. Towers are being built to correspond with this symmetrical axis. There are three main tower typologies to be found in the historic churches of Utrecht. The Janskerk has had each type of tower over the course of its history. Through the example of the Janskerk each variety will be discussed.

- Double towers on the west facade. When the church was planned it was already evident that the Janskerk wouldn't become a very large church. To still make it a grand church architecturally, two towers would be constructed on the west facade. Two large vertical gestures on each end of the facade would clearly enhance the monumentality (12). This is because the space in between seems to be functioning as a gate with the towers as gatekeepers. A good representation of this situation of the Janskerk in a panoramic drawing is not to be found. Other churches that had this typology at a point in history are the Pieterskerk, Paulusabdij, Mariakerk and the Nicolaïkerk.



13 | Before the storm | Joost Cornelisz Droochsloot, 1660 - 1665 (Centraal Museum)

14 | After the storm | Thomas Doesburgh, 1696 (Centraal Museum)

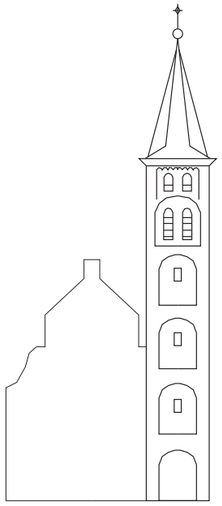


12 | Janskerk with double towers; west elevation | own illustration

- Single tower on the west facade. Due to bad maintenance, the north tower of the Janskerk collapsed, leaving only the southern tower to remain. Frequently, the single towers of the churches in Utrecht are placed in the middle of the west facade. This results in two subtypes of single towers.

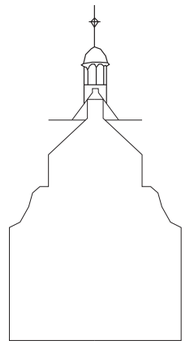
  On the one hand, there are the eccentric towers like the Janskerk and the Mariakerk. Even though this has a lot in common with the Italian renaissance churches with a bell tower, it is not inspired by these. This eccentric form is merely caused unintentionally in both churches, whereas the other tower collapsed.

  On the other hand, the Domkerk, Jacobikerk and Buurkerk were centric towers. This type maintained a symmetrical axis to a certain degree. Now the tallest part forms the middle but this doesn't give the monumental impression that you get from a double tower front. A centric tower can obstruct a grand entrance on the same symmetrical axis, since the towers are royally constructed on the bottom.



15 | Janskerk with single eccentric tower; west elevation | own illustration

- Crossing tower. Remarkably, the southern tower survived the storm of 1674, but the already badly maintained church was damaged (Wilmer, 2005). Like the Jacobikerk, the church had to make compromises to commence operation again. The remaining south tower was to be demolished so its materials could be sold. To somewhat still have a tower as a status symbol, a small crossing tower was built. The point where the nave, choir and transept intersect is called the crossing. The tower is built on the roof right above this intersection, hence explaining its name. On the up side, it positions itself on the symmetrical axis. But, since it's proportionally small compared to the rest of the church it doesn't entail monumentality. Furthermore, crossing towers were also mainly built with a domed roof instead of a needle spire. This made the tower also less impressive on verticality.



16 | Janskerk with crossing tower; west elevation | own illustration

Similar to the Janskerk, the Mariakerk also was built with two towers. One of the two was already demolished during the Eighty Years' War. Though, in contrast to the Janskerk, the remaining tower was damaged very badly, resulting in the demolition.

To conclude, the symmetry and monumentality are resembled the strongest in double towers due to the symmetrical width. This is because the towers as vertical gestures are placed further from the symmetry axis, resulting in a forceful composition.

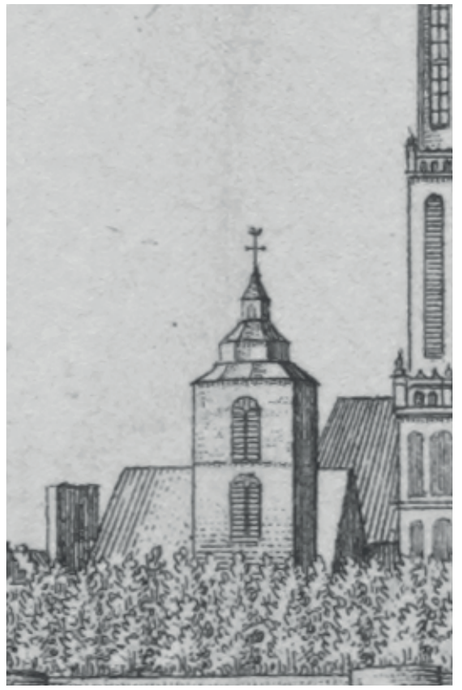
2.3 - De Buurkerk - Roofs

The Buurkerk was built in the 10th century as a Romanesque parish church (Van Hulzen, 1985), becoming the largest behind the Domkerk. During the 14th century the Buurkerk underwent many improvements. As a result, the Romanesque style was no longer visible. The most extensive advancement was the construction of a giant pointy roof, implying the modern Gothic style. The hood covered the nave, transept and choir of the church. Since the roof was so tall, a large part of the tower was hidden from many perspectives. Such a large hood has never been achieved in the Netherlands before (Geschiedenis Buurkerk, 2021). The lowest part of the roof started on the side aisles and went upward to the centre with a linear incline. The tall roof together with the chunky tower created the massive character the Buurkerk is known for. In 1579, the Reformers wanted to cut the size of the church, thus they decided to demolish the entire choir since it didn't have any meaning for the Protestants' services. The Gothic roof over the nave and transept with beautiful sharp angled rib vaults remained.

