Gothic Ecclesiastical Architecture of Northern France: Where Art Meets Economics

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Abstract
Gothic cathedrals were financed in many ways and their building could take centuries to complete. The process was long and arduous costing enormous sums of money over a sustained period of time. Their construction depleted both capital and skilled labor from the surrounding areas spurring both the donors and workers to be represented in the cathedral. The materials used to build these massive structures drew greatly on the region and dictated their architectural form. When the donors, religious figures, aristocracy, and workers are represented it validates the sacrifices they made towards building the cathedral as well as showing their social and economic standing in society to the viewer.

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LAKE FOREST COLLEGE

Senior Thesis

Gothic Ecclesiastical Architecture of Northern France: Where Art Meets Economics

by

Celia Remien Woldt

April 25, 2018

The report of the investigation undertaken as a Senior Thesis, to carry two courses of credit in the Department of Art and Art History and the Department of Economics, Business, and Finance

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ABSTRACT

Gothic cathedrals were financed in many ways and their building could take centuries to complete. The process was long and arduous costing enormous sums of money over a sustained period of time. Their construction depleted both capital and skilled labor from the surrounding areas spurring both the donors and workers to be represented in the cathedral. The materials used to build these massive structures drew greatly on the region and dictated their architectural form. When the donors, religious figures, aristocracy, and workers are represented it validates the sacrifices they made towards building the cathedral as well as showing their social and economic standing in society to the viewer.
DEDICATION

First, I would like to dedicate this to my twin, Laura. You are my other half, my champion in my absence and constantly encourage me to do better.

I would like to dedicate this to my mom. Your endless encouragement and love have gotten me to where I am today. Thank you for raising me to love art and learning.

To my dad whose constant support and well wishes always encouraged me to be the best that I can be. Thank you.

To my brother who, although we are very different, can always make me smile and consistently pushes me to be my best true self.

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<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1: Introduction</td>
<td>1-5</td>
</tr>
<tr>
<td>Chapter 2: Survey of Literature</td>
<td>5-32</td>
</tr>
<tr>
<td>Chapter 3: Financing the Cathedral</td>
<td>33-49</td>
</tr>
<tr>
<td>Chapter 4: Representations of Donors in the Cathedral</td>
<td>50-67</td>
</tr>
<tr>
<td>Chapter 5: Labor and the Cathedral</td>
<td>68-83</td>
</tr>
<tr>
<td>Chapter 6: Representations of workers in the Cathedral</td>
<td>84-97</td>
</tr>
<tr>
<td>Chapter 7: Materials</td>
<td>98-110</td>
</tr>
<tr>
<td>Chapter 8: Conclusion</td>
<td>111-114</td>
</tr>
<tr>
<td>Bibliography</td>
<td>115-120</td>
</tr>
<tr>
<td>Appendix 1: List of Figures</td>
<td>121-123</td>
</tr>
<tr>
<td>Appendix 2: Figures</td>
<td>124-149</td>
</tr>
</tbody>
</table>
Ch. 1 Introduction

Stepping over the threshold into a Gothic cathedral your eyes are drawn upward following the slender columns and vertical lines towards the crisscrossing arches that make up the ceiling. The street sounds of the modern world outside drift away when you cross the threshold from your everyday life into the otherworldly transfigured space. Colorful light filters through the stained glass windows, breaking up the stone and casting patterns and color across the body of the cathedral. The mumble of hushed voices emanates from other visitors not wanting to disrupt the tranquility of the cathedral that is centuries old. Your eyes dart around not knowing upon which splendid decoration to focus your attention and admiration. The arcades and columns break up the space, but rather than making it feel confining, they add to the decorative program of the cathedral and delineate the space. As you walk further into the cathedral this only continues, the outside world drifts away. The feeling is like stepping back in time, or looking into a time capsule, to another world where time moved more slowly, craftsmanship mattered, and the Church was a controlling power in society. This could describe any number of Gothic cathedrals, as their appearance is dramatically different from most modern buildings to which today's viewer is accustomed.

The cathedral is a time-tested physical manifestation of the power of the Catholic Church. Today these stone structures are dwarfed in comparison to the looming glass and metal skyscrapers that characterize most modern cities. Cathedrals today remind the ordinary person of the presence of the Church in everyday life, among the hustle and bustle of the modern age, as they did in earlier times as well. In Europe, cathedrals in many places still dominate the landscape; this can be seen particularly Northern France
where the Gothic style of architecture was born. Even today, these Cathedrals loom over the medieval cities that they call home (Figures 1.1-1.2). The building of a cathedral was a distinctly urban affair. It was the seat of the bishop and held a commanding place of power in the city. Because these Gothic cathedrals were built in cities, cathedrals were urban institutions symbolizing new urban vitality,¹ and therefore, the Gothic art that found expression in the cathedrals was primarily urban.²

There are numerous lenses through which one can look at the Gothic cathedrals in Northern France, recent scholarship has only begun to compensate for the previously overlooked connection between the economic impact and the artistic programs of cathedrals. This thesis will contribute to this developing trend in scholarship by demonstrating how the depletion of the scarce resources of financial capital, labor, and material reinforced the Church’s power and dominating presence because resources were expended on the cathedral rather than other structures or corporal works of mercy. The depictions of donors, laborers, and materials used validated the sacrifice of these resources for the construction of the Gothic cathedral in the final product they created, specifically that of the Saint Denis, Chartres, and Amiens.

In the twelfth century Bernard of Clairvaux, a member of the Cistercian Order, and a leader in the reformation of Benedictine monasticism, wrote on the opulence of Romanesque architecture. His concerns, however, also apply to the appearance and decoration of Gothic cathedrals as he explored the secular and religious concerns of a church’s appearance. Bernard writes in a letter to William of St. Thierry about the use of

resources in churches. He states the height, length, “superfluous breadth,” and much of the physical structure is “done for God’s honour,” however, he goes no further on the topic of scale. Bernard asks the question why the monks and clergy need gold in the sanctuary, as they should find their devotion to God and the Church easy, and instead of using funds on decoration they should be feeding the poor. The use of gold and other beautifying materials was not for the monks and clergy, but instead the decoration was to “excite the devotion of carnal folk,” who did not find their devotion in “spiritual things,” but rather “[did] so by bodily adornments.” The lay person did not find devotion easily in abstract “spiritual things,” and required a splendid object to connect them with God. Bernard continues, saying money is scattered around the church, and artfully so, as such “it is expended that it may give increase, and prodigality given birth to plenty: for the very sight of these costly yet marvelous vanities men are more kindled to offer gifts than prayers.” In the eyes of God the use of scarce resources further connected people to the Church, although perhaps in a superficial manner. In the eyes of man, however, valuable resources were depleted. The motivation in the eyes of the donors and clergy was to justify the use of assets when the resources could have otherwise aided the community if directed elsewhere.

This thesis will begin by giving context to this argument through a discussion of the medieval economic environment, how people lived and worked, a history of Gothic architecture, interdisciplinary approaches to the Gothic cathedral, the cathedral in previous economic studies, and the individual histories of the Abbey Church of Saint

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5 Ibid, 169.
Denis and the Cathedrals of Chartres and Amiens. Unlike Chartres and Amiens, which are true cathedrals as they are the seat of a bishop, Saint Denis is not technically a cathedral; it is rather an abbey church or basilica. Saint Denis, however, will still be discussed in this thesis. Saint Denis is discussed in the same terms as Chartres and Amiens Cathedrals because it was the pioneering church of the Gothic style and its reconstruction in this new Gothic style impacted the design of both Chartres and Amiens. Saint Denis was the royal church of France so, it had a different status than other smaller abbey churches, regarding its power and connections to those in power. Finally, Saint Denis is on the same physical scale as Chartres and Amiens and would have the same financial concerns and need for a large-scale artistic program, although it was remodeled rather than built anew. Thus, in general terms, Saint Denis, as well as Chartres and Amiens, will be referred to as cathedrals.

Following the discussion of the histories of Saint Denis, Chartres, and Amiens the massive amount of funding that was required to create each of these structures will be examined. Funding came from a variety of sources within the region such as the Church itself and the aristocracy. Subsequently, the representations of clergy and secular donors will be examined in relation to the use of the donor’s financial capital and their desire to be publically connected to the power of the Church. The amount of labor used during construction will then be discussed in relation to the use of the primarily skilled labor force needed to construct a cathedral. Consequently, representations of workers in the cathedrals’ artistic programs will be surveyed to show the workers’ importance to the Church. Following this will be a discussion of the use of scarce material resources used in building a Gothic cathedral. The scale on which Saint Denis, Chartres, and Amiens are
built precluded other structures from being constructed, implying that the cathedral is the most significant structure in the City.
Ch. 2 Survey of Literature

Medieval Europe has captured the interest and imagination of scholars for centuries. The literature examining this period covers many fields of study. Each discipline inspects a different aspect of this period showing that in fact, it was not the ‘dark ages’ but rather a time of creativity and advancement. Of the massive amount of literature on the Middle Ages and the Gothic era, the various authors do not all discuss the Gothic cathedral directly; however, much of the work can be applied to the building and development of the Gothic cathedral. This chapter will discuss many of these fields of study including: the changing economic environment, how people lived and worked, the social setting, the art historical context of Gothic architecture, and the individual histories of Saint Denis, Chartres and Amiens to show how all of these impacted the creation of the cathedral.

Medieval Economic Environment

The Middle Ages were a time of significant economic change and development, despite the fact that there was not an economy as we know it today. There were no interest rates to track, no gross domestic product or consumer price index to study to see how the economy was growing and if it was doing well. Rather than this, one must look at the change in technologies, the growth of infrastructure, trade, and contemporary events that would have impacted economic life in the Middle Ages. All the aspects that influenced the medieval economy would have factored into the speed at which the cathedral was built as well as the resources available for its building.

Agriculture was the largest and most crucial sector of the economy in the Middle Ages. The masses depended on it for their livelihood. If the peasants sold the goods they
produced, along with “the peasant’s labor dues and other obligations had been commuted
for a fixed money rent he was often in a strong position, as inflation gradually increased
the value of his surplus and left him with a margin of profit.” The profits from selling the
surpluses sold by both the peasants and their feudal lords were then used to buy
commercial goods, stimulating the emergence of a market economy. All of these required
the development of currency.

The factors of production mainly available at this time, for all industries not only
agriculture, were land and labor. In France and other parts of Europe there “were lighter
soils called loess,” where “windblown clay rested top heavier soil that was rich in
nutrients and easy to plow,” allowing crops to flourish. The use of plows was not
uncommon, and during this period, to an extent, they even became more advanced.
Agricultural work fluctuated with the seasons. Techniques of farming improved with
commerce between Christian Europe and the Muslims in Spain and the East as well as
the monks that brought in old Roman methods of agricultural development.

The importance of a good harvest is shown in the events of the Great Famine of
1315 to 1322. These were years of rainy summers and harsh winters. “Evidence from
Norway, England, and northern France suggests reduced yields in the main wheat crop by
20-50 percent.” Animals as well as other crops suffered. Wheat was one of the most
important crops because of its use in making bread, an essential food for survival. Such a

6 Norman John Greville Pounds, *An Economic History of Medieval Europe* (Cambridge:
7 Ibid, 115.
8 Steven A Epstein, *An Economic and Social History of Later Medieval Europe, 1000-1500*
(Cambridge: Cambridge University Press, 2009), 43.
9 Durant, Will, and Ariel Durant. *The Story of Civilization: The Age of Faith; A History of
Medieval Civilization (Christian, Islamic, and Judaic) From Constantine to Dante, AD 325-1300.* Vol. 4.
10 Epstein, *An Economic and Social History of Later Medieval Europe*, 160.
large reduction in wheat meant that peasants would have to eat some of the wheat immediately, instead of storing it for later. Hunger and famine set in quickly, and it would not have been any easier to obtain wheat by buying it as "the price of wheat in northern France had risen 800 percent in the first three years of the famine."\footnote{Ibid, 162.} Luckily this would not last long, as in 1320 recovery began.

Another great tragedy of the time is more well-known than the Great Famine and goes by several names: the plague, the Big Death, or the Black Death. The Black Death swept through all of Europe beginning in 1346. The Great Famine in the north "took perhaps 5 percent of its population and the later plague took at least one-third of Europe's people within the first few years."\footnote{Ibid, 159.} But this did not stop people from continuing to work, build and live their lives. Cathedrals continued to be made even when the population of the faithful (death rates among regular church growers were as high as 50 percent\footnote{Ibid, 180.}), as well as workers, fell severely.

With the massive loss of life from the plague and the Great Famine there was a time of great inheritance for the survivors. There were fewer people who inherited from more sources. Famine could not destroy Europe’s wealth, so as it was “now in fewer hands… per capita wealth skyrocketed,”\footnote{Ibid, 184.} except of course for the destitute. Those who did work would have experienced an increase in wages because of the short supply of labor. The increase in the price of labor and wages would have affected both urban and rural settlements. In France, “the monarchy also responded to the increase in wages by issuing a Grand Ordinance in February 1351,” where the “new rules recognized a fair
increase of wages as being one-third higher than before the plague."15 Prices tended to fall where the Plague was. Wheat and wool would have been in abundant supply due to the lack of consumers. Prices fell, but those left after the plague tended to prosper because they could consume more of the previously scarce, and expensive, resources.

The plague, as well as the Great Famine, were not the only events to impact the medieval economic situation. The Hundred Years War started in 1337 and lasted until 1453. The first phase of the war “saw bloody and expensive conflict struggle between Edward III of England and the new Valois dynasty under Phillip VI of France about who had the right to rule France.”16 This war and its many battles, as well as wars and conflicts in the period would have also expended labor resources as well as capital and fiscal resources. War is expensive. At the end of the war, the English had lost everything that was worth having on the content of Europe. At this point, Charles VII of France had "probably become the most powerful and richest monarch in Europe, with the first standing professional army to prove it,"17 and forced France into the first great fiscal-military state. This war, before the Black Death at least, fostered technological advancement, especially regarding weaponry.

Although the Plague, Great Famine and Hundred Years War did not occur during the main campaigns of construction for Saint Denis, Chartres, or Amiens smaller events similar to these could have disrupted campaigns and caused an increase in competition over resources. Amiens was the last of the three cathedrals discussed to be created; however, there were still Gothic cathedrals under construction until the late fourteenth

15 Ibid, 186.
16 Ibid, 166.
17 Ibid, 229.
and beginning of the fifteenth century. These three major events may not have impacted Saint Denis, Chartres and Amiens’s original construction but they may have impacted others or, in the case of the Hundred Years War, may have damaged already completed buildings.

Trade is an important factor of economic growth. When entities become involved in trade, it makes the trading partners better off. By trading, towns or groups such as guilds can gain a comparative advantage in the production of a product based on the resources available. Using the relatively abundant factors allows the town to produce goods that they are most equipped to create. By trading with another entity that is also producing the good which uses its relatively abundant factor relatively intensively the trading partners become more efficient and prosperous. Europe in the Middle Ages was not closed off as many may believe, but rather "from the tenth century to the plague [Europe] witnessed the rise of the first world trading in which," different markets were formed and “brought prosperity to its participants.” One of the most important trading venues was the fair. “Fairs are commonly associated with markets. Indeed, the medieval charters which established them commonly linked them together as a grant of a weekly market and a twice or thrice yearly fair.” The different types of fairs serviced mostly local needs, however, the larger and less frequent ones served as a platform for more international trade. There were also peddlers who would sell their wares door to door, “artisans who sold their products in shops,” and people who gathered on market days. One example of the medieval fair was associated with Saint Denis. This was one of the

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18 Ibid, 70.
oldest and most regular fairs in Europe. Held twice a year, it dated back to Carolingian times.\textsuperscript{21} This fair was also a way the church made money, which helped to finance the abbey’s renovations.

Industry in France grew alongside the expansion of trade, and in turn, the ”wider markets stimulated production, and mounting production nourished trade.”\textsuperscript{22} Essentially as industry and production grew in France, there was more to trade, creating a cycle of increased production and consumption. Although there was an increase in trade and growth in means of production, transportation did not progress very much from the Early Middle Ages to the High Middle Ages or Gothic. Despite the lack of advancement in the technology of transportation “France grew rich on her rivers, liquid strands of unifying trade;” the rivers “facilitated her commerce as well as her fields.”\textsuperscript{23} Towns and industry in France thrived concerning production and farming allowing for work for the peasants and artisans. For the aristocracy and many merchants there was an increase in wealth.