17 | Roof of the Buurkerk before and after the storm; section | own illustration

A century later, during the storm of 1674, the roof structure over the nave was completely destroyed. In the panoramic images the roof over the transept is visible. From the literature, drawings and archive materials it is unclear what happened here. There can be two possibilities. On the one hand, the roof over the transept could've been damaged by the storm and rebuilt right after it. On the other hand, the transept roof could have survived the storm since it was less tall. Van Hulzen describes that the ''tall roof'' was blown off by the storm (1962), possibly referring to the taller part on top of the nave. Another clue that the latter was more likely to have happened, is that it would be illogical if the church first rebuilt the transept than the nave, since the nave is

18 | Before the storm | Joost Cornelisz Droochsloot, 1660 - 1665 (Centraal Museum)



19 | After the storm | Thomas Doesburgh, 1696 (Centraal Museum)

a more essential area.

Compared to the single linear structure before the storm, the new construction after the storm was less ambitious. The new hood over the nave was built up of three smaller roof structures, one over each side aisle and one over the centre aisle / nave (17). This resulted also in a less characteristic ''heavy'' view over the skyline since the church's proportions compared to the tower have become more normal.

Another roof structure that was destroyed is of course the roof over the Domkerk nave. Most other churches also had damage on roofs but not this significant. For these reparations, other parts of churches, like the tower, were demolished so the material could be sold to repair the roofs, which is more essential for the functioning of the church.

2.4 - A Coherent Image

The churches of Utrecht formed the landmarks on the skyline, making a characteristic composition of visible elements like towers, roofs and spires in relation to each other, that leads to a clear oriëntation of the city (Lynch, 1960). Koolhaas describes the term automonuments as structures which have passed a “critical” mass or raise interest through their size (1994). This well known architectural manifesto is based on research of Manhattan, but applies in multiple contexts as a generic notion. Take the critical mass, which Koolhaas never mentions to be based on an absolute number like height or width. However, it is related to the size of the comparable context. Also this can be interpreted in multiple scales. When looking at the complete panoramic images of Utrecht by Droochsloot and Doesburgh (6 and 7), the Domkerk naturally forms an automonument because of its imposing size. This is largely achieved because of the Domtoren, since verticality of towers is the most visible from these distant perspectives. After the storm, the automonumumentality of the Domkerk isn’t affected much from the west, yet panorama’s made in the north and south show the giant gap between the tower and the nave. As a result, the horizontal gesture of the long nave was lost, and only the vertical gesture of the Domtoren remained.

When zooming into different parts of the city, like the north or the south, respectively the Jacobikerk and Nicolaïkerk are becoming automonuments of the peripheral neighbourhoods. After 1674, the loss of spires on top these churches resulted in a less iconic automonumentality.

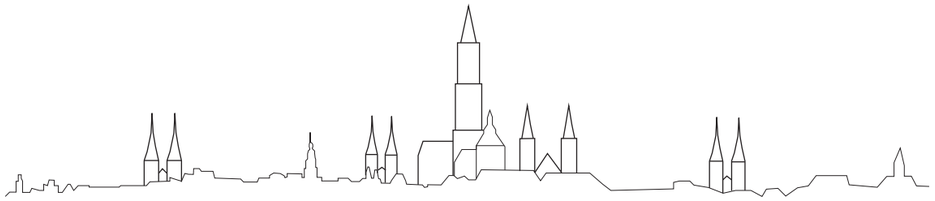
Automonumentality doesn’t seem to apply for churches like the Mariakerk, Pieterskerk, Paulusabdij and Janskerk because of their close proximity to the Domkerk. Together they form a decent composition, but arguably serve more as surrounding context to the Dom rather than a large monument on their own. For this reason, the removal of the towers of the Pieterskerk, Mariakerk and the Janskerk may sound like a fine consideration, though this is not the case at all. Still, there are more aspects than automonumentality that can give buildings their monumental value and thus it can’t be concluded.

The exception in the area is the Buurkerk. In comparison to the other churches, the Buurkerk has completely different ratios. While most churches are slender, the Buurkerk is bulky. The tower is the widest after the Domkerk, but in comparison to its width it is not tall at all. The same goes for the roof, which before the storm almost reached the same height as the tower. Therefore, the automonumental gesture serves

different purpose than that of the Domkerk. After the storm the difference between the tower and the roof became more clear, yet it always remained one of a kind.

Next to a threshold for size there are also characteristics and functions which can make buildings monumental (Elliot, 1964). The characteristics of church architecture on the skyline formed by the three aspects are only found in the churches, compared to most other buildings of Utrecht. This also applies to the churches close to the Domkerk, making them still landmarks.

For the Jacobikerk and the Nicolaïkerk, the change of shape from needle spires to stump spires caused the verticality to be largely erased from the skyline. The new spires looked more like the deprecated style of Romanesque churches. In addition, the Janskerk and the Pieterskerk lost complete towers, which also had pointy spires positioned on the top. This consequently degraded the prestige of Utrechts’ skyline.