At Amiens, renewed trade and industry allowed the town to grow and become prosperous. Amiens, among other cities such as Beauvais, Lille, and Reims, ”became whirlpools of such commission industry, famous for their artistry and their revolts.”\textsuperscript{24} Woad was the primary industry in Amiens, along with the production of wine; so the Amiens economy was for a time gifted with great fortune. Woad is a fabric dye that creates a vibrant blue color. This was the favored way of creating this color. At Amiens agriculture supported trade making the merchants wealthy. The wealthy woad merchants, who helped to foster the erection of Amiens Cathedral, will be discussed later in this

\textsuperscript{21} Epstein, \textit{An Economic and Social History of Later Medieval Europe}, 81.
\textsuperscript{22} Durant, \textit{The Story of Civilization}, 621.
\textsuperscript{23} Ibid, 617.
\textsuperscript{24} Ibid, 623.
thesis.

The increase in trade made the barter system, which had been used for centuries, inefficient. “The commercial and industrial expansion revolutionized finance. Commerce could not advance by barter; it required a stable standard of value, a convenient medium of exchange, and ready access to investment funds.”

Money is a unit of account and can be used as a standard of value for valuing goods and services. This simpler medium of exchange made it easier for people to buy goods and services, again, allowing for more industries to grow. The economy required money for “without an adequate circulation of coin it would slow down and ultimately reduce itself to a small-scale barter economy.”

The goal of any economy is to grow, not shrink.

Even the Church was a great proponent of industry and commerce. The Church "had an unparalleled organization for raising funds, and had always a liquid capital available for any purpose; she was the greatest financial power in Christendom." With these funds, the Church "lent money to persons or institutions in difficulty," although this lending was mostly to villages looking to improve their farms, or neighboring lords and aristocracy in exchange for a share of revenues of the lord’s properties. This did create a problem, however, regarding interest. Interest was an issue for the Church because of a doctrine that created prohibitions against usury, deeming it to be sinful. Money was made in other ways than lending, which was essential to the continuation of the fabric of individual chapter of a cathedral as well as the Church as a whole.

How People Lived and Worked

25 Ibid, 625.
26 Pounds, An Economic History of Medieval Europe, 115.
27 Durant, The Story of Civilization, 626.
28 Ibid, 627.
Life in the Middle Ages was not easy, even for the elite. Peasants worked tirelessly on farms, in many cases struggling to survive. They were, however, the backbone of the economy. Few records were kept about the peasantry; history has been written and sustained by the wealthy and powerful, and thus representations and documentation regarding peasants is filtered through their eyes. This is not to say, however, that nothing is known. Peasants did not live in isolated areas but instead tended to group in towns and hamlets, living near their animals.²⁹

A defining factor of medieval society, including during the high Middle Ages, was feudalism or the feudal society. There were local manor lords excising local jurisdiction, regional lords with power in larger territories, and kings who claimed power over a large sovereign territory.³⁰ For a long time, feudal society has been looked at as a time when "social ties among landlords and peasants, as they evolved, shaped by the typical and memorable features of a world standing between classical past and early modern globalizing capitalism."³¹ Feudalism was how society was structured, in a complex system of people owing each other and hierarchies of status. The powerful lord of the area was in charge in many aspects. The peasants owed the lord rent and shares of their crop. The vassal, usually a warrior, was in-between the two. The vassals holding the fiefs were rent-seeking and often used violence to compel an income, a feudal rent, from the peasantry.³² The vassal and the peasant, however, could expect things from the lord as well. “The vassal of a powerful lord could, in turn, count on a good lord to protect him

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²⁹ Pounds, An Economic History of Medieval Europe, 48.
³¹ Ibid, 56.
³² Ibid, 57.
when he needed protection. Mutual protection, by contrast, were strengthened by oath, to hold property and to fight- these were the hallmarks of feudal society from the perspective of the warrior class.”

The lower classes could expect certain things from the aristocracy, but the aristocracy demanded much more from them and was firmly in charge. They were the ruling class where, “the landlord exercised, through some local or manorial court, rights of justice over a subjected peasantry that included free and unfree peasants.”

In general, law was seen as consisting of local traditions and customs.

Feudal society was the prevailing social structure from the 8th to 15th centuries, however it prevailed most strongly in Europe starting in the 10th century. The complexity of feudal society increased and became more rigid beginning in the 12th century, which lead to its decline by the 15th century. The Feudal lords were the wealthy and powerful aristocracy, and can be seen as donors to cathedral.

In the Middle Ages, there was also growth in industry as a whole; farming was not the only option for the commoner. The medieval guilds’ importance in society grew as they became an outstanding entities in cities. A guild is an association of artisans or merchants who oversee the practice of their craft. Guilds were an essential party to the building of cathedrals. The use of guilds in the construction process ensured the level of workmanship was sound and that the worker was trained; it also created a division of labor. There were many different guilds in cities from masons to shoe and wine makers. Even on the construction site of a cathedral, fifteen categories of workers can be

33 Ibid, 57.
34 Ibid, 59.
36 Epstein, Wage Labor and Guilds in Medieval Europe, 3.
identified, ranging from common laborers to skilled craftsmen. The master mason oversaw all the work being completed and made sure construction was going smoothly. “The medieval guild thrived in the economic and social circumstances that resulted from the increased prosperity of the central Middle Ages.” Guilds spread quickly and became a significant source of power in some cities.

Many guilds have their roots in antiquity; however, in the twelfth-century there is evidence that the guild, or trade organization, as we see it today emerged. "Trade and urbanization brought people in the same line of work into proximity with one another, creating rivalries but also the first reason for cooperation." The influx of people to cities demanded other types of work other than farming; these skilled workers created the guilds as means of control - a way to govern entry into the market of their craft and to discourage competition. This was done through price setting and the extensive the training required to become a master in a craft.

Along with guild or trade workers and the need for currency, the system of wage labor began to develop in the twelfth century. Evidence for the history of wage labor mainly lies in records of what employers paid and did: “employers in a sense created employment and also caused the market for wage labor to come into being.” The wage labor system, where workers essentially sell their time to an employer, also seems to have come about because of necessity. If employers were not ready to bear all costs of living for the worker, then they needed a means to pay them. Workers needed coinage to buy

38 Ibid, 91.
39 Ibid, 91.
40 Ibid, 50
the crops that the peasant farmer grew, items from shops and as other necessities of living.

Similarly to how people banded together to form guilds to protect common interests, people moved to cities to be together and for protection. Not everyone could live on a farm and be a peasant farmer, nor would everyone want to. There was a period of urban growth in medieval Europe from the tenth to thirteenth centuries. Only about fifteen to twenty percent of people, however, lived in cities. “With the revival of urban living from the tenth century onwards, towns developed new functions, but these were not necessarily those which had characterized the towns of the classical world.”

Medieval towns were hubs of culture and “became centers of craft industries, places for financial transactions and for secular and ecclesiastical administration.” As said previously, cities and towns held markets frequently, and “their existence was based on trade,” allowing for even more growth. “The relationship between growth and spread of the city during the Middle Ages and the economic fortunes of the continent as a whole is a close one.” As cities and industry expanded there was an increase in both the production of goods and the purchasing of these goods. The increase in production and consumption allowed the city’s economy to grow.

The people living in cities were not altogether free; however, people in cities had more freedom than peasants. Towns "were freer than rural communities to organize their

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42 Pounds, An Economic History of Medieval Europe, 100.
43 Ibid, 223.
44 Ibid, 100.
45 Pounds, An Economic History of Medieval Europe, 224.
46 Ibid, 253.
48 Ibid, 230.
own affairs;"\textsuperscript{49} however, there were different degrees of freedom in different towns or cities. "The idea of the town as an autonomous community of merchants, traders and craftsmen spread northwards from the Mediterranean. In north-western Europe, however, it faced more vigorous opposition, from both ecclesiastical and lay lords."\textsuperscript{50} The search for freedom had little traction and success in France in the high Middle Ages for the cities “seem to have been under the firm and authoritarian control of their bishops,"\textsuperscript{51} as well as lords and other members of the aristocracy. These powerful figures all had ties to the Church and were essential to the building of the Gothic cathedrals in Northern France.

An important part of medieval religious belief and culture was pilgrimage, the journey of the faithful to a sacred site. Cathedral cities depended on pilgrimage as part of their income. Pilgrims journeyed to cathedrals that held important relics. The flow of people through the city would have impacted how the town was constructed. Pilgrimage was important to “economic activity, sometimes involving complex commercial relationships between the private sector and local church authorities.”\textsuperscript{52} Similarly to tourists today, pilgrims were an important part of the economy of many towns. Pilgrimage was not consistent however, during times of war or plague, it decreased. Saint Denis, Chartres and Amiens were all important pilgrimage sites, and their cathedrals were expanded or rebuilt with these pilgrims in mind.

\textbf{Art Historical Context of Gothic Architecture}

\textsuperscript{49} Ibid, 225.
\textsuperscript{50} Ibid, 226.
\textsuperscript{51} Ibid, 238.
\textsuperscript{52} Adrian R. Bell and Richard S. Dale, "The Medieval Pilgrimage Business." Enterprise & Society 12, no. 3 (2011: 602).
The study of Gothic cathedrals began by looking at the cathedral not as social and economic entity but, instead solely as an artistic and architectural form. The Gothic cathedral has been studied not only for individual iconographic programs, but also for their innovative style and construction methods. The Gothic cathedral changed the structure, architectural style, and form of the cathedral building. This change in style began in France, starting with “Abbot Suger’s patronage of the arts during his reconstruction of the abbey church of Saint Denis,” which “directly brought about the birth of the Gothic art.”\(^{53}\) This new style spread from France to the rest of Europe becoming an ideal medieval architecture; “Gothic spread from the land of its birth in Northern France to become the sacred style of Europe, but with differing shades of expression, which reflect in dividable countries and peoples.”\(^{54}\) Discussed here will be its original incarnation and some of the quintessential examples of Gothic architecture as a type to be followed and admired to this day.

The large size of the Gothic cathedral was in part due to the need to accommodate for the massive influx of pilgrims who flocked to cathedrals with important relics. In general, Gothic cathedrals were not entirely new structures. They were built on the grounds of previously destroyed or dismantled structures. In other instances, they were renovated to honor God and show the dominance of the Church’s power over the city. For these reasons the Gothic cathedral “came to assume truly gigantic proportions.”\(^{55}\) The Gothic cathedral has the form of a central nave and side aisles. Its plan and construction

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\(^{55}\) Erlande-Brandenburg, *The Cathedral*, 175.
was "between the idea of God's will, of the church as an eternal instruction on the one hand, and the wanderings of human destinies on the other."

Above the side aisles are galleries which along with the more substantial base level and the many supporting piers, divide the space. The new and larger Gothic cathedrals not only created more room for visitors but, advancements such as the use of the pointed arch supported the great weight of soaring naves which drew the eye upward towards heaven. The design of cathedrals reached new heights regarding both techniques of engineering and construction as well as in physical stature. The vertical nature of the design exaggerates the height of the cathedral to the visitor.

Despite the increase in size from their predecessors in the Romanesque period, the Gothic cathedral has a lighter appearance regarding its physical and visual weight. “The grandeur of the interior of the Gothic cathedral, bathed in ethereal light, acted upon the spiritual sensibilities of the believers in a different way from the Romanesque.”

The massive windows of the Gothic period truly transfigured the space in a way that had never been done before. At Chartres Cathedral, for example, the magnificent stained glass featuring a vibrant blue color, amongst others, makes the interior of Chartres into an otherworldly escape from the mundane and would have done so even more in the Middle Ages. Chartres has been studied to a great extent in part because of the survival of its stained glass windows. Elsewhere, many of the stained glass windows have been severely damaged and restored, or few survive at all.

Light is essential to Gothic form. It was not only to brighten the space for practical visibility reasons, but also for stylistic ones; the "Gothic wall seems to be

57 Jantzen, High Gothic, 24.
porous: light filters through it, permeating it merging with it, to transfigure it." 58 Walls in the Gothic cathedral, as opposed to its predecessors, do not feel as heavy and impermeable as if they are bracing for a siege, but instead are open and welcoming. In the twelfth and thirteenth centuries, light was considered a source of beauty, an idea that was encouraged and spread by Abbot Suger and his renovation of Saint Denis.

The new Gothic style of vaulting was also an essential innovation which allowed, along with other architectural elements, for the nave to reach new heights. The pointed arch distributed weight in a more efficient manner. Gothic vaulting brought this to another level and primarily consisted of cross-ribbed vaulting. The cross-ribbed vault was superior to the previous vaulting techniques such as barrel vaulting; it allows “the effects of thrust and compression [to be] absorbed in the wall structure. The diagonal intersecting ribs form with cross arches and side arches, the load-bearing frame,” 59 that supports the weight of the structure. “The Gothic ideal was soaring space, the majestic dimensions inspiring awe and wonder in the congregation.” 60 This ideal can be seen at both Chartres and Amiens Cathedrals where the naves were raised to astonishing heights, 123 feet, and 137 feet respectively. To create these buildings, that still stand strong to this day, the masons used little more than "templates, along with constructional geometry and a relatively small range of simple tools," 61 as well as a fair bit of experimentation.

The Gothic cathedral is light and airy on the interior with little visual support for the weight of the stone vaulting. Masonry walls, as well as a high stone vault are heavy;

59 Jantzen, High Gothic, 29.
60 Ibid, 45.
without massive support they would crumble. "The Gothic solution consists in placing all the points of support for the walls on the outside so that in conformity with the division of the wall into load-bearing panels, the thrust is taken only at certain fixed points."\textsuperscript{62}

This is achieved through buttressing. Flying buttresses have come to characterize the Gothic cathedral exterior; they look like wings attached to the cathedral and give the exterior an airy appearance to match the one inside.

As well as the architecture, the sculptural and artistic programs of these great Gothic cathedrals have been studied by many scholars. From the tympanum above the door leading into the cathedral, to the stained glass windows, and even to capitals of columns, imagery is everywhere. In these sacred places, “the artistic representation of sacred objects was a science governed by fixed laws which could not be broken at the dictates of individual imagination.”\textsuperscript{63} Beauty was created by a set of rules. These didactic images told stories to the illiterate masses coming to the cathedral, often of sin and the path to salvation, often through biblical stories. The artistic programs were not separate from the architecture, but instead, the two worked together to create the outstanding structure of the Gothic cathedral.

**Interdisciplinary Approaches to the Gothic Cathedral**

The Art Historical approach to the Gothic cathedral for many years looked at it solely concerning their artistic programs and architecture rather than the context of the community in which the cathedral was created. The importance of the social, political, and economic contexts has become more evident and integral to the understanding of the

\textsuperscript{62} Jantzen, *High Gothic*, 91.

cathedral with more recent scholarship. The environment of the town and period impacts the building process, as the Gothic cathedral was not built in a vacuum but rather and active environment.

The approach to the study of the construction of cathedrals was groundbreaking. In 1979 Henry Kraus broke open the door to the Cathedral as more than an artistic product created in a vacuum. The cathedral depended on the community and economic situation in which it was constructed. In the city of Amiens, the “church and burghers had various mutual grounds for their attachment,” and “there was no single phase of the city’s commercial and industrial life which the church was not involved.” The Church was heavily involved in the business of the town, but the wealthy woad merchants and burghers were also an essential element in the fundraising for the building of the cathedral. Kraus does not, however, dispute the importance of the “clerical family [that is the priests], who, to all appearances, accepted their responsibilities punctiliously.”

Jane Welch Williams also broke with tradition and wrote on Chartres Cathedral and its famous windows in an entirely new way in 1993. Williams explored a previously undiscussed controversy over the windows and who actually donated or paid for them. She specifically discussed the trade windows and how most of the windows “do not contain inscriptions nor do they show traditional images of offering. Hence, it cannot be assumed that the workers shown in the windows represent donors;” whereas, previously each window was presumed to have been donated by the guild or trade that is

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64 Henry Kraus, *Gold was the Mortar* (London: Routledge &Kegan Paul Ltd, 1979), 41.
65 Ibid, 45.
represented. Williams highlights various conflicts that the town endured between the City of Chartres and its workers and the religious community. *Bread, Wine & Money* brings up questions of patronage and how different events in a community can impact the building process.

Cathedrals are purpose-built pieces of architecture. Their purpose as religious buildings is evident at first glance and in their construction; however, when looking past the beauty and prestige of these buildings the many socio-political aspects appear. In France, the cathedrals can be seen to have royal influence, and a strong connection to the Royal Family. For Example, Saint Denis, “adding to its luster was its selection as the final resting place for a string of French monarchs,” and “by the twelfth century, St. Denis’s place as the premier royal abbey of France became firmly established.”67 Saint Denis’s connection to the French monarchy and its innovation of the Gothic style helped the spread the style. Other creators of Gothic cathedrals in France would have also intended to connect themselves to the monarchy by using it. It is, however, important to note that the “French sovereign was not involved in the process [of construction]. He was responsible neither for the decision to build, not for the raising for funds.”68 Still, at times, the king and the aristocracy would have donated to cathedrals show their benevolence and power.

**The Cathedral in Economic Study**

The economic perspective focuses on the financing of the cathedral; it asks who in the town was responsible for the vast amounts of money that were needed to buy materials and pay workers. Breaking down the financing of a cathedral has been done in

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broad strokes, but few scholars have look at it closely, especially for the cathedrals in France. The lack of empirical documentation and evidence makes this type of financial analysis difficult. If a ledger or account book describing purchases were to be found, it would be a miracle. There are, however, accounts in letters and personal statements that give some idea about how cathedrals were financed.

The Bishop is a figure who has been, historically, associated with the construction of their town’s cathedral. Initially, Bishops, in theory, had full control over the cathedral’s income and property; however, “in many episcopal cities the management of the cathedral and therefore the building works lay completely in the hands of the chapter.” At Saint Denis, since it is an Abbey Church, there is no bishop; in this case Abbot Suger fills the role of leader. Control lie, in large part, with the bishop and to a lesser extent the chapter of the cathedral. The chapter of the cathedral began to gain more power, however, in the Gothic period. For example, Chartres “in the fourteenth century the chapter of Chartres demanded spiritual and temporal jurisdiction over the cathedral, thus giving it authority over building operations.” The levels of control and therefore who contributed the most money varied from city to city. In addition to donations from individuals, donations from church officials came from lands the church owned and taxes the Church levied on the towns people.

Other than the church there were many sources of income for the cathedral that contributed to the costs of building. Pilgrimage could be a significant source of funding. Those pilgrims who came to the shrine would donate to it. At Saint Denis three-quarters

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69 Wim Vroom, *Financing Cathedral Building in the Middle Ages: The Generosity of the Faithful* (Amsterdam: Amsterdam University Press, 2010), 33.
70 Ibid 37
71 Ibid 38
of the money to remodel the church came from gifts from pilgrims and profits from the Lendit, which was a royally authorized fair held in the town of Saint Denis.\textsuperscript{72} A third source of funding for the cathedral was residents who lived in the city of the cathedral. Wealthy merchants, burghers, trades or guilds donated money, as did those with lesser means. The entire community was involved, although in different manners, when a cathedral was built.

In addition to question of finance, another question is how the building of these cathedrals would have impacted the resources of the region and town. Again, records are not well preserved for this area of study. What research that has been done about how the building of a cathedral would impact resources in large part has focused on English cathedrals and churches. The massive amount of manpower, or labor that was used in the physical construction of the building has been studied most often. Johnson poses a model that looks at the volume of space of a cathedral and the labor employed to make it. Mainly looking at Westminster Abbey in England, Johnson extrapolates to see how the labor was used up by construction in England and finds that it “does not seem likely that any cathedral would have influenced the economic life outside the immediate environment in which it was located.”\textsuperscript{73} Johnson’s conclusion contradicts others who say the cathedrals would have had a large impact on resources.

Looking at other resources opens the door to more opinions and analyses. Cathedrals were built all around Europe. Owen compares the impacts on the economy by cathedrals in France and England. French cathedrals were found to have had a more

\textsuperscript{72} Scott, \textit{The Gothic Enterprise}, 191.

\textsuperscript{73} Thomas H Johnson, “Cathedral Building and the Medieval Economy.” \textit{Explorations in Economic History} 4, no. 3 (1967: 207).
significant effect than their English counterparts mainly because the French cathedrals were larger and there were more of them. "Empirical evidence on cathedral and related building in France supports the view of cathedral building as having economic significance."\(^7^4\) Owen also looks at the increase in technology and the popularity of the Gothic style to reach this conclusion, but she does not delve into which resources were impacted and if this “significance” was positive or negative in the building of the great number of cathedrals.

**History of the Abbey Church of Saint Denis**

Saint Denis was the first of the Gothic churches to be built, or later remodeled. Before St. Denis’s recognition as the royal patron [of France] in the seventh century, and the initial founding of the church at his tomb, in the sixth century, there were “royal burials before ... his shrine.”\(^7^5\) Merovingian sarcophagi can still be seen under the nave and crossing.\(^7^6\) This association, along with a number of early gifts and the granting of special royal privileges, resulted in the recognition of Saint Denis as the royal abbey.\(^7^7\) The town of Saint Denis grew up around the church.

Abbot Suger’s renovation began after he inherited a church that “was essentially completed in 775 by Pepin, father of Charlemagne. It was a basilica of deliberately Roman aspect.”\(^7^8\) The reconstruction of the church began in 1135 with the west façade,

\(^7^6\) Ibid, 20-23.
\(^7^7\) Ibid, 9.
\(^7^8\) Christopher Wilson, *The Gothic Cathedral: The Architecture of the Great Church, 1130-1530, with 221 Illustrations* (New York: Thames & Hudson, 2014), 33.
which was completed in 1140.\textsuperscript{79} This is unusual in the sense that they did not start with the eastern end, where the choir or apse of the church are with the nave leading up to it. Instead, Abbot Suger chose to redo the entrance of this great church first. This could suggest that he wanted a grand appearance from the moment someone came to visit. After construction on the “west block and nave extensions in 1140, Suger began to rebuild the choir.”\textsuperscript{80} The western façade, nave and choir were all renovated in the new Gothic style. In 1144 Saint Denis was consecrated. Later, during the “mid- 13\textsuperscript{th} century [and no longer under the control of Suger] the old transept and nave were replaced, a campaign which entailed, unfortunately from the point of studying the beginnings of Gothic architecture, the destruction of the upper choir stories and Suger’s choir.” This renovation removed not only Suger’s nave and transept but also the last of the Carolingian elements.\textsuperscript{81}

The thirteenth century renovations, however, were not the last. Shortly after the consecration in 1281, “in the early fourteenth century, six chapels were added between the buttresses on the north side of the nave.”\textsuperscript{82} The last major addition to the church before the nineteenth century was the Valois Chapel, attached to the exterior of the north transept arm.”\textsuperscript{83} Saint Denis has not remained the same since medieval times when Suger and his contemporaries renovated it. During the French revolution the royal tombs located in the church were destroyed in 1793. These have been restored to a large extent during the many reconstruction campaigns the church has undergone since.

\textsuperscript{79} Ibid, 33.
\textsuperscript{80} Ibid, 37.
\textsuperscript{81} Ibid, 37.
\textsuperscript{82} Carolie Astrid Bruzelius, \textit{The 13th-Century Church at Saint Denis} (New Haven: Yale University Press, 1985), 15.
\textsuperscript{83} Ibid, 16.
History of Chartres Cathedral

Chartres Cathedral is generally ranked as one of the most quintessentially Gothic cathedrals. Chartres is known for its fantastic and well preserved programs of stained glass and sculpture. It was a major point of pilgrimage in the Middle Ages because of the importance of its relic; Chartres has claimed it has the veil of the Virgin Mary in its treasury, having been donated by Charles the Bald in 876. The Gothic Chartres Cathedral was not an entirely new structure for the town. There was a cathedral in Chartres from the fourth century. This was replaced by a Merovingian cathedral, that was destroyed, as well as several others that followed. The new Gothic cathedral was built on the foundations of the former structure. “The Romanesque cathedral of Chartres, built in 1020 by Bishop Fulbert, was destroyed by fire on June 10, 1194. Only the crypt and west façade with its two towers remained undamaged,” and can be seen today as the oldest parts of the cathedral.

Building of the current Gothic cathedral commenced as soon as the rubble was cleared away, “and by 1220 the vaults were completed.” Subsequently, on the 17th of October 1260 the Cathedral was “formally consecrated in the presence of King Louis.”

This rapid 65 years of construction was in part due to the City’s economic vigor as construction progressed. As at Saint Denis, construction did not completely stop after the first consecration, but rather since the thirteenth century further alterations have been made. In the fourteenth century, a chapter house was adjoined to the cathedral by a stone

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86 Ibid, 33.
88 Ibid.
staircase covered by the gallery. Chapels were added in the fifteenth century, and in the sixteenth century the wooden spire of the bell tower was replaced after being destroyed by lightning. In 1836, there was a fire that damaged the roof and “destroyed the original wooden roof frame. The architect Baron designed a fireproof cast-iron roof truss roofed with copper plates, which remains today one of Chartres Cathedral’s distinguishing features.”

Chartres can be seen as one of the most prominent Gothic cathedrals to this day because of its innovations in engineering and design which include tall arcades and a large clerestory. These innovations required the use of the flying buttress to support the weight in an unprecedented manner. The flying buttress adds to the genuinely Gothic exterior of Chartres.

Luckily for Chartres, it emerged from the French Revolution and religious upheavals in the sixteenth century relatively unscathed in comparison to other churches and cathedrals in Northern France. It also escaped unscathed from the French Revolution and other upheavals. “During the Second World War the stained-glass windows were removed as early as 1939 as a precaution, but the cathedral fortunately did not sustain any bomb damage.”

Conservation efforts have taken place beginning in the late 20th century focusing on the protection of the cathedral’s stained glass from pollution damage. The windows at Chartres are particularly stunning with their deep blue color helping to create a transfigured space within. The stained glass windows while not only beautiful are still, in large part, a full program.

History of Amiens

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90 Ibid.
91 Ibid.
Amiens Cathedral is the second tallest in France, measuring approximately 46 yards in height. It towers over the other buildings in the town, making the cathedral function as a beacon to those coming to the city. The church at Amiens has old roots. In 334 St. Martin of Tours was baptized here and shared his cloak with a beggar. However, the Christian community here was wiped out by pagans who came through France in 407. In the 400s it was evangelized again. These old seeds of the Catholic Church in Amiens lead to its power and importance. There was a Romanesque cathedral in Amiens before the gothic one we know today. The Romanesque construction began in 1137 and was consecrated in 1152. It became an important place of pilgrimage when the head of John the Baptist was brought back form crusade in 1206. Even beyond the Gothic period, Chartres is an important place of pilgrimage.

Similarly to Chartres, the building of a new cathedral was necessary at Amiens because there was a fire at Amiens in 1218 which destroyed the old cathedral. The church was built new rather than renovating an old existing structure, as was done at Saint Denis. The foundation was laid in 1220, “by 1233 the nave foundations were finished, and the south transept begun,” and the lower west façade, was completed by 1236. The building took place from west to east, which is unusual. This amazingly fast construction allowed for the cathedral’s harmonious style and structure. In 1247, the apse, ambulatory, and the radiating chapels were almost complete. Another fire hampered the building progress in 1258, but it allowed for the creation of the stone vaulting that is

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93 Stephen Murray, Notre-Dame, Cathedral of Amiens: The Power of Change in Gothic. (Cambridge: Cambridge University Press, 1996), 6. This source by Murray is arguably one of the best and most comprehensive histories and analyses of Amiens Cathedral.
94 Kraus, Gold was the Mortar, 40.
95 Ibid, 40.
characteristic of the Gothic style. In 1269 the Choir was completed. Following is and other additions in 1366, work to complete the northwest tower was undertaken. Finally in 1508 to 1519 the choir’s 120 wooden stalls were carved. These are probably France’s finest set, and they are still almost perfectly preserved.96

Like other cathedrals, Amiens suffered damage during the French revolution as well as other wars and disasters. Much of the stained glass was lost in these incidences. In both World Wars measures were taken to protect the cathedral. Luckily, the structure Amiens remained mostly untouched by the World Wars, however, the cathedral did not entirely escape harm. To protect the stained glass windows, they were removed during World War I and stored in an artist’s studio. While the windows were being stored for their protection, a fire broke out and destroyed the majority of them, including the two oldest windows, from the apse.97 This tragedy has made it difficult for scholars to look at Amiens’ artistic programs as can be done at Chartres. It took over three centuries to complete the cathedral. The construction process had its difficulties along the way, but there were also some booms in production.98

Amiens Cathedral has gone through several renovations. One of these renovations began in the 1850s. After this, in 2000 another renovation was undertaken. In this second renovation, a spectacular discovery was made. When a laser process was used to clean the stone, traces of the original paint used to decorate the magnificent structure was found. This discovery allowed for some of the artistic programs in the cathedral to be looked at in an entirely new way. Today, there is a light show at night that illuminates the

96 Ibid, 40.
97 "Sacred Destinations."
cathedral and shows what it may have looked in its original splendor. The detailed painting of such a massive edifice would have been immensely costly.

During the Middle Ages, particularly in the high Gothic era, the economy flourished, despite the Plague, famine and Hundred Years War. Industry grew and along with it trade was invigorated and cities expanded. Not only did the economy grow, but because of this growth, creativity in the Gothic area fostered a new style of architecture that spread from France to other areas around Europe. The economic and artistic activity are closely linked, as the profitable elements of Medieval economic life came together to enable the building of Gothic cathedrals.

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Ch. 3 Financing the Cathedral

To begin the construction of any structure, including a cathedral, there needs to be financial capital or money. Without it materials cannot be purchased and workers cannot be paid. When economic activity in Northern France boomed in the high Gothic period, so did the construction of cathedrals. The Abbey Church of Saint Denis and Chartres and Amiens Cathedrals all benefited greatly, and were able to be rebuilt because of the economic prosperity in the region and in the individual cities. As part of the thriving economy, cathedrals benefited from the new urban elite that donated to them, helping to finance their construction. The process of building a cathedral was not always smooth; issues with cash flow and unrest in towns could hamper construction. Despite issues that arose in building projects, Saint Denis, Chartres and Amiens were all brought to completion. The Church’s ability to gather enough funding to finance a Gothic cathedral’s construction demonstrated their power through the many sources from which they could draw assets. The reinforcement of the Church’s power and the donors’ desire to be connected to the Church will be explored through looking at the funding methods for Saint Denis, Chartres, and Amiens.

Unlike Chartres and Amiens, Saint Denis was part of a monastery and therefore did not have a Bishop to contribute to and govern funding for its building. It did, however, have an Abbot. The financing of Saint Denis follows a model that that is common to many cathedrals, but with some variation. Abbot Suger wrote that “this [the renovations] were carried out at great expense, however, because of the inadequacy we often felt on special days such as the feast of the blessed Denis, the fair, and many other times, when the narrowness of the space,” made it difficult to accommodate the number
of pilgrims visiting the church. The ability to rebuild the church was made possible because, according to Suger, “God bestowed upon this church during the time of our leadership in the acquisition of new things, the recovery of lost ones, the multiplication of refurbished possessions, the construction of buildings, and the accumulation of gold, silver, precious gems and quality textiles.” Not only did Suger want cash to build to beautify his church, Suger also wanted gems and other valuable objects.

The first way that the renovations of Saint Denis was financed was through the Church paying for the renovation itself. This money mostly came from revenues from the property owned by the abbey church. These revenues from the land, according to Suger’s own writings, covered one-quarter of costs of building. The Church’s profits from the land the monastery owned came from taxes levied on peasants and others that both lived and worked the land. In this way the Church was able to provide for itself, and pay for a portion of the renovations Suger decided it required. Through the Church and the tithes they paid to them, the peasants gave funding for the renovation of Saint Denis, and similarly at Chartres and Amiens, were part of the essential funding for the cathedrals. In this way, even the lowest level of society was involved in the project.

As well as the taxes paid on the land, the goods that were produced and then sold helped to fund the building process. In the town of Saint Denis, there was an annually held fair, the Lendit, which was royally authorized. The fair allowed the Abbey to sell its goods close to home, although many different products were sold from many vendors.

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101 Ibid.
102 It is unclear how much land Saint Denis owned.
103 Halsall, “Medieval Sourcebook.”
The many vendors of the Lendit did not keep the entirety of the profits from the goods they sold. To gain revenue from the fair, the Church gathered taxes on the many goods sold. This is similar to an excise tax where taxes are paid on specific goods.

The goods most commonly sold at the Lendit were those that were closely tied to the needs of the population of Paris. Paris had one of the densest populations in France, and thus Saint Denis’ prosperity is in part due to its proximity to Paris. The items which were sold most commonly, and that the church was able to collect the most taxes on, included clothing, fur, parchment (that was used in universities), and meat, especially lamb. Other goods that were sold, but in lesser quantities, were from local artisans and included metalworking, textiles and draft animals. The taxes on all the goods sold were a vital source of income for Suger and his abbey.

As Suger said, another reason for rebuilding the church was the influx of pilgrims that crowded the abbey especially on feast days. Saints, important ones at least, brought pilgrims to the church. At the Abbey of Saint Denis, the relic of St. Denis, the Patron of France, drew crowds, especially on his feast day. These pilgrims brought gifts for the saints in the churches they were venerating. The pilgrim's obligations were a significant source of funding for the monastery. Through their gifts, pilgrims both supported the monastery in its everyday life and in the remaking of the church in a new, splendid style. Other than taxes, this is a way that the pious lay person was involved in funding the building of the cathedral. Taxes, rather than gifts were not voluntary. Much like today, taxes were mandated by the authority of the country and or city and were required to be

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104 Saint Denis is very close to Paris, only 11 miles.
106 Ibid, 28.
paid. Gifts, however, were voluntary, and likely the pilgrim knew that their donations would have been used by the church to sustain its clergy and to rebuild its structure. By any size of donation the pilgrims made themselves part of the church, showing that a connection to the power and authority of the Church was desired by others as well as the upper classes.