20 | Combined skyline; northwest elevation | own illustration

21 | Skyline after the storm; northwest elevation | own illustration

The Domkerk in the middle of bishop Bernold's plan, built with only one tower, architecturally works really well with the cross plan, since the Domtoren can now be viewed equally impressive from each side and form the symmetry for the entire skyline.

Even more interesting, when looking at all the other churches that formed the perimeter of cross before the storm, they all had two towers with needle spires on the west facade during their architectural prime. Pieterskerk had this until the storm, Janskerk until the northern tower collapsed and the Paulusabdij conversely until long after the storm. The Mariakerk lost its tent shaped spires already before the storm, but needle spires were never constructed. However, historical builders might have had a plan for two needle spires. Direct evidence for this was not found, but the architecture of the church itself implies already changes from Romanesque to more Gothic elements, like pointed arches around the windows (Wilmer, 2005). For that reason, placing two needle spires on top of the flat towers, might have been a very reasonable vision.

Some historians have questioned if the cross shape in plan was intentional, but in the late middle ages when the needle spires on Gothic and Romanesque churches came together, the builders of the time must've been very much aware of what they were doing architecturally on an urban level to make the cross visible.

The Domkerk in the middle was the only collegiate church in the making with one sophisticated Gothic needle spire, making it more important than the others. If there were no setbacks like bad maintenance, fires, sieges or the storm, the skyline would've been way more cohesive (20) than after the storm with all different types of towers and spires (21), since the cross plan would actually be forming a symmetrical composition on the skyline. In other words, the lack of automonumentality wasn't decisive for the surrounding collegiate churches, but the appropriation of a coherent architectural language was.

Chapter 3
De Domkerk

Steven van Lamsweerde, ca. 1660 (Wilmer, 2005)

The location of the current Domkerk formed the origin of the city around the year 50, when during the Roman invasion of the Netherlands, the Roman army built the fortress (castellum) Trajectum on the empty grounds of the Dutch landscape, which later became Utrecht (Van Hulzen, 1962). On this site, small churches and chapels have been built and destroyed for centuries. After a fire in 1017, the cathedral of Utrecht was destroyed. Bisshop Aldelbold commissioned the construction of a new cathedral some years later, in 1023, in a Romanesque style: de Domkerk, translating to episcopal cathedral or primary collegiate church. It took only two centuries for the cathedral of Aldebold to be ruined by a fire likewise (Van Hulzen, 1985).

Architecturally during this period of the Romanesque Domkerk a lot of development had been made. The spread of new architecture was enabled by the fall of the German empire, and therefore an increasing power of the French emerged (Van Hulzen, 1985). In and around Paris, a new architectural style for the design of churches appeared in the late 12th century: the Gothic style. Unlike the heavy Romanesque churches with low and wide walls, which therefore formed a horizontal gesture across the length of the nave and the choir, the Gothic churches had sufficient structural technology to build more vertical gestures. The rib vaults and buttresses allowed the forces applied by the walls and roofs to navigate to the foundations very efficiëntly, and therefore leave enough space for large stained glass windows, allowing the interiors to be lit by the daylight more than ever before.

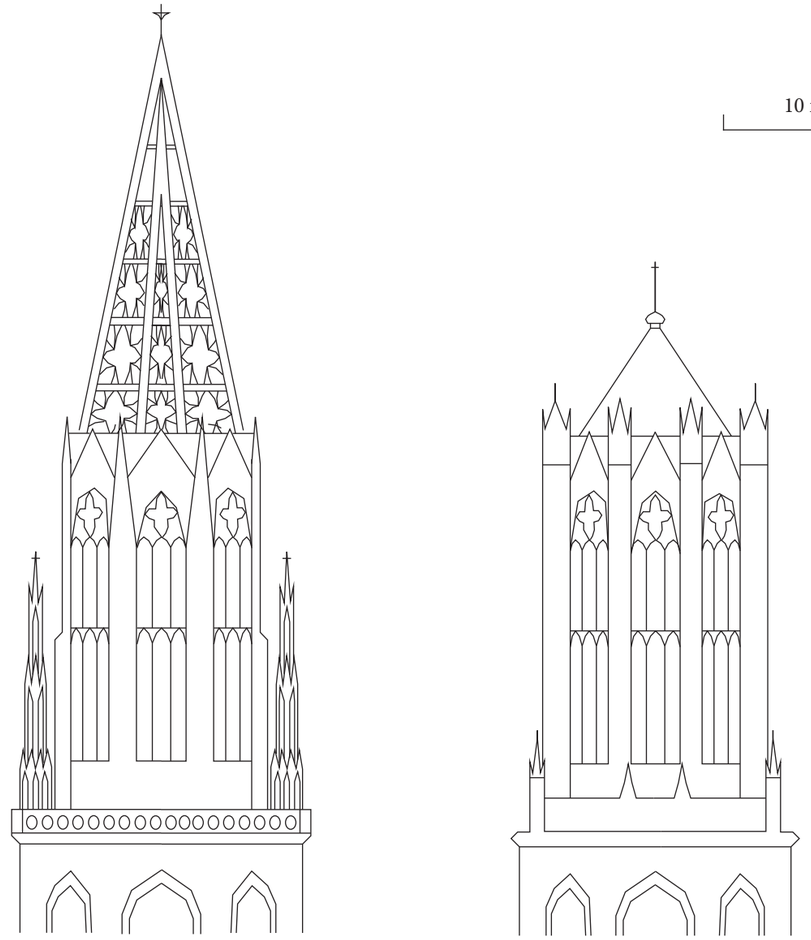
It was in 1254 when Bisshop Hendrik van Vianden started the construction for the modern Gothic Domkerk as we know it today. It would form the most monumental of all churches, true to its function as the centre of the Christian cross city plan. Construction started on both ends of the former Romanesque cathedral. In the east the choir was being realised. The design of the choir and transept was very typical for the Gothic architecture, with the needed buttresses on the outside, heavily decorated with items like pinnacles and finials (Wilmer, 2005). The angled shape that the choir makes in plan reminds of the crown of thorns Jesus wore during his crucifixion.