The final source of funding was from royalty and aristocracy. The King had an obligation to donate to the church, especially Saint Denis seeing as it was the royal dynastic church and held the crown jewels. Before the beginning of Suger’s renovation, King Louis VI gave a substantial donation to the church of Saint Denis in 1124 when he returned safe and victorious from battle after praying to the relic of St. Denis. He carried a banner of Saint Denis with him, and when he won with no bloodshed, he donated jewels and money to the abbey.\(^{107}\) The King was under a certain amount of obligation to give to the building of the Church that he called his own, as it was the royal mausoleum. To be connected to the church gave the King earthly power from the divine.

Suger says that "the most generous lord, who among other, greater things have provided the makers of our marvelous windows with opulent sapphire and ready cash of around seven hundred pounds or more, will not allow the project to remain incomplete through lack of funds."\(^{108}\) The “other” Suger talks about is the royalty of France or aristocracy, and some bourgeois, that donated to Saint Denis. The Royal Family donated to represent themselves in the cathedral, aligning themselves with its power by their gifts. They did not give money to the poor, but rather gave large sums to the Church reminding their subjects of their power and solidifying their role in society. The giving of money did

\(^{107}\) Scott, *The Gothic Enterprise*, 83.
\(^{108}\) Halsall, “Medieval Sourcebook.”
this, but their images furthered the message.

Suger’s renovation of Saint Denis did not happen seamlessly, without any problems of funding. Suger says that when the upper choir was finished and ready to be dedicated, the monastery was “depressed by consideration of the labor and funds that lay before us [the Church].” ¹⁰⁹ These funding issues hampered the construction process; the nave was not fully completed until 100 years later. They were, however, able to update large portions of the church because there were multiple sources of funding.

One other instance where there was a funding issue occurred when purchasing gems for the decoration of sacred objects. Suger was "in need of gems and unable to purchase enough (for rarity makes them more expensive)," but, monks from three different abbeys came to Suger and "offered for sale a greater supply of gems than we would have hoped to find in ten years." Suger "thanked God and paid four hundred pounds for the whole collection, although they were worth a good deal more.”¹¹⁰ Not only did Suger in his writings show the support of other monasteries and orders but, he tells us the cost of the gems. Suger wanted Saint Denis to rival the beauty of Hagia Sophia in Constantinople. Suger was willing to pay large sums to do this, as the purchase of gems shows. The entirety of Saint Denis’ renovations under Suger is estimated to have only taken 2,100 livres,¹¹¹ assuming that the gems were not included. This sum of money was spent to give honor to God but also to glorify Suger, the town and all others who were involved.

Chartres Cathedral follows a similar model of financing to that of Saint Denis.

¹⁰⁹ Ibid.
¹¹⁰ Ibid.
Chartres, however, faced many more disruptions to the building process and unrest within the town during the cathedral’s construction. These issues factor into the cathedral’s production, but certainly did not stop it. Like all cathedrals, the city had to be at least relatively prosperous to support the building of such a large structure. As with many of the cities in Northern France, including Amiens, Chartres prospered from the tenth century onwards in the wool trade. In England and Flanders, the wool was turned into textiles which was then sold to merchants in the south of France and the Mediterranean.\textsuperscript{112} The wool trade helped Chartres’ economy prosper; but not as much as the production of grain and bread.

In the year 1300, the chapter at Chartres owned 13.5 square miles of arable land that produced wheat. These holdings by the church brought in likely greater than 6,000 livres per year.\textsuperscript{113} This is a massive sum for the time and could have covered a large portion of the cost of building the cathedral. This money, however, did not only finance the cathedral but was also used to pay the income of canons and other needs of the Church. Income from this land holding was achieved not only through the sale of wheat but also through tithes and other dues that were owed by the peasants working the fields.\textsuperscript{114} Bread was such an important product to Chartres that it is represented several times in the cathedral. Bread makers can be seen in the guild windows.\textsuperscript{115} The growth rate of Chartres, and Northern France as a whole, would have compensated for some of

\textsuperscript{112} Ibid, 17.
\textsuperscript{113} Ibid, 264.
\textsuperscript{114} The tithes paid by the peasants at Chartres to the Church are similar to those paid by peasants who worked the lands owned by feudal lords. This structure reinforces the prevailing social hierarchy of the day, not only in the secular realm but also in the religious.
\textsuperscript{115} Bread also has a strong spiritual meaning in the Catholic Church; it is the Eucharist or body of Christ. The importance of bread and its connection to the heavenly realm likely did not escape the Church that chose to grow wheat. However, the wheat was grown more so for its profitability.
the cost of the cathedral. As the cathedral developed so did the town around it. Cathedrals drew people to cities, in turn drawing industry and prosperity.

The Church was the major benefactor of building Chartres Cathedral. Financing for Chartres depended on members of the chapter, and what they pledged to donate. At Chartres the exact costs of building are unknown, but it certainly was no insignificant amount, as Chartres from the outset was conceived to be a vastly expensive project. The expense of the project allowed those who paid for the construction to honor God through the beautiful work they created. Bishop Regnaud and the chapter committed themselves in 1194 to three years of contributions to the cathedrals’ building funds. This funding would not have been sufficient to build Chartres from start to finish. Other resources within the Church, as well as from outside donors, were needed. The canons prepared for the economic campaign that was needed to reconstruct the cathedral by confirming their privileges with the dean of Sens and the pope. The Church gave funding to its own project in such large amounts as to show the laity that they were not only committed to the project but that it was worthwhile. As Bernard de Clairvaux said, as the visitor saw the expense and beauty of the donations given, he too would give.

When and if money ran low, which it did at Chartres, miracles associated with the cathedral’s relics would be publicized. In a manuscript called “Miracles of the Blessed Virgin,” made in the thirteenth century, supposed miracles associated with the relic of the Virgin Mary were publicized to garner favor and funds for the continuation of the building. The manuscript told tales of inspirational miracles that would remind the reader

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117 Ibid, 271.
about the presence of God in their life. This text sadly does not survive today, but it would have emphasized to the ordinary person the impact of the Church's presence and their obligation to donate. The relics, as well as the miracles they performed, were essential to supporting both the cathedral’s spiritual economy and financial security.

In 1197 when funding ran low the relic of St. Anne was sent out. The relic traveled and performed miracles not only to gather on the spot donations but, also to draw pilgrims to the cathedral. The clerics who carried it were permitted to go far and wide, even into England.\textsuperscript{119} Although Chartres was never a particularly wealthy city, it was a major pilgrimage destination. When those who came to the cathedral visited the relics, they would give money, jewels, and anything they could afford, to humble themselves and to honor the Virgin. Although not discussed in this thesis, pilgrims can be seen in images in cathedrals as well. Often these representations are in the tympanum over an entranceway, and are there to remind the pilgrim of the salvation they will achieve through pilgrimage. In their donations, even those on the lower levels of society on pilgrimage became part of the church through the funds they gave. The pilgrims were sacrificing their limited financial resource to align themselves with the Church both in and after life.

Those who came on pilgrimage were not the only ones to visit the City of Chartres. Like Saint Denis, the increased commercial activity in the Gothic era allowed for trade to occur during fairs. Chartres held four fairs a year, on important feast days of the Virgin: the Purification, the Annunciation, the Assumption, and the Nativity.\textsuperscript{120} During the fairs products made in Chartres, most prominently grain or bread, were sold.

\textsuperscript{119} Ibid, 271.
\textsuperscript{120} Ibid, 19.
As at Saint Denis, The Church at Chartres gained funding for the cathedral through taxing the sale of goods at the fair. Taxing the sale of goods to gather funds for the building of Chartres brought the secular world of trade, and the trader, in to the cathedral. Although the trader had no choice but to pay the taxes, they were still giving up valuable resources towards the Church. The guild windows at Chartres depict many of the trades of the town at work on the goods they sold. The taxation of these goods helped to build Chartres and therefore those who paid the taxes are represented in the cathedral through the financial resources they paid to the Church.

Chartres’ construction and its raising of funds were not entirely smooth, in fact, it is well documented that the chapter of the cathedral and the inhabitants of the town had many problems. In 1280, there was a dispute between the canons of the chapter and bishop Elne. As a result it the pope decided that the canons were the ‘true masters’ of the cathedral. The Bishop was no longer in complete control, but was rather a figurehead, yet he was still expected to contribute as in name he was in charge of the cathedral. It was not only the conflicts within the church that would have caused problems. The guilds of the town wanted more freedom and the Church did not want to give it to them. The conflicts within the City of Chartres could have taken away from possible financial resources because if the Church was not in favor with an individual or group they would not donate.

The final way Chartres’ construction was financed was through royal funding, and funding from other aristocratic or wealthy sources. These donations were essential to the creation of Chartres. The money for the north porch of Chartres, 200 livres, was given by

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121 Vroom, Financing Cathedral Building in the Middle Ages, 38.
Phillip Augustus; his son Louis VIII continued the funding after Phillip’s death.\textsuperscript{122} This is a modest contribution considering the great wealth of the King. Other nobles gave money as well; this can be seen in large part today by those who are represented in the stained glass windows of Chartres, including the Clement Family and Blanche de Castille, the Queen of France during Chartres’ construction.

Despite the conflicts between the town and Church, the guilds or trades still supported the growing economy of the City of Chartres. Each of the guild windows was supposed to cost 30 livres.\textsuperscript{123} This was a substantial amount of money for someone who worked as guild members worked for their money. Many of the windows donated by nobility are the same size as the guild windows and would have cost the same to the donor, if they did not pay more for the privilege of supporting the construction. Funding through the windows was akin to having ones name on a board of donors today; those who gave money wanted to be recognized and not only behind the scenes, the donor’s sacrifice of resources called for public recognition.

The financial resources to build Amiens Cathedral came from three major sources: gifts from the wealthy burghers of Amiens, the clergy of Amiens or the Church itself, and smaller gifts solicited from lay people. These are not entirely the same as the financial sources of Saint Denis and Chartres. Unlike Saint Denis and Chartres, Amiens did not benefit as greatly from royal and aristocratic donations. The importance of royalty, however, can be seen in the design of Amiens, as it is in the court style of Gothic. Amiens was lucky enough to have a booming economy during the construction of its Gothic Cathedral, and this made the creation of Amiens Cathedral possible.

\textsuperscript{122} Ball, \textit{Universe of stone}, 265.  
\textsuperscript{123} Ibid, 271.
The booming economy of Amiens in the high Gothic period allowed for the burghers of Amiens to be significant donors in the financing of the cathedral. The strong mutually beneficial relationship between the people of the town and the Church allowed for the expedited construction of Amiens. The Picardy region as a whole was very prosperous. Grain was aided by the easily cultivatable flatlands. The quantity as well as the increase in market price, which escalated around 1200, brought newly high cash flows into the hands of landowners and merchants that were involved in the construction of Amiens Cathedral. Although wheat was important to the region, Amiens’ economy relied also on the woad markets.

In a town so focused on commerce, the flourishing economy was aided by an increase in the supply of coinage and increasing prices. In Amiens, the wealth of the city depended on the woad market, and the merchants who ran it were significant donors to the cathedral. Coinage allowed for ease in the sale of goods and increased prices added to the merchant’s profits. Woad, a blue fabric die, was grown in the areas surrounding the city, and was then brought into the city, processed and sold. The textile industry in conjunction with the market for woad made the City of Amiens wealthy.

The governing structure of the City of Amiens also shows the strength of the connection between merchants and the Church. There was royal governance, but the mayor, and representatives from manufacturing and commerce, assumed power in the city. The representatives were predominantly the woad merchants. The wealthy members of the town also found their way into the church through the Bishop, who chose

125 Ibid, 23. As the woad merchants were the leading manufacturers and tradespeople of Amiens, their domination of the assumption of power in the commune makes sense.
the canons. In the twelfth and thirteenth centuries, several local families found themselves represented in the church as canons. The Bishop had the right to choose officers, and in doing this, he often made appointments to gain political power. In 1218, the year of the fire at Amiens Cathedral, there were only six officers, but Bishop Evrard, who founded the Gothic cathedral, added three more.

The thriving nature of Amiens’ economy is also evident in the construction of the cathedral. In 1220, when building began, there was a capitular act by the canons to increase the distributions for members of the chapter at Amiens. The canons and the church, which later accepted the act, believed there was enough income and resources in the church to support such an increase as well as the building of a new cathedral; this reflects a strong financial standing. The canons income would not have been able to increase if the Church and surrounding area were low on funds.

Two significant factors are required for Burghers to contribute to the cathedral’s construction. First, the economic success of the city was essential; the second is a good relationship between the Church and Bishop. The chapter and bourgeoisie together developed the river ports that allowed Amiens to become a major trading port with England. The chapter owned many of the mills and lands on the river, so for Amiens to grow and be efficient in trading the church and townspeople had to ally themselves with each other.

126 The recurrence of the same families in leadership roles at Amiens was because canons can designate their successors. This kept those who held power in power and therefore represented in the workings of the town and cathedral alike. An oligarchical power structure occurred in the city where the few in charge governed and set standards for the many.
127 Murray, Notre-Dame, Cathedral of Amiens, 26.
128 For more on this act and an English translation of the Renewal of the Ordnance Concerning Daily Distributions see Murray p.130 in Appendix A. The canons ask for greater dispensation on several occasions including daily and on major feast days or celebrations.
129 Murray, Notre-Dame, Cathedral of Amiens, 22.
Nonetheless, the city and Church of Amiens were not always in synchrony, and this impacted the building of the cathedral in more than just a financial manner. This was a theme in France as a whole during this period, where anticlerical opinions resulted in outbreaks of unrest. In 1258 members of the municipal officers set fire to the unfinished cathedral. The fire was set due to the opposition by some of the bourgeois to the power of the clergy being expressed in the cathedral through a display of the clergy’s rights and privileges. Yet such problems between the church and certain members of the bourgeoisie did not greatly impact the building of the cathedral during its Gothic construction. Even during the French Revolution, there was little damage done, compared to other cathedrals, because of the good relationship between the town and church.

The wealthy members of society in Amiens showed their devotion to the Church by giving substantial contributions to the building of the cathedral. Amiens Cathedral is one of few cathedrals that benefited greatly from the burghers of the town, who were often friends and family of the clergy. Without this support, construction of the cathedral would have moved much more slowly, rather than the very rapid pace at which it was made, and the splendor of the structure would have suffered as well.

The woad merchants of Amiens gave considerable sums to the construction of the Gothic cathedral, as they did for the structure that it replaced. There are no specific records stating this, but evidence of their significance in financing can be seen in the cathedral itself. The decorative program of Amiens includes the woad merchants near the west end of the Cathedral (Figure 4.20). Despite the power of the woad merchants in

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130 Ibid, 62. Evidence of the fire can still be seen on many stones in the cathedral, which show the path it took as it likely followed the wooden scaffolding.  
131 Kraus, *Gold was the Mortar*, 45.  
132 Ibid, 43.
Amiens, they did face difficulties, and therefore so did their patronage. The merchants suffered their first blow in 1295 when King Edward I confiscated the woad merchants’ goods warehoused in English ports. The loss of goods was a crushing event as it cost Amiens 4,000 livres, this is enough to build a series of lateral nave chapels. This was one of many events which later destroyed the monopoly of woad at Amiens. The destruction of the woad industry and its wealthy merchants did not greatly hamper the construction of the cathedral as it was relatively near completion by the time the woad industry was devastated. The woad merchants’ patronage, and the expenditure of their financial resources, directly impacted the building of Amiens as it was built rather quickly, as more resources (labor and material) could be used in building.

Gifts other than money were given to the church as well. One instance of this was when a gift of a parcel of land was given by Enguerrand de Picquigny, Vidame of Amiens, to Geoffroy d’Eu who was the Bishop of Amiens in December of 1223. Enguerrand de Picquigny gave "and granted amiably and in goodwill to the honorable father my lord Geoffroy, bishop of Amiens, and to the other bishops who succeed him a piece of land that I have and hold from him at Amiens beside his episcopal palace to do with what he likes and to build." Enguerrand de Picquigny goes on to say that his family is part of this donation and should thus show their love for the bishop. It is unclear precisely what was to be built, but it is likely that since the parcel of land was given during the building process, proceeds from it went towards construction. None the less, the contribution of the land shows the many ways in which donors gave to the fabric to

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133 Ibid, 49.
134 Murray, Notre-Dame, Cathedral of Amiens, 131. Here can also be found the letter transcribed in its original language as well as an English Translation.
135 Ibid, 132.
construct the church that they would call their own. The cost to the donor was worth it because the structure not only reinforced the city’s power but their own.

As with Saint Denis and Chartres, the most traditional source of funding, the Church itself, was employed in the construction of Amiens. The Church’s income came from property and jurisdictions of the Bishop and chapter. A Bishop’s income came from tariffs as well. Goods were shipped into and unloaded along the river Somme. A variety of goods such as sea fish, wine, and grain passed through the port of Amiens and were taxed. Taxes were also levied on movements of woad. These taxes would have been particularly important to the Church’s income as the woad industry was the main contributor to the prosperous economy of Amiens.\(^{136}\)

The lands that the church owned generated revenue by the products it created, whether or not they were primary or secondary goods.\(^{137}\) The goods sold added to the income of the chapter. The canons at Amiens, who also donated to the building funds, received their money by a prebend,\(^{138}\) and could have also levied taxes on themselves when the money ran short. The Church’s contributions, which were arguably the biggest, would not have crippled the city’s economy. Much of the clergy's wealth, or property, was held outside of the city and then spent within, which would, in fact, suggest stimulation of the economic activity in the city.

The third and likely smallest contribution of funds came from the pious lay folk of the diocese. These donations tended to be solicited when the funds for building the

\(^{136}\) Ibid, 186.

\(^{137}\) A primary good is a raw material, while a secondary good is something made of one or more primary goods. An example of a primary product is the woad plant, while the secondary good is the dye that was sold.

\(^{138}\) A prebend is the portion of the revenues of a cathedral granted to a canon.
cathedral ran low, beginning in the mid-1240s. One way money was solicited from the laity was through the sale of indulgences. In 1260, preachers reminded the petitioners of the salvation that could be granted to benefactors of the cathedral. In a sermon, a preacher at Amiens said, “beautiful and gentle people you can be twenty-seven days closer to Paradise than you were yesterday, unless you lose this indulgence through sin, envy and lust and so you can advance the souls of your fathers, your mothers and all those whom you wish to include.” The preacher is appealing to the strong spirituality of his audience, and their love for those who came before them. As well as selling indulgences to raise funds Amiens, like Chartres, sent relics on parade. The relics of Saint Honoré were carried into the surrounding country on a quest for funds. In these ways, the common person was able to be part of the funding for the cathedral in addition to the aristocracy and burghers. All levels of society wanted to be connected with the authority of the Church, even if their donation was not publically represented.

The architectural innovation of the Gothic cathedral was expensive. Advancements such as buttressing meant more materials and skilled labor were needed. The increased use of resources has to be accounted for in considering the cost of a cathedral. Despite the expenses associated with creating the newest and best cathedral, events contemporary to the building could impact the funding the Church received. Taxes were levied by King Louis XI to finance a crusade. Much of the money, about two-thirds, was taken from the Church in France. The burden was not only on the Church but, in 1248, a sum of 6,092 pounds was raised from the bailliage of Amiens, who paid the

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140 Stephen Murray, *Notre-Dame, Cathedral of Amiens*, 76.
141 The amount of labor and materials consumed will be discussed later.
highest amount of any town in France. Along with this, Amiens donated 1,500 pounds to the crusade. These were enormous sums of money and could have paid for much of the cost of building the cathedral, or they might have greatly increased the speed of production as an average cathedral took 1,500 to 2,500 livres a year. Amiens likely cost more than this because of its scale. By donating to the crusade and the cathedral the burghers of Amiens showed their wealth and generosity in a public manner. The disrupting events, such as the fall of the woad industry, the fire that destroyed the roof, and the crusade, that occurred during the construction of Amiens did not greatly impact its financing and subsequent construction. At Amiens there was particular cooperation between the chapter, the burghers and lay people, which allowed for the relatively easy collection of funds and construction, the money came from local sources.

Financing a cathedral was a dynamic affair. There was not only one source for the entire cost of building; instead, it took many sources including the Church, aristocracy, and lay people. Financial capital was invested to build the cathedral, meaning that it could not be spent elsewhere. The Church and others who donated didn’t do their money to the poor or build other structures, signifying that building a cathedral was of paramount concern to the surrounding community. Each source of funding was equally important and each connects the donor to the cathedral, making them part of it through the donations they gave, even if everyone was not to be not directly represented in the artistic program.

\[142\] Kraus, *Gold was the Mortar*, 45.
Ch. 4 Representations of Donors in the Cathedral

The artistic programs of cathedrals are designed with a purpose. Biblical imagery told stories to the uneducated and illiterate masses. These stories are reminders to be faithful and pious to help get into heaven; especially in the case of pilgrimage churches because of their special function for indulgences. Although the iconographic programs of the cathedrals are dominated by biblical stories, often they also portray members of the Church and secular donors to the building fund. Such representations serve a different function than that of the biblical or saintly stories. The depictions of clergy and secular donors in the Gothic cathedral show their importance to the building of the cathedral through a recognition of the utilization on the donor’s personal resources. The giving of funds was motivated by the donor’s desire to reinforce their importance to the society, as well serving the clergy or donors’ self-interest of being shown as pious and dedicated to the church.

At Saint Denis one figure stands out amongst others. At Saint Denis, Abbot Suger represented himself in the artistic program in multiple ways. There is evidence from Suger’s writings that there were originally many more representations of him than can be seen today. Suger didn’t only use images: he put himself into different inscriptions around the church, each of which proclaim his importance to and jurisdiction over the church of Saint Denis. These inscriptions represent Suger through a physical manifestations of his name on the church he helped to create.

First, Suger says in his book "The Book On What Was Done Under His Administration” that:

For the glory of the church which nurtured and raised him,
Suger strove for the glory of the church, Sharing with
you what is yours, oh martyr Denis. He prays that by your prayers he should become a sharer in Paradise. The year when it was consecrated was the one thousand, one hundred and fortieth year of the World…

Receive, stern Judge, the prayers of your Suger,
Let me be mercifully numbered among your sheep.¹⁴³

Suger says that the first section was to be inscribed in copper-guilt letters on the doors, the second section to be inscribed on the lintel. Suger does not say, however, which of the three doors on the western block received these inscriptions. The doors and inscriptions, which no longer exist today, were likely placed during the year of consecration, 1140, or sometime between 1140 and the begging of construction in 1135.¹⁴⁴ As visitors to the church would enter by these doors, these inscriptions would be one of the first things they would see. These inscriptions seem oddly self-serving, but that was the intention. He is asking God to remember him and for St. Denis to pray for him such that when he dies, he will go to "paradise." Suger is saying that by his reconstruction and renovation of the church of Saint Denis he has shown his devotion to God and he wanted this to be known.

Although Suger humbled himself before God asking to be "numbered among your [God's] sheep." Suger places a prominent statement on the doors that reveal he was an integral part of the church's splendid new appearance. Even before those entering the church see the interior, Suger wants them to know that he was the driving force behind this new structure. In essence, Suger is proclaiming himself as a powerful and pious figure and in this region and time and that because he beautified the church, the time, labor, and capital spent during its reconstruction are justified.

¹⁴³ Halsall, “Medieval Sourcebook.”
¹⁴⁴ Wilson, The Gothic Cathedral, 33.
The next inscription was placed three years and three months later when, according to Suger “the entire magnificent edifice, from the crypt below to the summit of the vaults above, varied by the division of numerous arches and columns, and even the roof,” had been completed. It is not clear from Suger’s writings precisely where this inscription was located, whether it was somewhere in the upper choir, or more likely, added to the previously inscribed phrases on the doors. Suger says:

To these verses of the inscription [presumably the inscription of the doors] we decided to add the following:

When the new rear part is joined to that in front,
The church shines, brightened in its middle.
For bright is that which is brightly coupled with the bright
And which the new light pervades,
Bright is the noble work Enlarged in our time
I, who was Suger, having been leader
While it was accomplished.

By having his name and accomplishment included once again four years later, Suger claims that he remade another section of the church; however before inserting himself as leader he praises the brightening of the church saying, “Bright is the noble work Enlarged in our time;” this establishes the renovations as significant and as something that has beautified the church, lest someone have doubts. Suger would not have wanted to put himself before God and the saints, but to acknowledge himself as a leader speaks to those who view the inscription. As a leader in the Church, Suger is in a higher class than he was born into. As a child Suger was offered to the Abbey of Saint Denis and thus, in remaking it, Suger sought to glorify the Abbey that raised him. In his distinguished

145 Halsall, “Medieval Sourcebook.”
146 Ibid.
147 Ibid.
148 Gerson, ed. Abbot Suger and Saint-Denis, 75.
position of Abbot, Suger chose to honor both the church as an organization and its physical manifestation at Saint Denis by using both costly and necessary resources.

Along with these inscriptions, Suger places another inscription in the upper choir, mentioning himself once again. This inscription was on the golden altar frontal in the upper choir, which was richly decorated. On the panel the engraved words read:

Great Denis, open the doors of Paradise,
And protect Suger through your holy defenses.
May you, who have built a new chamber for yourself through us,
Cause us to be received in the chamber of heaven
And to be satiated at the heavenly table
Instead of the present one.
That which is signified pleases more than that which signifies.149

Here again Suger asks to be welcomed into paradise through St. Denis, and those who were said to have been laid to rest in the upper choir. Putting his name on the altar aligns Suger with the holy and royal figures who are interred in this space. He asks once again to be protected through "holy defenses," to bring him (as well as the others who created the renovations, not taking full credit here) into heaven both honoring God and himself.

Abbot Suger puts himself in one more inscription, on the main altar. Up to the point of Suger’s renovation, the altar had “only a beautiful and sumptuous frontal panel from the time of Charles the Bald.” The altar, during Suger’s renovations, was entirely covered in gold panels so it "would appear to be solid gold all the way around," with precious gems embedded into it.150 The use of costly materials, such as gems, proclaim the Church’s power through their ability to pay for and obtain such materials. Bernard of Clairvaux would likely have disapproved of the bejeweled golden decorations,

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149 Halsall, “Medieval Sourcebook.”
150 Ibid.
particularly as Saint Denis is a monetary. Along with this assuredly magnificent
decoration of the altar frontal, Suger says that on the right side there were the verses:

The Abbot Suger put up these altar panels
In addition to the one already given by King Charles.
Make the unworthy worthy by your forgiveness, Virgin
Mary.
Let the fountain of mercy wash away the sins of king and abbot.

With this second inscription on the altar, Suger puts himself in the most prestigious place
in the church. There is no question of Suger being humble about his work: Suger states
what he did. He even links himself to King Charles the Bald and asks for salvation and
mercy from the Virgin Mary for both Charles the Bald and himself. By connecting
himself to these influential and holy figures, as in the other inscriptions, Suger elevates
his status for prowess in the earthly world and salvation in the next as well as honoring
the previous donor’s gift.

The importance of the church to Suger is evident in his writing, everything he
does is inspired by God and his admiration for the church. The four inscriptions, where
Suger speaks to God and the church’s importance, as well as his own within the church,
insure that if a visitor missed one, then there will be another soon to follow. An illiterate
lay person would not have been able to read the inscriptions when coming to Saint Denis,
however, as it was an abbey church, the monks and other literate religious figures would
have been able to read them. In addition to the churchmen who could read the
inscriptions, the kings and other nobles who called the church their own would have been
literate and able to read the inscriptions. Those who were in power and were important
would have been able to see the importance and power of Suger through the renovation
of Saint Denis. The inscriptions about Suger remind the nobility of who had authority in
the church and who created the church where, symbolically, the Kings' power was held.

Not only did Suger have written representations of himself in Saint Denis but, he also is pictured in a stained glass window. This window (Figure 4.1) shows the Tree of Jesse. The Tree of Jesse is commonly depicted in the twelfth and thirteenth centuries, and it establishes Christ’s noble heritage. Here Suger shows himself in veneration of Christ and his lineage (Figure 4.2). Suger is holding what looks to be a stained glass window as if saying “I donated this,” like a signature panel. This window and Suger can be easily seen. The window is located in the chevet in the east end of the church (Figure 4.3) along with five other twelfth century windows. These six windows are elevated enough to have survived revelatory but are low enough to be decipherable to the viewer. In the Tree of Jesse window, Suger’s image reminds the viewer that he is connected to the holy line of Christ by his position in the Church. The Tree of Jesse is often associated with the cult of the Virgin as it shows her to be of royal blood. Similarly to the inscription on the altar, Suger is appealing to the Virgin and other holy figures for salvation through his donation of the window, as well as reflecting his authority in building the church.

Suger aligns himself with the power of Christ in his veneration of Christ’s lineage. The Tree of Jesse makes Christ’s lineage a key factor to his existence and power, as the King also derived his power from his lineage. Suger was counselor to Louis VI and Louis VII, and was instrumental in the evolution of ideas of kingship, which lead to the development of the nation-states of Europe. During the Second Crusade (1148-1149), Suger governed the kingdom of France as regent. The duality of Suger as a religious and

152 Ibid.
153 Gerson, Abbot Suger and Saint-Denis, xi.
political figure made him an ecclesiastic rather than purely a statesman. As the regent of France, Suger was raised beyond his status of Abbot. First Suger gained power through the Church and the sacrifices he made for it, then he gained power through the kings and other aristocracy he advised and who themselves reinforced their power through their connection to the Church. In Suger’s adoration of the Tree of Jesse he also honors the lineage and supremacy of the Kings to whom he was so connected. The inscriptions around the church as well as Suger’s image in the window serves as a lasting reminder which was supposed to endure to remind future generations of his status.

Saint Denis was the royal church. This can be seen in a few ways. Primarily, the royal nature of the church is seen in that all but a few of the Kings of France were buried here. Originally, the tombs were located in the chancel near the altar. This was prized space, as the altar is the holiest and most important part of a church. The French Revolution damaged the church greatly and the tombs were not lucky enough to escape harm. Today, the presence of the reconstructed tombs is all that represents the Kings, as their ashes were scattered during the French Revolution. In any case, the depictions of the Kings that were in Saint Denis functioned similarly to that of Abbot Suger in the sense that they show who donated to the church, who helped build it, and who was in power. These tombs, however, are much more prominent showing full-scale images of the kings that lay within. The royal tombs represent not only the kings who have died, but also their power both in the church and in France. The tombs are located both in the main church and in the crypt below with many near the altar as. The tombs’ prominence

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154 Ibid, 75.
155 Alain Erlande-Brandenburg, Saint-Denis' Basilica, (France: Ouest-France, 1984), 32.
156 Scott, The Gothic Enterprise, 77.
in the artistic program of the church is evidence of their subjects importance at Saint Denis.

Since the King of France had a substantial connection to Saint Denis, it follows that he gave back to the church. As discussed previously regarding financing, The King of France was involved in the building process for the reconstruction of Saint Denis. King Louis the VI (1108-1137) donated to the campaign after he returned victorious from battle. The Tomb of Louis VI (Figure 4.4) can be seen just off the central nave in a prominent location. Looking at the current tomb of Louis VI, however, can be misleading as it is neither original to the twelfth century, nor is it in the location of the original tomb. In 1231 the tombs were moved to both the north and south transept arms. Louis VI’s tomb was placed in the North transept, and later in the nineteenth century many of the tombs that can be seen today were remade. The nineteenth century effigies can be seen in great numbers in both arms of the transept. In its original location, the tomb of Louis VI, as well as the other kings, impressed upon the viewer the strong relationship between the crown and Church. The Church was essential for the Kings of France to maintain power, and the image of Louis the VI in Saint Denis establishes his authority even in his death.

The demands of royalty required that kings be noticeably magnificent before their subjects. The king’s tombs at Saint Denis demonstrates links between art and sovereignty as multilayered; they show how in giving to the development of the church and being represented in the artistic program, was necessary to maintain their power in the earthly kingdom and to show how this power is derived from the church. To maintain

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power, "it was important to a king's persona and fitting for his role as a gift-giver, whether to God or humans that beautiful works should flow from him… the splendor of these gifts publicly displayed the king’s ability to ensure a benevolent and protective divine presence within the kingdom."\textsuperscript{158} The use of the sacred was a way to link the king to a higher power or authority, that of God to create the Divine Kingdom. If God was behind the king then his power was secured in this earthly realm, and if the king venerated God, his salvation would be more assured in the heavenly realm. To be seen as not only one of God's sheep (although a very important sheep) was necessary, but it was also imperative to be seen as benevolent, a gift giver who was there to support these public spaces and great structures of the town, so the people did not revolt. Essentially, working with the cathedral was a public relations device that helped to solidify the power and prestige of the king. In giving donations to the remodeling of Saint Denis, Louis VI used his financial capital to insure in the continuation of his lineage and power. The gift of his financial resources is recognized in this way but, in giving funds, Louis VI also served his own self-interest.

At Saint Denis, the power of Abbot Suger and the French Kings, as well as the importance of the church to them, is evident in how and where Suger and the Kings are represented. The depictions validate both the sacrifices of time and money Suger and the Kings made to renew Saint Denis. The difference in depiction between them not only reflects their different social standing but also how the individuals wanted to be remembered. Suger is shown around the church and as a donor of a window indicating that he made the church and that this was an important task. The Kings were evident in

\textsuperscript{158} Ibid, 50.
the time of Suger by their bodies being laid to rest in the Abbey. Today, the Kings are unmistakable in full-size tombs that are prominently located through the abbey. Both the physical bodies and tombs showed their power and hope for eternal salvation through the Church.