In the west end, decades later, a tower of incredible height was being built. This tower is called the Domtoren, and after completion reached a height of 109 metres. Currently, it stands 112 metres tall after renovation works in the 20th century. It is built up from three different stacked compartments, topped with a spire.

The bottom compartment formed the base of the tower and simultaneously a main entrance to the Domkerk. As mentioned in paragraph 2.2 on towers, the down side of centric single towers on the west facade is that they obstruct main entrances with their heavy construction. This challenge was overcome by a smart design decision to make an underpass through the middle of the Domkerk on the ground level, connecting the street with the main church entrance. Admittedly, the tower was built not directly against the nave, but was cleared by a few metres to make a passage from north to south. Nevertheless, the tower was connected internally with the nave through a bridge on the first floor.

The second compartment of the tower housed a large carillon. Of the three arches on each facade, the middle one is open to resonate the sound of the bells throughout the city. This is being called a reverberation hole (Van Deijk, 1996).

Subsequently, the third compartment formed the roof lantern. This architectural element is usually built to allow a lot of light into an underlying space. For the Domtoren this is not really the case, since there's no visual connection to the lower carillon. Therefore, it mostly serves an architectural goal to make a distinction in fineness and lightness in relation to the building height, similar to the pilasters of the colosseum in Rome and the later built facade of the Palazzo Medici in Florence.



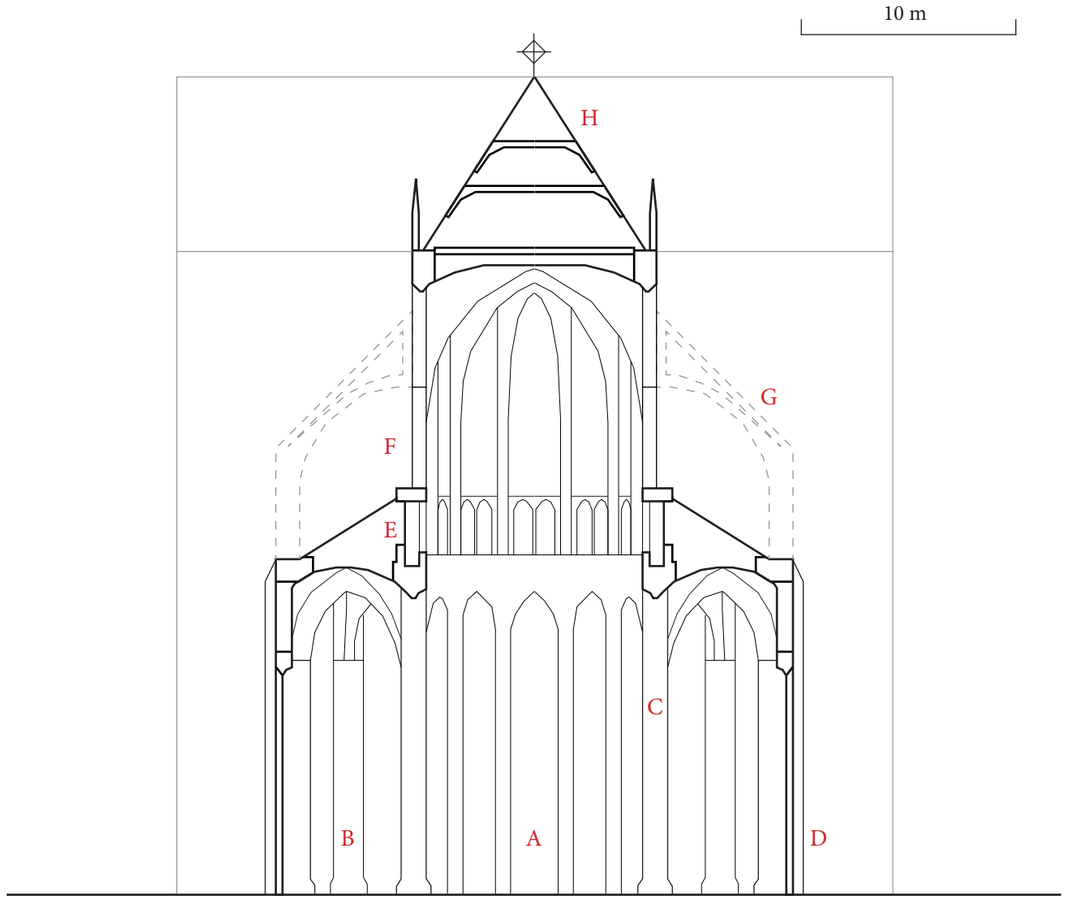
22 | Initial design (left) and final design (right) of the Domtoren | own illustration

Originally, the Domkerk would have had a very different spire (22). The plan was to make a Gothic needle spire with four smaller side towers on each corner (similar to the Prague or Cologne cathedrals). This plan was never realised due to fire safety, hence the tower got topped by a slightly angled spire* (Bouw van de Domtoren, n.d.). Unfortunately, this decision made the Domtoren not characteristically Gothic, resulting in a discrete spire that does not stand out compared to the spires of the other churches.