The almost contemporaneously begun cathedral at Chartres has similar depictions regarding donors and royalty. The western facade of Chartres Cathedral was begun shortly after the construction of Saint Denis, and has a similar layout to Saint Denis’s western façade. The new Gothic style was readily adopted but clarified and sharpened in the Royal Portal at Chartres (Figure 4.5). The jamb statues at Chartres are said to be similar to ones that existed at Saint Denis. The statues at both Saint Denis and Chartres are suggested to be personalities of the Old Testament. The biblical kings and queens can be viewed as the antecedents to Christ and the Kings of France. Similarly to the Tree of Jesse, a symbolic representation of the Kings of France are shown through biblical figures. This relays to the observer the king’s connection to the project, as well as the need for the Church to include the ruling power of the time, acknowledging their devotion to the Church.

Chartres artistic program of stained glass reveals the same patronage and desire to be recognized as the inscriptions and window of Suger and the tombs of the kings reflect at Saint Denis. Many windows throughout Chartres Cathedral were donated by members of the aristocracy and upper classes. Prominent examples of these can be seen in the north (Figure 4.6) and south (Figure 4.7) transepts of the cathedral. The location and size of

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160 Ibid, 27.
each of these windows demonstrates the magnitude of the donor’s gift and their status in society.

The north and south transept rose windows are some of the most conspicuous and intricate windows that were donated by the nobility. Pierre Mauclerc gave the south rose window and its lancets. Mauclerc was a prince of the house of France as he was the great grandson of Louis le Gros.¹⁶¹ This window shows the coat of arms of Pierre Mauclerc (Figure 4.8) and thus can be identified as his. Across from the south rose window is the north rose window which, was given by Blanche de Castile. In the north rose window Blanche de Castile is shown through the arms of the Royal Houses of France and Castile (Figure 4.9- Figure 4.10), which act as a signature. It is surprising that the windows of Pierre Mauclerc and Blanche de Castile are directly across from each other because of Mauclerc’s opposition to Blanche de Castile and her infant son. Despite this conflict, the windows do face each other for in honor of the church the rivals forgot their quarrels.¹⁶² Both donor’s connection and desire to be seen in favor with the Church outweighed their differences.

Despite the conflict between the donors, the rose windows serve similar functions. These windows show the power of the aristocracy, just as the king’s tombs at Saint Denis do. The grand scale and proximity of the north and south rose windows to the altar show the relative importance of the donors. They gave some of the largest amounts of money to create such magnificent windows. The expensive and intricately designed windows also symbolize the donations made and financial capital used. Pierre Mauclerc and Blanche de Castile wanted a public display of their patronage to show their dedication to the church

¹⁶² Ibid, 160.
in hope to garner favorable public opinion and eternal salvation.

Smaller and less prominent examples of stained glass windows were donated by individuals and families to help to decorate the cathedral. One example of a smaller window with a similar purpose to the larger rose windows was given by the Clement family (Figure 4.11). This window is located in the south transept just before the aisle crossing (Figure 4.12). This stained glass window depicts Jean Clement receiving the first of the French flags that were carried into battle from St Denis himself.\textsuperscript{163} The Clement crest (Figure 4.13) is below. The crest, as in the cases of the rose windows, identifies the donor. The use of heraldry is a special feature in the depictions of aristocratic donors. The guild workers windows had to use other techniques to identify the donors. The depiction of Jean Clement receiving the flag from St. Denis not only associates Jean Clement but his entire family with St Denis, the patron saint of France. It also establishes the importance of the family, as persons of power and ability; in 1214 Jean Clement was appointed Marshall of France.\textsuperscript{164} By creating a connection between St. Denis and his family, Jean Clement appeals to St. Denis's and the church's power to serve his worldly interest of gaining prestige through the divine and later deliverance. In representing this donation, Clement makes his donation publically known.

At Chartres, unlike at Saint Denis, donors other than royalty and religious figures are shown. Throughout the cathedral one finds the Trade Windows; some are located in the apse above the choir, holding the gaze of the viewer as they walk towards the altar. The trade or guild along with a biblical story or the story of a saint include panels of

\footnotesize
\begin{center}
\begin{itemize}
\item \textsuperscript{164} Ibid.
\end{itemize}
\end{center}
guilds or tradespeople working on specialized crafts. Some of the windows have been damaged and repaired so if they were once a trade window it is now unclear.\textsuperscript{165} Many different guilds or trades donated the windows, which are high enough up that the images are small and difficult to decipher when looking up from the ground.

The donation of these windows, according to Mâle, was an expression of faith and love for the Virgin. He says all the stained glass windows were gifts from many different classes of society because all wanted to contribute to the beauty of the new cathedral and its decorative scheme.\textsuperscript{166} Each window has one or more panels in the bottom of the windows that serve as the donor panel, and are treated as a signature. These donor or signature panels tell the viewer who supposedly gave the window to the cathedral; however, the donor panels of the guild windows are much smaller than in those given by aristocracy. The guilds that are prominently represented in the grouping of windows above the choir are "the furriers, bakers, butchers, shoemakers."\textsuperscript{167} This placement shows the guild’s importance in the town and to the Church, and also the size of their donation. The location above the choir indicates that the guilds shown have a level of prestige because they are seen when walking down the nave of the cathedral.

In contrast to Mâle’s somewhat romanticized view of why the windows were donated by the guilds or trade organizations of the town, Williams offers a different opinion when it comes to the patronage of these windows. Williams discovered that antagonism existed between the various social classes of the city which resulted in conflicts of power within the Church. These tensions erupted into riots which disrupted

\textsuperscript{165} Mâle, \textit{Chartres}, 157.
\textsuperscript{166} Ibid, 157.
\textsuperscript{167} Ibid, 162.
the building cycle as they came during important building campaigns, slowing the building process, which would have increased the financial burden of the project.\textsuperscript{168}

Williams raises the question of who actually donated these windows. She supposes that the trades that are featured in the so-called signature panels did not necessarily give them because of a lack of definitive inscriptions or symbols that usually identify a donor. She then theorizes that the shoemaker’s guild donated two windows because of a accompanying inscriptions and images of men holding up what appears to be a miniature stained glass window, whereas with the other guild windows patronage is less certain.\textsuperscript{169} It is not clear whether if the church just represented the other trades, as they were of vital importance to the town, or if they were donated by the trades in the city.

The shoemakers are shown in the bottom corners of the window, which depicts the life and relics of St Stephen (Figure 4.14). On the left they are working (Figure 4.15), and on the right, the shoemakers are offer a small window with an accompanying inscription (Figure 4.16). They are also shown in the window of the Good Samaritan (Figure 4.17), where men are kneeling and holding up a miniature window with an inscription (Figure 4.18). This is similar to the image of Abbott Suger giving the window of the Tree of Jesse at Saint Denis. By giving a window in veneration of St. Stephen, the shoemakers’ guild publically connects themselves with him, in hopes to honor their patron for good fortune and salvation. The shoemakers’ guild representing themselves in the cathedral demonstrations how important the church was in many levels of society, not just the top of the social strata. The shoemakers also wanted to be part of the many people

\begin{footnotes}
\item[168] Williams, \textit{Bread, Wine, and Money}.
\item[169] Ibid, 13.
\end{footnotes}
and groups in the town who support the construction of the public project, and like the upper levels of society, their donation demanded public recognition. When the guilds are depicted as patrons, the secular world of trade, and the resources it created, are brought into the Church.

Representations of the working class and merchants are not specific to Chartres Cathedral, although at Chartres there is a wide variety of trades or guilds represented. As at Chartres, merchants are also represented in Amiens Cathedral. The depictions at Amiens are similar to that of Chartres in the sense of showing the merchant’s desire to be part of the artistic program of the cathedral for their self-interest and to show their importance to the building process, but on a much different scale. In the case of Amiens Cathedral one type of merchant is represented: the woad merchant.

The woad merchants were integral in the financing and building of the cathedral. It follows that as the trades of the town of Chartres are depicted in Chartres Cathedral, the woad merchants of the City of Amiens and its surrounding areas would be represented in Amiens Cathedral. The woad merchants are on the south exterior of the cathedral (Figure 4.19) and near the west end of the cathedral where construction began. From the begging of fundraising the woad merchants were large donors, this is plausible explanation for the location of the woad merchant sculptures. They are shown in a series of reasonably large relief sculptures (Figure 4.20). Above the lower of the figures who are kneeling, it says: “LES BONES GENS DES VILLES DENTOUR AMIENS QUI VENDENT WAIDES ONT FAITE CHETE [CETTE] CAPELLE DE LEURS OMONNES,” or “The good people from the towns about Amiens who sell woad have built this chapel with their
Through their work as tradesmen, the woad merchants became significant donors to Amiens’s building campaigns. The large donations by these burghers of the City demanded greater representation of them in that they sacrificed greater amounts of financial capital for the betterment of the Church.

Another portrayal of the woad merchants was in stained glass that is now lost. The sources say, there were inscriptions and heraldic symbols in the upper stained glass windows that likely had the vibrant blue color of woad. Sadly, these were lost in the French. Although less prominent than the exterior sculptures, the stained glass window with the woad merchants in the interior demonstrates how essential the woad merchants were to the building of the cathedral because they were represented twice.

The depictions of the woad merchants on both the exterior and the interior of the cathedral served as a reminder to the town of who helped build the structure they were looking at. The inscription above the heads of the kneeling merchants says what they did. It serves as a permanent and time-tested reminder of their importance in the town of Amiens. The sculptures and the accompanying inscription also tell the viewer that the woad merchants were generous in their role as the wealthy merchants. Along with showing the common viewer their rank, the representations show their devotion to God in a public setting. By devoting themselves, through the giving of funds to God and the Church in such a public manner, the merchants are acceding to the power of an important presence in the secular world.

At Amiens the woad merchants were integral to the building of the cathedral; without their funds the building process would have been much slower. The burghers

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170 Kraus, *Gold was the Mortar*, 49.
171 Ibid, 45.
gave a large, but indeterminate sum of money to the building of the cathedral and were essential powers in the town. They also had a mutually beneficial relationship with the Church. Many members of merchant families had positions in the Church at Amiens. At Amiens the woad merchants’ funding positively impacted the construction process.

As at Saint Denis, tombs or burials are an essential way in which clergy and donors are represented at Amiens. Bishop Evrard de Fouilly (1145-1222), who was bishop during the beginning of construction, is interred in the cathedral (Figure 4.21). It was the right of the bishop to be buried in his cathedral. Bishop Evrard de Fouilly’s tomb was originally placed in the interior of the cathedral behind where Christ is on the exterior façade. The tomb was on the main axis of the nave just inside the portal. The proximity to the representation of Christ in the nave shows Bishop Evrard de Fouilly’s devotion to the Church, as he is by proximity associated with Christ. Today, however, the tomb is off of the nave and fairly close to the altar, as the tombs of the king at Saint Denis are near the altar just the tomb still reflects Bishop Evrard de Fouilly’s significance in the building project as he is represented in a place of honor. He honored God by initiating the building of the new cathedral, which showed the power and influence of the church. Through remaking the cathedral and being laid to rest in it, the Bishop aims for salvation. Being interred in the structure he began, the Bishop shows his strong connection and devotion to the church.

Today Amiens’ windows no longer exist. These stained glass windows would likely have displayed other donors, like the windows donated by the aristocracy at Chartres. Amiens was significantly damaged in both the revolution (when the woad

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merchant window was lost) and during the World Wars, where Amiens was on the front lines. If these windows donated by the nobility and, possibly other guilds or trades, existed they would have served the same function as at Chartres, to help the donors’ own self-interest and to show the importance of the church to the donor.

Donors and religious figures were essential to the building of a Gothic cathedral. The importance of their contribution to the building process is evident in the depictions of them in the cathedral. Their donation demonstrates the church's importance to the individual and society. These representations and the money given to the Church were not selfless. The clergy like Abbott Suger and aristocratic donors like the ones at Chartres, and even the woad merchants at Amiens were all looking for salvation and wanted to be seen as pious individuals. The donors are looking for glory in this world and salvation in the afterlife. These representations remind the layperson or common viewer that the subject of the representation had a part in the construction of the great edifice; it was not the Church establishment alone that built the cathedral.
Ch. 5 Labor and the Cathedral

With hammer, chisel, and hard manual labor, men built the Gothic cathedral stone by stone. Laborers, masons, and others working on the Gothic cathedral can be seen as the equivalent of the modern contractor, construction worker, or craftsmen. There are 15 categories of workers required\(^{173}\) for constructing cathedrals. These include common laborers, famous and renounced builders, master masons, and guild-based or skilled workers such as stone masons and ironworkers. This division of labor ensured that the work was completed by those who were trained in that task. Although the types of workers needed to build a cathedral are known, to a large extent the number of workers on a building site every year is not known. Using Johnson’s method to determine the labor used in the creation of Westminster Abbey, this chapter will provide estimates for the amount of labor required to construct Saint Denis, Chartres, and Amiens. The employment of labor in the creation of a Gothic cathedral points to it being the most important structure in the town, as other structures could not have been built while so much was the labor already employed in the cathedral’s building.

The cathedrals in Northern France have few records that remain regarding the costs associated with building, such as the cost of labor and building materials. Records were either not kept, destroyed in the French Revolution, or have been lost to history. By contrast to France, many of England’s records have been much better preserved. The records kept in England provide an opportunity for the study of cathedrals and other church buildings, like Westminster Abbey where some of the most extensive records still exist. This information can be useful when looking at France and the cathedrals of this

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study- Saint Denis, Chartres, and Amiens- because of overlapping construction techniques, materials, and payment methods.

At Westminster Abbey, there are surviving fabric rolls from 1523 that give enough information to calculate the average wage per laborer as well as the number of laborers that worked in that year: there were 415 men per year on average.\textsuperscript{174} Johnson used this information and the cubic volume of the nave of Westminster Abbey to calculate the man-years of labor that were required to build this 65,000 yd\(^3\) area. Johnson calculates M or man-years of labor by dividing the total labor cost of the fourteen year period by the average wage of a laborer.

\begin{equation}
M = \frac{L}{W}
\end{equation}

\(M\) = man-years of labor expended in the fourteen years 1246-1259, \(L\) = total labor cost for the fourteen years, \(W\) = average wage per laborer for one of the fourteen years.\textsuperscript{175}

Johnson finds that 5,821 man-years of labor were needed. Although this is pertinent to the building of Westminster Abbey, this number does not apply to other cathedrals. Johnson finds the man-years required to create one cubic yard of space. After finding the total man-years of labor to produce the portion of Westminster Abbey completed from 1246 to 1259, Johnson finds the man-years required to create one cubic yard of space.

\begin{equation}
M_y = \frac{V}{M}
\end{equation}

\(M_y\) = man-years required to create one cubic yard \(V\) = volume of space created \(M\) = man-years of labor for building period

\(M_y = 65,000 \text{ yd}^3/5,821 \text{ man-years of labor}
\(M_y = 11.2 \text{ yd}^3 \text{ man-years of labor per cubic yard}


\textsuperscript{175} Ibid, 199.
Johnson finds that one laborer can create 11.2 yd$^3$ per year, and therefore 0.089 man-years of labor are needed to create one cubic yard.\footnote{Johnson, “Cathedral Building and the Medieval Economy,” 191-210. One drawback to Johnson’s approach is that he does not state assumptions he made in his calculations.}

Johnson applies his calculations to other cathedrals in England by using the 0.089 man-years of labor and the entire cubic volume of the other cathedrals to find the labor used on each of the English cathedrals. After finding the labor used on individual cathedrals, Johnson calculates the labor used across England in the twelfth and thirteenth centuries. These calculations, Johnson claims, could be used for other cathedrals around Europe.\footnote{Ibid.} England and France, as well as the rest of Europe, would have had similar technologies such as axes, chisels and horse-drawn carts, as well as similar types of skilled labor. Despite different currencies that would have been used around Europe, laborers would have been paid roughly the same real wage.\footnote{This assuming labor mobility} Cathedrals were built of largely skilled labor, but certain laborers not only went between cities within a country but also crossed borders of countries.

In a later amendment to his work, Johnson gives a more precise and accurate model for the calculations for Westminster Abbey’s information to determine the amount of labor needed to create other cathedrals. To find the man years of labor,

\begin{equation}
\text{(3) number of man-years}_x = (M)(V_x/V_{wa})^{2/3}
\end{equation}

\begin{align*}
M &= \text{man-years expended on Westminster Abbey} \\
V_x &= \text{volume of the cathedral being compared to Westminster} \\
V_{wa} &= \text{volume of Westminster}
\end{align*}

This equation will be used to find the total man-years of labor and the number of laborers

\footnote{Thomas H Johnson. "Note: Relation of Building Volume and Construction Inputs." Explorations in Economic History 5, no. 1 (1967: 109).}
who were needed on average per year to create Saint Denis, Chartres, and Amiens. To find the number of men that would have been necessary each year to complete the project, the number of years chosen is of the utmost importance, and thus there are multiple man-year estimates offered that are dependent on different building campaigns.

The Abbey Church of Saint Denis was renovated in multiple campaigns that altered large amounts of the structure each time. Consequently, the entire cubic volume of this structure is used to calculate labor amounts, despite the fact that the church was not completely rebuilt in this period. Saint Denis has a cubic volume of approximately 114,500 yd^3.

\[
M_{SD} = (5821)(114500/65000)^{2/3}
\]

\[M_{SD} = 8,490 \text{ man-years of labor}\]

Johnson’s method yields 8,490 man-years of labor to renovate Saint Denis. When the two campaigns for the reconstruction of Saint Denis are combined, it took 171 years of construction to complete the transformation to the Gothic structure that can be seen today. The man-year estimate is nothing without the context of how many men per year were employed.

\[
(5) \quad \text{Men per year} = \frac{M}{\text{number of years of construction}}
\]

Men per year at Saint Denis = 8,490 man-years of labor / 171 years
Men per year at Saint Denis = 50 men per year

The 171-year estimate would require only 50 men per year. This seems unreasonably low, and unlikely for a project on this scale and importance. Abbott Suger’s goal was to remake the church into something new and beautiful, as well as to accommodate the influx of people that the previous church could not. To recreate an entire building in any efficient manner, likely more than fifty laborers would have been necessary.

A second way to look at the labor needed to complete the reconstruction of Saint
Denis is to break up the building campaigns; here there are two selected: 1130 to 1144 when Abbot Suger was in command, and 1230 to 1300 when the renovation was veritably completed. The fifteen year period between 1130 and 1144, the year when Saint Denis was consecrated, using same cubic volume and therefore the 8,490 man-years of labor estimate, produces 506 men per year to complete the massive renovation.

\[
(6) \quad \text{Men per year} = \frac{M\times}{\text{number of years of construction}}
\]

\[
\text{Men per year at Saint Denis} = \frac{8,490 \text{ man-years of labor}}{15 \text{ years}} = 506 \text{ men per year}
\]

To complete such a large scale renovation project in so few years, this estimate seems appropriate. Suger needed the Abbey to be remade in order for it to function properly as a pilgrimage church. As Saint Denis would have continued to be used while it was under construction,\(^{180}\) the rapid completion was vital for the church to remain in the favorable opinion of the public and attract pilgrims. In the second building campaign, or rather rebuilding campaign from 1230 to 1300, using the same man-years of labor estimate, 121 men per year were needed, again this seems reasonable.

\[
(7) \quad \text{Men per year} = \frac{M\times}{\text{number of years of construction}}
\]

\[
\text{Men per year at Saint Denis} = \frac{8,490 \text{ man-years of labor}}{70 \text{ years}} = 121 \text{ men per year}
\]

The 121 men per year appears appropriate because the campaign was longer than that of the earlier renovation. The separate campaigns required the town and surrounding area to support a significant building process twice, not once as for most cities, during a single period. This being said, there was likely a larger strain on the community when 506 men per year were employed in the construction process, preventing other buildings from being erected and marking Saint Denis as the city’s main building.

\(^{180}\) Ball, \textit{Universe of Stone}, 175.
Unlike Chartres and Amiens, there are no population estimates for the medieval town of Saint Denis. Saint Denis is different from the cities of Chartres and Amiens because of the monastery located there. The prominent monastic presence implies a more substantial number of clergy rather than laborers living in the town. In Suger’s accounts, however, he says that “we called together the most experienced artisans from various places,” to renovate Saint Denis. Suger says that the first work completed on the church was to repair walls that were old and threatened to collapse in some places. To fix this, Suger “summoned the best painters we could find from various places, we devoutly had the walls repaired and worthily painted with gold and costly colors.”¹⁸¹ The workers required to renovate Saint Denis could not be found in the town; so according to Suger, those who could do the work were summoned to Saint Denis. Suger not only brought in painters and those who could fix the walls, he also "summoned bronze casters and chosen sculptors," who erected the main doors.¹⁸² Not only did Suger call this skilled labor to Saint Denis, those artists travelled elsewhere: At Chartres, there are three windows above the portals that, due to the stylistic similarities, can be seen to be the work of artists that had been recently employed at Saint Denis.¹⁸³

Chartres Cathedrals building campaigns differ from Saint Denis’. The cathedral we see today is the product of reconstruction after a devastating fire in 1194. There were remnants from the previous Romanesque cathedral left behind, the crypt and parts of the west façade with its two towers remained undamaged.¹⁸⁴ In theory, this could impact the labor needed to build the Gothic Chartres because it was not an entirely new structure,

¹⁸¹ Halsall, “Medieval Sourcebook.”
¹⁸² Ibid.
¹⁸³ Mâle, Chartres, 153.
¹⁸⁴ Paul Frankl, ”The Chronology of Chartres Cathedral,” 1.
and neither was Saint Denis. Everything except the crypt and western façade, however, had to be rebuilt and thus the entire cubic volume of the cathedral is used to find the labor needed to build Chartres.

Another distinction of Chartres Cathedral is that it was constructed in a very short amount of time. The vaults were completed by 1220. This would only be a 26-year span, which firmly seems unrealistic for the completion of an entire cathedral, as in many cases cathedrals were built over the span of a century or more. Rather, Chartres Cathedral took about sixty years to complete.\(^{185}\) Using the year of consecration, 1260, allows an estimate of construction at 67 years. Chartres has cubic yardage of 150,000 yd\(^3\) and therefore the man-years of labor needed to create Chartres Cathedral are greater than that at Saint Denis.

\[
(8) \quad M_c = (5821)(150,000/65000)^{2/3} \\
M_c = 10,165 \text{ man-years of labor}
\]

An estimated 10,165 man-years of labor were required to create Chartres. Using the figure of 67 years results in a value of 152 men per year that would have been needed to construct Chartres Cathedral.

\[
(9) \quad \text{Men per year} = M_c/\text{number of years of construction} \\
\text{Men per year at Chartres} = 10,165 \text{ man-years of labor} / 67 \text{ years} \\
\text{Men per year at Chartres} = 152 \text{ men per year.}
\]

This estimate seems reasonable in that the cathedral was not constructed in 15 years as Saint Denis was, but was still completed in a relatively short amount of time. The number of people needed to construct Chartres Cathedral must be placed into context by comparing it to the population of Chartres. Russell estimates the number of parishioners in the diocese of Chartres to be about two-thirds of the population, and that these

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\(^{185}\) Scott, *The Gothic Enterprise*, 38.
parishioners numbered approximately 90,700 people in 1260. Accordingly, the population of Chartres can be estimated at 136,155 people. This number is significantly larger than that of the number of men needed to build Charters Cathedral. The 152 men per year would only be 0.112% of the total population of the diocese. In this case, the building of Chartres Cathedral did not have a significant impact on the economy of the city and surrounding area, at least in terms of labor.

The total population naturally includes women. Only men would have worked as laborers to construct the cathedral. Assuming the 50% of the population was male than 68,078 men lived in Chartres in 1260. Still, only a small percentage of men would have been used, 0.22%, which again would not have had a significant economic impact as very little of the overall population would have been employed during construction. Even if looking at those who were old enough to work (one-third of the population would have been below working age), the adult male population or 45,385, the building of Chartres Cathedral would have only used 0.33% of the adult male population.

The diocese of Chartres is, however, larger than that of the City itself. At the end of the thirteenth century, the City of Chartres was a relative backwater, having only 6,000 to 8,000 inhabitants. If one uses the median of 7,000 inhabitants to estimate population, a more significant percentage of the population worked to create Chartres Cathedral: 2.17%. This larger percentage would have caused more of the available labor to be expended on the building of Chartres and therefore depleted the city’s economy because more laborers would have been pulled away from other projects within the town.

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187 Ibid, 143.
188 Ball, *Universe of Stone*, 20.
If workers were drawn from other projects, it would show that the Cathedral’s construction was of the utmost importance. Both under construction and completed Chartres drew pilgrims and ruled over the surrounding landscape (Figure 5.1). All of the labor coming from within the city of Chartres, however, is unrealistic. Skilled labor was brought from elsewhere into the construction process. A shortage of workers in the town would have placed an upward pressure on wages making the financial capital used all the more important: paying the most money meant the Church would get the best craftsmen. As Chartres was such a small city, laborers from the surrounding area may have been needed because the skills necessary to build a cathedral were not held by inhabitants of the city. The use of labor both imported to the building campaigns and local was important to the Church. As a result, thus images of skilled laborers appear in the cathedral.

Even larger than Chartres Cathedral, Amiens Cathedral, the second largest cathedral in France, has a cubic volume of 260,000 yd$^3$. After a fire in 1218, Amiens Cathedral had to be built largely anew, more so than Chartres and certainly more than Saint Denis. The construction of Amiens began in 1220 and was swiftly constructed, like Chartres. The rapid construction was in part a result of funds given by the woad merchants of Amiens. As the woad merchants gave more money the Church could spend more on labor and materials. Doing this allowed more men to be at work at one. The fast construction can be seen in the consistent and harmonious style used through the cathedral. Since Amiens has a larger volume than both Saint Denis and Chartres, the man-years of labor needed to create it is higher.

$$M_A = (5821)(260,000/65000)^{2/3}$$
$$M_A = 14,668 \text{ man-years of labor}$$
Like other pilgrimage cathedrals Amiens was an essential aspect of the functioning city as well as an important religious site so, it seems likely the Church would put more labor into the construction of their cathedral to complete the project quickly. The estimate of 14,668 man-years of labor seems appropriate because of the influx of pilgrims expected and the scale of the project.

Although Amiens was mostly constructed in one building campaign, several dates are significant to the understanding of the number of laborers required. The first of these is the date of consecration, 1270, only 51 years after the start of construction. At this time the main structure of the cathedral would have been completed, and so again the entire cubic yard estimate is used. In the 51 year span, it would have taken 288 men per year, which a reasonable estimate of the labor that would have been necessary to complete the entire of the cathedral in such a short amount of time.

(11) \[
\text{Men per year} = \frac{14,668 \text{ man-years of labor}}{51 \text{ years}} \\
\text{Men per year at Amiens} = 288 \text{ men per year.}
\]

Even with an estimate of 288 men per year, that calculation leaves out a major portion of time when Amiens was still being finished, and thus becomes inaccurate. In 1288 the labyrinth was laid on the floor of the cathedral, marking that construction was virtually completed.

(12) \[
\text{Men per year} = \frac{14,668 \text{ man-years of labor}}{69 \text{ years}} \\
\text{Men per year at Amiens} = 213 \text{ men per year.}
\]

This estimate of 213 men per year seems more accurate based on the date of the labyrinth which denotes completion of the cathedral. The use of 1288 as the year when Amiens was completed is fairly accurate, however, dendrochronological analysis of wood in the
cathedral notes that nave roof was concluded between the years of 1298 and 1310.\textsuperscript{189} If one uses 1300 as the date of completion 183 laborers were needed to complete Amiens’ Gothic cathedral in the intervening 80 years since the beginning of construction.

\begin{equation}
(13) \text{ Men per year} = \frac{M_A}{\text{number of years of construction}} \\
\text{Men per year at Amiens} = \frac{14,668 \text{ man-years of labor}}{80 \text{ years}} \\
\text{Men per year at Amiens} = 183 \text{ men per year.}
\end{equation}

The labor estimate of using 183 men per year based on the date determined from the dendrochronological analysis also seems reasonable, and as it is the latest seems most likely to be correct. This last estimate offered, and the latest dates will be used in determining the impact of the labor used in the building process.

The City of Amiens was prosperous during the time of its cathedral’s construction. This prosperity is reflected in the population of the city and surrounding areas. Russell estimates the number of hearths, or families, in the diocese of Amiens to be 115,716\textsuperscript{190} in 1328, and says later that the average family was 3.6 people.\textsuperscript{191} Accordingly, the total population of the diocese of Amiens would have numbered approximately 416,578 people.\textsuperscript{192} Similarly to the diocese of Chartres, there is a significant gap between the total population of the area and the 183 men a year needed to create Amiens; only 0.044\% of the total population would have been needed. Using only the male population of 208,289, again assuming a 50-50 split between men and women, still only 0.088\% of the male population would have been used. Even in the case of looking solely at the adult male population in the diocese (138,860 men), only 0.132\% of adult males would have been part of the labor force used in the cathedral.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{189} Murray, \textit{Notre-Dame, Cathedral of Amiens}, 178.
\item \textsuperscript{190} Ibid, 106.
\item \textsuperscript{191} Ibid.
\item \textsuperscript{192} This estimate seems rather high, however, according to Russel it is correct.
\end{itemize}
\end{footnotesize}
Even when using only the population of the City of Amiens, which has been estimated at 20,000 persons during the end of the twelfth century, only 0.915% of the total city population would have been involved in construction. As at Chartres and Saint Denis, both skilled and unskilled labor was necessary to build a cathedral, and likely not enough persons with the appropriate skills could be found within one city, particularly one like Amiens that focused on the production and trade of woad. None of the estimates for the percentage of the population used at Amiens show that there would be significant impact or employment of labor in the diocese or city for the construction of Amiens Cathedral. Again, assuming that skilled labor was primarily hired, however, there may have been a larger impact on the City of Amiens as there was a Saint Denis and Chartres. Assuming a depletion of the skilled labor force, the Church displayed its power and the importance of the cathedral by precluding the skilled labor force from working on other projects.

The three cathedrals of Saint Denis, Chartres, and Amiens vary in size and thus their volumes can be looked at as small, medium, and large examples of the Gothic cathedral in Northern France. Their volumes can be used to find the average volume of the Gothic cathedral in Northern France. Together they make an average volume of 174,833 yd³. This yields 11,258 man years of labor for the average Gothic cathedral in Northern France. 

\[
(14) \quad M_{\text{total}} = (5821) \left( \frac{174,833}{65000} \right)^{2/3} \\
M_{\text{total}} = 11,258 \text{ man years of labor}
\]

To look at the impact of the 300 years of cathedral construction in Northern France the average man years of labor multiplied by 22 cathedrals in Northern France (Figure 5.1) to total 247,676 man-years of labor needed to complete all these cathedrals.
This estimate means that there were approximately 825 laborers per year working on constructing the tremendous Gothic cathedrals of Northern France.

\[
\text{(15) } \text{Men per year} = \frac{M_{\text{total}}}{\text{number of years of construction}} \\
\text{Men per year in Northern France} = \frac{247,676 \text{ man-years of labor}}{300 \text{ years}} \\
\text{Men per year in Northern France} = 825 \text{ men per year.}
\]

The 825 laborers needed a year to create the 22 gothic cathedrals of Northern France is fewer than may be expected, especially when looking at each cathedral individually. When looking across such a broad time span, however, where not all of the cathedrals were building at the same time, the total estimate seems more appropriate. Saint Denis during Suger’s remodeling, for example, did not use the same people in construction as Amiens did. Amiens started construction nearly 77 years after Saint Denis was completed. There were, however, cathedrals being built at the same time and therefore the men needed per year across Northern France would be larger than at any single cathedral. The population for Northern France in the Gothic period is unknown but the entire population of France is estimated by Russell at 13.4 million.\(^{193}\) Although the 22 cathedrals looked at are only within one region of France, the 825 men a year would likely only be a small fraction of the number of adult men in that region, we saw in the cases of Chartres and Amiens. Thus, the construction of cathedrals of Northern France had minimal impact on the labor market when looking at the population or supply of aggregated skilled and unskilled workers.

One of the issues with Johnson's method of determining the number of laborers to work on a cathedral is that the laborers are not broken up into categories. Laborers working on the cathedral would not have been entirely comprised of unskilled labor, but

\[193\] Ibid, 106.
instead, to construct a cathedral mainly a skilled labor force was required. These skilled laborers moved between construction sites. Craftsmen that worked on Chartres were called from Saint Denis.\textsuperscript{194} Although quantitative data for types of workers does not exist for this period, there were a limited number of qualified people controlled by the guilds. If this data were available, it would likely show that the specialized laborers, like stone masons, were employed in Gothic cathedral and unable to work on other projects. The Church had to compensate the laborers for their work, using their funds to employ craftsmen rather than give to the destitute.

As well as the need for a skilled labor force not being accounted for in Johnson’s approach, other types of labor that were used in the creation of a cathedral are not represented in his method. There is again conspicuously absent information about workers, such as quarriers, who cut the stone as well as those workers who were needed to transport stone and other materials, like lumber, to the site of the cathedral. If the men working to gather and transport building materials were able to be included in the analysis of the labor force, there might be a more significant impact on the supply of labor.