*not a tent roof, because the plan shape of the spire is octagonal and not square

After the Domtoren was finished, construction began on the nave of the cathedral. This took relatively much longer, until 1517 (Van Hulzen, 1962). This was due to the lack of money, and turmoil in the diocese of Utrecht. While in the interior it seemed flawless, the church was in fact never really finished. There was no money and no interest anymore in building the buttresses. Arguably, because of hypocrisy since the church was ready to function, similar to the other churches' demolition of towers to rebuild the essentials. However, this is the cathedral, and stands for way more than only a functional church. It symbolises power through architecture on the city's skyline.

A more practical point is the essence of the buttresses (23). The main purpose is structural, mainly for horizontal forces like winds. To explain some structural knowledge, a wall structure gets its stability through width. The walls of the nave were now flat one dimensional (only constructed in one direction). By adding buttresses perpendicular on walls, the width increases by the arm of the buttresses, enabling it to create counter torque to the incoming forces.



A	Centre aisle	D	Exterior wall	G	Buttress
B	Side aisle / arcade	E	Triforium	H	Roof
C	Arcade pillar	F	Clerestory		

23 | Section of the Domtoren through the nave, looking towards the choir | own illustration

It was this flaw that had the Domkerk to meet its demise during the storm of 1674. When a tornado passed right through the church, the walls of the nave couldn't handle the forces. As seen in the drawings by Saftleven after the storm (27), most structural pillars with pointed arches over the arcades survived (except for one pillar on the north wall), but from the triforium up to the clerestory and roof everything collapsed. This is the main indication that the missing buttresses were the issue, since they were supposed to support the clerestory and triforium through a connection from the roof down to the side aisle exterior walls, bypassing the arcade (23). As a result, the roofs over the centre aisle and the side aisles seem to have fallen on the underlying construction, damaging the exterior walls and arcades badly.

In the drawing (30), the broken pillar on the north wall is visible. A broken pillar of this size compared to the size of people on the left speaks for itself. It must've been a tremendous force that the Domkerk had to cope with. Even though the missing buttresses were a main issue, the weather conditions were simply exceptional. On the south facade, two small chapels survived the storm. These are still visible today (Wilmer, 2005).

24 | Ruins of the nave | Herman Saftleven, 1674 (Utrechts Archief)

25 | Part of the clerestory remained intact | Herman Saftleven, 1674 (Utrechts Archief)

The choir, which in contrast was built with buttresses, mainly survived the storm, except for the decorative elements. Likewise, the tower and west facade were still standing. At first glance it seems strange how the west facade, which was built from only a flat wall with some pilasters, survived the storm. Be that as it may, it also has a possible and logical explanation. For the nave to have failed this badly, it means that the winds and tornado must've passed perpendicular. The west facade stands ninety degrees on the destroyed nave, which means that the storm passed parallel. Therefore, it didn't have a large surface area for the wind to pressurize on. When looking at the images by Saftleven (27 and 29), we even see that the window remained intact. This can be explained by its close position to the Domtoren, which might have blocked the

26 | Domkerk interior (facing choir) | Pieter Jansz Saenredam, 1636 (Utrechts Archief)

27 | Nave in ruins | Herman Saftleven, 1675 (Utrechts Archief)

28 | Nave in ruins | Jan de Beijer, 1745 (Utrechts Archief)

winds. The same goes for the two main gates on this facade. Above these gates, the bridge connecting the west facade to the Domtoren, also survived.

That the Domtoren didn't collapse was a miracle. From the drawings by Saftleven it also looks largely intact. However, the danger for the tower was not over yet. Since the French, in 1672, left Utrecht in a poor state, the city didn't have the money to pay for a reconstruction of the nave nor the maintenance of the Domtoren. As a result of this decay, the tower was at the fringe of collapsing in 1833 (Domtoren, n.d.).

29 | West facade with the Domtoren (right) | Herman Saftleven, 1674 (Utrechts Archief)

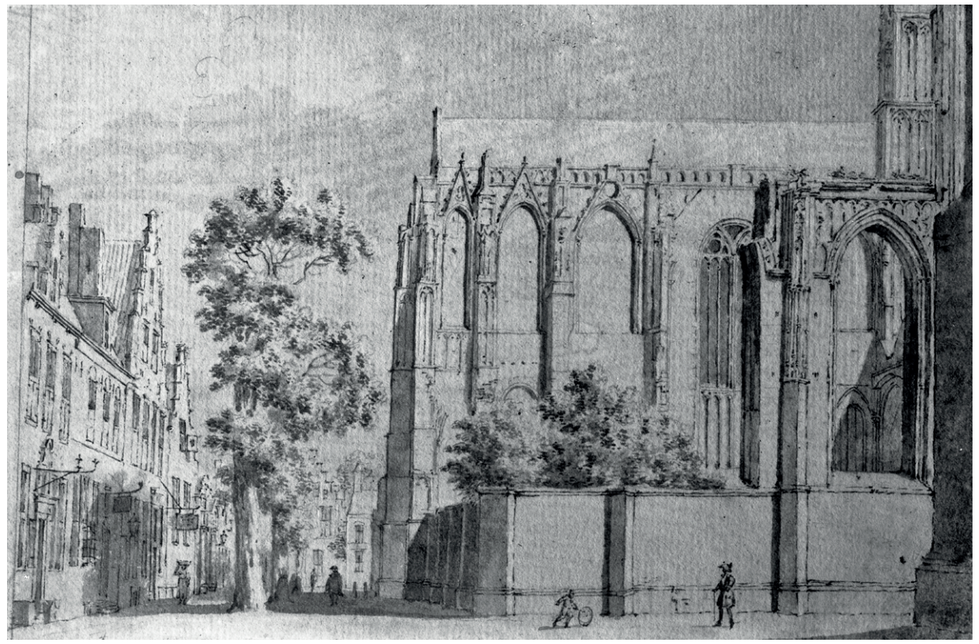
30 | Destroyed arcade pillar | Herman Saftleven, 1675 (Utrechts Archief)

Years, decades and even one and a half centuries passed, but the ruïns of the nave were still there. A constant confrontation to the past like the archaeological sites in Athens or Rome you might think. But even this was not the case. The city was hiding the ruins behind a four metre tall stone wall (31). On the image, presumably drawn by Jan de Beijer, the wall closes off the entry to the ruin site. It doesn't seem to hide the taller parts like the arches over the arcades, but it does hide the ground level. A reason for this is the structural instability of the remains, which can form a real hazard for passants. To check what this part looks like almost a century after the storm, Jan de Beijer made the following drawing in 1745 (28). The perspective is similar to the drawing by Saftleven a year after the storm, allowing for a good comparison. A lot has changed since. Most of the debris on the ground has been removed. Still there are some interesting artefacts lying around. With the constant exposure to the outdoor winds, temperatures and rain, the former church interior has completely changed to a natural landscape. Grass, flowers and plants seem to have grown everywhere in between the debris on the ground, but also on top of the stone pillars and arches high above the ground. The ruins on the southern side are still there since the pillars and all arches between them were intact after the storm. On the north side, the destroyed instances caused instability. As a result all pillars have been removed, but they are replaced by a pillar of nature: a tree. Why the

city never kept at least the stable south arches and pillars is unclear. Most likely again due to the disinterest in future maintenance of this possibly unstable structure.

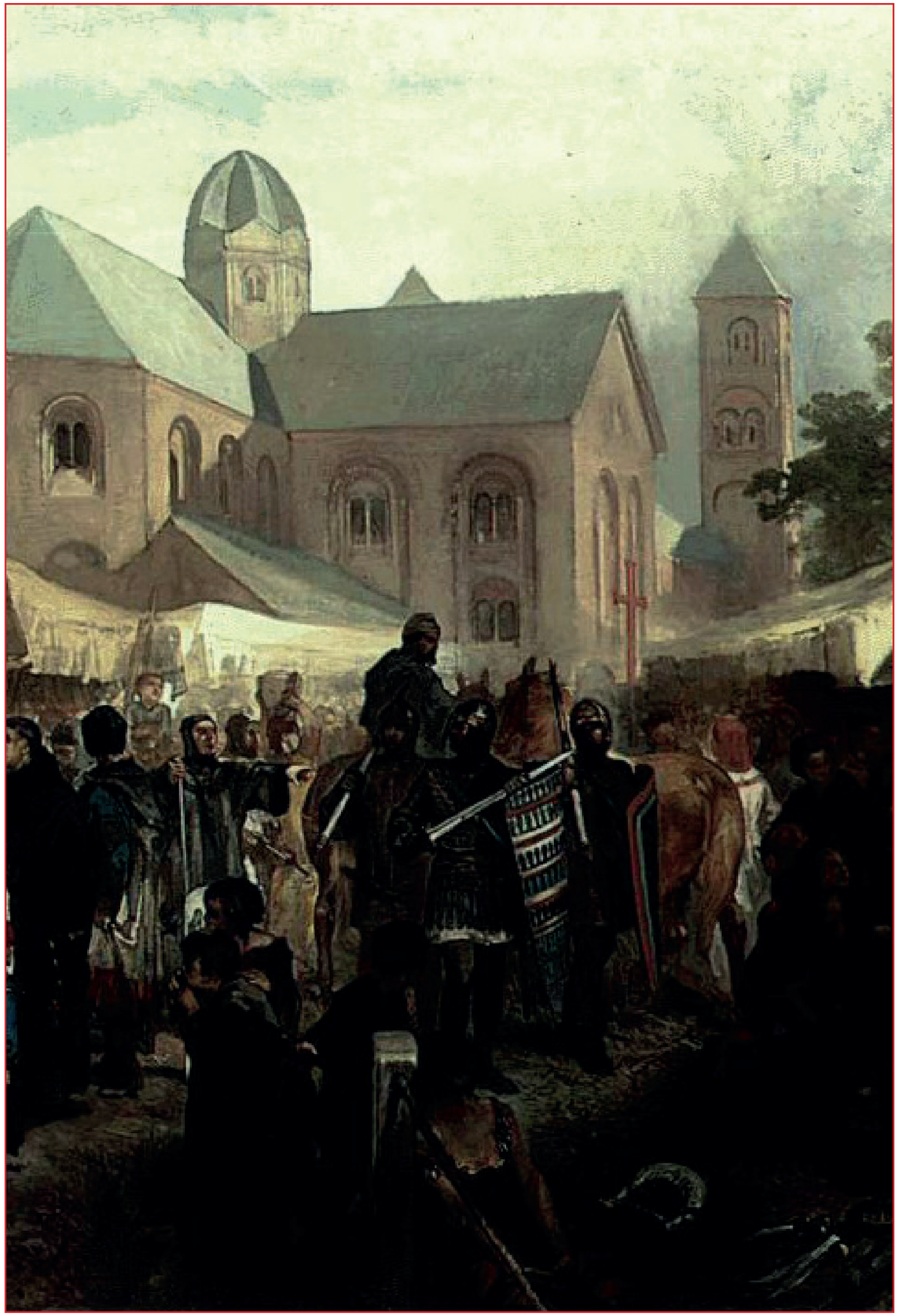
Today, the remains of the Domkerk nave are completely removed. This empty space forms the Domplein now, which translates to cathedral square. The church functions only in the transept and the choir. Perhaps the one good choice they made, unlike the other churches, was not to demolish the tower for a reconstruction of the nave. To confirm this statement, the Domtoren ever since remained the most iconic building, object and symbol for Utrecht. The only reminder of the old nave lies down on the ground. Here, the positions of old walls and pillars are symbolised by a different type of pavement.

On the skyline, a lot changed only from angles in the north or the south. From the important west or east angles, the Domkerk remains to have the same characteristic look since the nave was never dominantly visible behind the tower or the choir and transept.



31 | Wall around the Domkerk | probably by Jan de Beijer, ca. 1736 - 1780 (Utrechts Archief)

Chapter 4
De Pieterskerk



Pieterskerk in the early 12th century, Charles Rochussen, 1862 (Utrechts Archief)

In the midst of the 11th century, the first collegiate church according to bishop Bernolds cross plan was built on the immunity terrain surrounded by the Kromme Nieuwegracht: De Pieterskerk (Graafhuis, 1963). It forms the head component of the cross, positioned ninety metres behind the choir of the Domkerk. Therefore, it is the closest to the Dom out of the four perimeter churches (without taking the Salvatorkerk into account, which was not entirely part of the cross anyway). To stress the value of the Pieterskerk to the cross plan, when bishop Bernold died in 1054, he wasn't buried in the cathedral, but in the Pieterskerk to which he was more attached. Until the storm, the church became victim of three fires, multiple sieges and painfully after the Reformation it was being used as a warehouse for all broken statues during the iconoclasms. But, unlike the Domkerk, it was not rebuilt completely in the Gothic style. On the one hand, rounded arches carrying a timber plank finished roof, Doric looking pillars and round arched openings form the nave (34) in the Romanesque style. On the other hand, looking at the transept and choir, rib vaults and pointed arched openings indicate the Gothic style.

32 | Damaged Pieterskerk |
Herman Saftleven, 1674 (Utrechts Archief)

33 | New Pieterskerk after the storm |
Jan de Beijer, 1744 (Utrechts Archief)

The towers were built around the first constructions in the 11th century (Chapter 4 title page). The Romanesque style was clearly visible in the heavy closed walls, rounded arches and very small tent shaped spires. Though, in the later panorama by Droochsloot (6), the tent shaped spires seem to have been replaced by needle spires. The dates of these constructions were not found. It is likely that this change was made during a renovation after one of the fires, which had the church to be rebuilt every time in the 12th and 13th centuries (Van Hulzen, 1985).

The Pieterskerk was positioned exactly in a straight line behind the Domkerk choir, with both churches facing the same direction. As a result, a strong axis was created. It stands perfectly symmetrical only through these two churches, just like a Christian cross should be from the head end to the centre. Up until the Reformation there were only a few buildings in between the two. Though, after the abolition of the immunities, more buildings did rise between the two, weakening the axis from eye-level perspective. The two towers of the west facade beautifully enhanced the symmetry of this axis (32). From eye-level, the axis or the cross are barely noticeable. From the Janskerk you can still see a small part of the Domkerk, and from the Mariakerk the Domtoren is visible through a small and slightly curved street. However, from the closeby Pieterskerk only the top of the Domtoren stands over the roofs.

The Pieterskerk was arguably the second worst damaged church behind the Domkerk after the storm. The whole west facade, including towers and spires, were irreplaceably damaged (Van Hulzen, 1962). The falling stones of the tower landed on the roof of the nave, resulting in heavy damage. The collegiate churches discussed the notion of repairing suffered damage together for years after the storm. In 1676, they decided to rebuild parts of the Pieterskerk.

It was during these construction works that Saftleven decided to make a drawing through the west facade when it was being built (36), since the view on the Domkerk all of a sudden opened up (closed in 34 and 35). This is the first and only drawing of Utrecht from eye-level, where the cross really makes sense. Unfortunately, this image is actually faked in a clever way, Wilmer noticed (2005). The rounded arch in drawing 36 is metres lower than in drawings 34 and 35. This means that for this image, Saftleven has drawn it as if it was made from eye-level perspective, even though it's actually drawn from a higher point within the Pieterskerk. The reason why he did this is actually in accordance with the findings of this research so far. The houses built in between the two churches would still block the perspective to the choir of the cathedral. By taking a higher perspective, Saftleven drew the Domkerk over the houses and made it look as if it was made from the ground.

That this exceptional experience of the cross never occurred in real life, doesn't conclude that the axis is unimportant. In contrast, it makes clear how important the impression of the cross was to Saftleven. Now as a painter, Saftleven would've had a good eye for composition, and therefore his judgement is still very valuable. Sadly, urban planners or architects have never taken this into account anymore.

Moreover, the design of the new Pieterskerk was completely worthless to the architectural quality of the cross (33). The west facade became simple without any towers. As a consolation, a small crossing tower was built on top of the roof. As discussed in paragraph 2.2, crossing towers are the least monumental of all. A main square with an entrance on the west facade never happened. Instead, the west facade came out on the inner courtyard of a building block, with the entrance being allocated to the side on the Pieterskerkhof. Conversely, the location of the Pieterskerk is far from the busy traffic routes. Therefore, it resembles the peace of a former immunity square the most (Van Hulzen, 1985). Furthermore, the Pieterskerk preserved the Romanesque character in the purest fashion.

34 | Interior Pieterskerk | Pieter Jansz Saenredam, 1636 (Utrechts Archief)

35 | Church in ruins | Herman Saftleven, 1674 (Utrechts Archief)

36 | Construction of the new facade | Herman Saftleven, 1677 (Utrechts Archief)

Conclusion

The main goal of this dissertation was to understand the change of image the churches of Utrecht underwent as a result of the storm in 1674.

On a large scale, the positions of the collegiate churches Pieterskerk, Domkerk, Mariakerk and Janskerk, and the abbey Paulusabdij formed a Christian cross in the city's plan with all choirs facing east and the front facade west. The cathedral Domkerk ,being the largest of all, was positioned in the middle. The other churches formed the perimeter of the cross.

During the architectural prime of the perimeter churches, they used to have two towers on the west facade. This would form the strongest symmetrical composition within the churches themselves. With the addition of needle spires, the composition would've visually linked the churches together.

The Domkerk with only one tower forms an equal centre for all sides of the cross. The plan for a refined Gothic needle spire would've amplified the connection to the other churches. Without, only the size of the Domtoren helps to identify the symmetry due to its automonumentality.

This situation never occurred at one single moment because of bad maintenance, wars and fires. Even more, the storm destroyed many of the church towers and spires like never before. Hence, it equally destroyed all hopes of achieving this skyline-dream. The churches were rebuilt in an economical way, resulting in different types of towers making an incohesive image, whereby the perception of the cross in the skyline never reached its potential.

On a smaller scale, two churches of Utrecht in particular were influential to the changing image. Due to disinterest in constructing the nave of the Domkerk properly with structural buttresses prior, the entire nave was destroyed. After the ruins were removed over a century later, the location became a square, separating the choir from the tower.

During the Reformation, immunity sectors of collegiate churches were abolished in the late 16th century. Houses were built in between the Domkerk and Pieterskerk right away, resulting in a visual loss of the two closest churches of the cross that used to make a strong symmetrical axis together. The storm destroyed both monumental towers of the west facade of the Pieterskerk, degrading this axis. The new design after the storm was inconsequential to the visual connection. Subsequently, the perception from the street makes it impossible to find a connection between the collegiate churches collectively and in relation to the cross. This was already indicated as a missed opportunity right after the storm by the purposely faked drawing of the Dom through the Pieterskerk by Herman Saftleven. The city was evidently too poor after the French occupation and disinterested since the Reformation in properly reconstructing the churches.

In short, the storm destroyed characteristics of churches that were able to connect the organisation of the city in plan to the skyline and experiences from the streets. As a result, the skyline looks incoherent and the enigmatic cross plan by bishop Bernold has remained invisible, thus it is just a fact that you happen to know when walking through the city.

Discussion

Until today the cross plan of Utrecht remains a mystery. Maarten van Rossem states that some historians still argue that the church cross was just a coincidence (RTV Utrecht, 2018). On the other hand, many historians, including my main sources Van Hulzen and Graafhuis, only mentioned that it was done purposefully. Though, the fact remains that bishop Bernold commissioned the construction of these collegiate churches, intentionally or not in a certain plan. As the thesis progressed I started to understand that it didn't matter if it was intended or not from the 11th century. It was about understanding what this spatial relation meant for the perception of the city, and how builders in later centuries interpreted the cross and wanted to enable it in more dimensions than just a plan. Therefore, the validity of the cross in the 11th century is an enigma that's not being researched for the results of this thesis, since it wouldn't mean anything for the conclusion.

Another point I would like to mention is the depth of which I'm viewing the image of the churches. The literature used for this thesis solely focused on giving factual information on the changes by the storm. For example, if there was a paragraph on a specific church and the storm, it only described the damage that was done. My methodology of generating arguments is attained through the connection of two elements. On the one hand, the literature is being used for the understanding of the facts, occurrences and motives. On the other hand, architectural evidence found in images are linked to each other to obtain new results. By joining the factual information from literature with my architectural conclusions, a new understanding of Utrecht and the church has been formed which hasn't been discovered yet.

A hypothesis I had in mind during the beginning, was only that the churches were going to look less impressive after the storm as a result of poverty. That this was connected to a way larger image and historical background, including the 11th century or the Reformation, was unthinkable to me. These two points also stress the methodology, where the larger image was understood by making analytical drawings, and the historical background by studying the literature very carefully.

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