The skilled labor working on the cathedral and the laborers who did not work on site are not the only types of laborers missing when Johnson’s method is used. In several Gothic cathedrals, such as the Notre-Dame de Paris, serfs were used during

\textsuperscript{194} Mâle, \textit{Chartres}, 24. Craftsmen not only worked on multiple cathedrals within one region but, could also be called to other countries. James S. Ackerman shows an example of this in \textit{Ars Sine Scientia Nihil Est} “Gothic Theory of Architecture at the Cathedral of Milan. Ackerman talks about the construction of the Milan Cathedral and how the plan for the cathedral was lacking enough, or not used properly that they had to stop construction. It was necessary for the leaders in Milan to bring in experts from France and Germany to help with the construction as the Italians were unsure of how to continue the new gothic style of building.
construction.195 These unpaid laborers, virtually slaves, would have added to the labor force during construction. The inclusion of serfs would not, however, have had impacted the labor market in the same way as the other workers not included in each analysis. As essentially slaves, the serfs would not have impacted the skilled labor resources of the area. Neither Saint Denis, Chartres, nor Amiens’s records show the use of serfs in the construction process. This is likely because the cities of Chartres and Amiens were both heavily focused on agriculture. The farming season and construction season were largely the same. So if the serfs were working the fields, supporting the city’s economy through its principal products, they would not have been working on the construction of Chartres or Amiens Cathedrals. Other cathedrals in Northern France, including Notre-Dame de Paris, however, did use serfs as an essential part of their building campaigns.

The creation of a Gothic cathedral is a large building enterprise that would seem to have had a tremendous impact on the labor in a city, town or region where they were built. The man-years of labor and the number of men per year required to build Saint Denis, Chartres and Amiens Cathedrals, however, show a negligible impact of the cathedral on the population of their respective cities. The number of laborers it would have taken each year to build 22 cathedrals in Northern France is also a small percentage of the population in the entire region. Despite this conclusion, when looking at the workers who are missing and the use of skilled labor, a more significant impact on the town or region is possible. The depletion of the scarce resource of skilled labor not only allowed the cathedral to dominate the landscape but to impede other structures from being built. The next chapter will discuss how the utilization of labor resources is

195 Kraus, Gold was the Mortar, 25.
recognized in the cathedral as a means of acknowledging the impact on the surrounding area.
Ch. 6 Representations of Workers in the Cathedral

The complex iconographic programs of Gothic cathedrals, which include biblical references, as well as images of donors, and religious figures also include workmen or laborers. Not only are the high status individuals or clergy who paid for the cathedral portrayed in but the building, but workmen who were essential to the creation of the cathedral are depicted, too. Representations of workers in the cathedral, however, are few and far between. Unlike donors, workers did not pay for their likeness (whether inscription or images) to be included in the cathedral; rather, they were included by the Church and those designing the decorative scheme. Depictions of workers in Saint Denis, Chartres, and Amiens suggest that the workers, who built the cathedral, are publicized as recognized to the Church and those who chose to depict them. The sacrifice of the labor resources used in construction is both acknowledged and validated in through representations of the craftsmen, laborers, and workers.

At Saint Denis, the representation of the workers who built the church are seen in one place. Along with the many inscriptions by Abbot Suger that proclaim his importance, Suger includes the craftsmen who constructed Saint Denis in an inscription. The sole representation of the craftsmen was on the door to the Abbey along with the other inscriptions about Abbot Suger and God. This inscription does not use the word “craftsmen” or “worker” but rather references the work they created. Thus, the craftsmanship is representative of those who completed it. On the doors was inscribed the following:

All you who seek to honor these doors,
Marvel not at the gold and expense but at the craftsmanship of the work.
The noble work is bright, but, being nobly bright, the work
Should brighten the minds, allowing them to travel through the lights
To the true light, where Christ is the true door.
The golden door defines how it is imminent in these things.
The dull mind rises to the truth through material things,
And is resurrected from its former submersion when the light is seen.\textsuperscript{196}

This inscription is one of few indicators of craftsmen or workers at Saint Denis and implies the work that was done was valued highly and was to be looked at with reverence. The new Abbey became a work of art and craftsmanship, not solely something that is splendid because it is expensive. Suger called attention to the novelty of the work done at Saint Denis. Although not explicitly stated in the inscription, skilled labor was called to Saint Denis to craft the doors and complete the structure.\textsuperscript{197} Thus, by referencing the craft, the value of the craftsman is implied. After speaking about the "craftsmanship of the work" Suger continues to say that the viewer should use the doors as a vessel to raise their minds to Christ who is the true door\textsuperscript{198} to salvation and a holy life. This later comment serves as a reminder that the viewer should remember that the beautiful renovations and the inscription describing who made them is all for the sake of honoring God, not the workmen.

By inserting the workmen in the artistic program of the cathedral, Suger records their importance in contributing to the church which pioneered the Gothic style. Suger calls the work noble and being so "nobly bright" that it "should brighten the minds" of the visitors to the church. Those who planned the church, like Suger, and those who paid for the church anticipated the impact, but the craftsmen who created the structures that are

\textsuperscript{196} Halsall, "Medieval Sourcebook."
\textsuperscript{197} Ibid.
\textsuperscript{198} Ibid.
seen today, were the ones to execute the plan. His praise of the craftsmanship, and therefore the importance of the craftsman—in the inscription on the doors, insuring that all who visited the church would see the inscriptions where Suger inserts himself; if they could read Latin.

At Saint Denis, there is only the single inscription that discusses the craftsmanship or craftsmen. There were many more inscriptions on that church that reference Abbot Suger and pictorial representations of him, as well as the Kings of France, to show how clergymen and financial donors were seen as more important to the Church and therefore society. The fact that the workers are represented at all, however, has significance as their portrayal is infrequent. The representations of workers at Saint Denis is far different than that of the workmen at other cathedrals including Chartres and Amiens Cathedrals.

At Chartres Cathedral, the most prominent representations, which still exist today, of the men who built the cathedral are seen in the guild windows. If the Church did indeed select the guilds or trades to be represented in each window, they showcased the importance of the skilled labor in the area surrounding Chartres Cathedral and the workers who created the cathedral. The stone mason’s guild is shown, as well as other guilds that would have been involved in building the cathedral. Each of these guilds is pictured in multiple windows, where they can be seen building the cathedral.

The stone masons are portrayed the most frequently: they are seen in three windows which are all in the far East end of the cathedral, although the windows are not all directly next to each other. The first window tells the story of St. Sylvester (Figure 6.1). The bottom left panel of the window shows two men carrying a stone (Figure 6.2),
the center bottom panel shows masons constructing a cathedral (Figure 6.3), and the bottom right panel shows mason’s tools and templates that the masons would have used (Figure 6.4).

The masons depicted in the St. Sylvester window are carrying blocks of stone around the building site of a cathedral’s construction and using contemporary tools to create the cathedral. The center and largest panel showing the stonemasons has men building a cathedral which is presumably Chartres itself. If this image shows the workmen building the structure of Chartres, then the window proclaims not only what the workmen did, but also the importance of the worker’s sacrifice of time and energy to this specific cathedral.

Another window that shows masons at work is dedicated to the story and the life of St. Cheron (Figure 6.5). The bottom two panels of this window show the masons at work. In the left panel masons are dressing stones (Figure 6.6), and in the right panel masons are seen to be carving statues of kings (Figure 6.7). The two panels showing the masons at work are the same size as those telling the story of St. Cheron above them, making it, upon initial viewing, and to the untrained eye, difficult to distinguish the mason’s panels from that of the story of St. Cheron.

In this window, the masons and stone carvers could again be building part of Chartres Cathedral and making decorations for it. The statues of kings could be effigies for tombs, or as, because the Kings of France are buried at Saint Denis, they could refer to the sculptures that adorn the exterior façade of the west end, and main entrance of the cathedral (Figure 4.5). Displaying an image that shows the manufacture of statues that are on the exterior of the cathedral solidifies the relationship between craftsmen and craft.
This connection goes beyond saying that stoneworkers are needed to build a stone structure; it gives the viewer a specific object (that would have required much skill to create) upon which to focus their admiration. Similarly to the inscription describing the glory of the work done at Saint Denis, the work was meant to be admired. The representations of work are paired with stories of holy figures, reminding the viewer that the work was essential but done for a higher purpose.

The final window where the construction of a cathedral by stone masons can be seen is in the St. Savinien and St. Potentien window (Figure 6.9). In this case, there is a single panel showing the mason in the lower right panel of this window. He is working with a serrated stone hammer (Figure 6.10). With his hammer, the mason is working on the exterior of a cathedral with buttressing much like that at Chartres. Thus, it can be assumed that this stone mason is, like those in the other windows, working on Chartres Cathedral. As in the window of St. Cheron, this window portrays the mason as working on Chartres and links the viewer to the original builder, and their place in the medieval church, through what can still be seen today.

Displaying the masons as working on an unfinished cathedral implies that they are active in the construction of Chartres. A cathedral did not appear but instead was made through the hands of many men. Each window with masons tells a different part of the story from using templates and tools to cut stones, to carrying these stones around the building site, to creating sculptures for the exterior and to completing the buttressing which was essential to holding up the cathedral. Representing the stone workers with saints connects them not only to these figures, as the representations of donors did; such images demonstrate how the workers made the cathedral, which reinforces the worker's
relevance to the campaigns of construction and ultimate completion. The stone masons were trained and controlled by the guild system, and therefore there was a limited number of stone masons in any city. The cathedral would have used many of the local masons in its construction. The Church attempts to justify to the public their use of the labor resource by depicting the masons working on the cathedral.

Stone masons were not the only guild or type of worker that would have been an essential part of building Chartres Cathedral. In addition to masons, there are other guilds shown in Chartres’s program of windows that would have been necessary to construct the cathedral. The depictions of these workers do not necessarily indicate that they are building Chartres as the masons’ windows do. There are fewer representations of these other guilds, but as they were indispensable to the construction, they are represented as well. For example, wood was used in the construction process in several ways, one of which was scaffolding. As the walls got higher and higher and the arch of the roof began, scaffolding was needed to not only bring men up to the point of construction, but to hold up the existing structure before it was completed and could support itself.

The window telling the story of Noah and the Flood (Figure 6.11) shows carpenters at work, the role of wood is referenced by the window. There is a wheelwright trimming a wheel in the lower left panel (Figure 6.12), a cooper tightening the hoops on a barrel in the lower right panel (Figure 6.13) and carpenters in the center bottom panel stripping the bark from a tree-trunk (Figure 6.14). This center panel where carpenters strip bark from a tree-trunk shows contemporary tools that would have also been used in cathedral building as well as techniques for preparing wood for use in the cathedral, although such a building is not shown. The tasks the carpenters completed made building
possible, and therefore they are shown working in the cathedral.

In the window portraying the life of St. Julien the Hospitaller (Figure 6.15), there are three images of carpenters or those who work with wood. In the bottom left panel, carpenters are building a house with a wooden framework (Figure 6.16). In the bottom right panel a wheelwright and cooper appear building a barrel (Figure 6.17). In the center, bottom panel carpenters are shown working on their benches (Figure 6.18). The wheelwright and cooper are less useful in building a cathedral than the carpenters that are building the house. Those who are building the house could have applied similar skills to create scaffolding to support the growing stone structure. The carpenter’s depictions in the window, although not directly building the cathedral, still show the importance of those who had skills or work that was important to the Church. One could also argue that if many of the carpenters of Chartres were employed in the cathedral’s construction, they were not building houses. This is true to a certain extent with all the trade windows, but those who were active in the construction of Chartres are connected most strongly to Chartres’ construction through their work on the cathedral.

Similarly to carpenters, blacksmiths are also represented in the guild or trade windows at Chartres. Iron was also used to stabilize the cathedrals as they reached new tremendous and astonishing heights. The Blacksmiths appear in the windows of Chartres, not only because they were a trade of the town, but also because of their active role in building the cathedral. The window located just before the transept on the north side of the cathedral displays a scene of the passion (Figure 6.19), and blacksmiths at work. In the bottom left panel blacksmiths are charging the forge with charcoal (Figure 6.20), while the bottom right shows blacksmiths working at their forge (Figure 6.21), and in the
center bottom panel blacksmiths are shoeing a horse (Figure 6.22). The product of the left and right panels, horseshoes, is shown in the center panel. Instead of horseshoes, the center panel could have shown ironwork being added to Chartres Cathedral to connect the blacksmith with their work on the cathedral more strongly; the image would have to have been much more complicated and made little sense to a viewer, and it would have been difficult to read in such a panel. Shoeing a horse is an activity the average medieval person would have understood, adding iron into the support structure for a cathedral would have been less known to the ordinary viewer. Another explanation for the representation of horse being shod is that they were used to transport materials to the building cite. In a period long before cars and trucks, horses pulling carts was one of the methods of transporting the weighty materials to a building site. Nonetheless, the blacksmiths would have been a one of the many types of worker employed in constructing the cathedral, so by their representation in the windows their service is honored.

All of the trades shown at Chartres give pictorial representation to their social standing in the town and their worth to the Church, especially if the guilds did not donate the windows and instead the Church chose to represent the workmen. If the guilds donated their windows then the logic behind why donors are represented applies; if not the conclusion is that of the Church wanted to express their appreciation for use of labor resources. The representation of tradespeople is where the Church and the town of Chartres intersect, bringing the secular business world into the holy church. Many other trades are part of the program of stained glass windows at Chartres, such as those discussed in the donor representation chapter of this thesis. Each trade added to the
economy of Chartres, and thus was a factor in the building of the cathedral;\textsuperscript{199} when the town prospered so did the cathedral. No cathedral is built in a vacuum, but rather it is a product of its environment. The guild windows that show the construction of a cathedral, presumably Chartres, are there to mark the significance of the guild's contribution to making the building process possible. These workers were the ones who made the cathedral.

At Chartres, the guild windows are not the only representations of workers, by contrast to Saint Denis, where the vague inscriptions are all that show the craftsmen's efforts. Stonemasons are the workers most identified with cathedral building as the massive structures are primarily made of stone. The masons representing their craft in the Chartres windows show techniques, tools, and methods of medieval masons. A unique form of worker representation comes from these medieval masons, the mason’s mark.

The mason's placed themselves into the cathedral through their mason's marks, too, however these marks were not the result of the Church officially putting the masons into the artistic program of the cathedral. There is still much uncertainty when it comes to the exact purpose of mason's marks. When a mason completed his apprentice, he would either choose or be assigned a mark.\textsuperscript{200} These marks could, by many scholar’s reckoning, have been used to signify who cut what stone, or did certain parts of work on the cathedral and can also be called banker’s marks.\textsuperscript{201} This function enabled an accurate account of what work was done, and by whom, so the masons could be paid accordingly.

\textsuperscript{199} Williams, Bread, Wine and Money.
Another possible meaning of the mason’s marks is that they allowed for the builders to join sections of masonry together without written instructions.

In Chartres Cathedral many mason's marks can be seen. From the Romanesque period, marks can be seen on the west narthex (Figures 6.23-24) wall and north tower staircase (Figures 6.25-48). From the Gothic period, mason’s marks can be seen in the triforium attic (Images 49-51). Mason’s marks could have also been put on the stones because the mason's wanted it to be known that this was their work. Also, in the case of such an essential building as the town's cathedral, the masons may have wanted to be part of Chartres in a lasting and personal manner. The mason’s mark is a lasting symbol of what they did and who they were in Chartres. The mark is like saying “I was here, I built this.”

Today the mason's marks are visible; however its likely in the time when the cathedral was created they would have been hidden behind decorations. Plaster, frescos, and other surface treatments often covered walls. Other marks may also exist on stones but due to the stone’s position cannot be seen. There could be a mark on every stone in a cathedral, but there is no way to know. In this case, the notion of marks as assembly guides or designating who did what is more likely, unless we can assume that the masons wanted to associate themselves to the Church through what was their permanent signature on their most significant work. The mason’s importance to the cathedral was carved into stone with their marks, whether or not the intent of the masons was to document their work merely for ease construction, payment, or posterity. The representation through a signature would suggest that these men desired the use of their time and work to be

202 “France: Chartres Cathedral of Notre-Dame."
Workmen in this period to a large extent are anonymous in history, regardless of trade. Among workers, the master mason was in a class of his own. The master mason served as architect, general contractor, liaison between the Church and common laborer or guild worker, and much more. He essentially ran the everyday operations of the construction of the cathedral. In many instances, the master mason is unknown, a shadowy figure that we know little about. At certain cathedrals, however, the master mason is recognized and celebrated in the cathedral they helped to build.

The labyrinth at Chartres (Figure 6.52) is one of the places where the master masons were supposed to have been represented. The labyrinth at Chartres is today unique in that it is original to the Gothic cathedral, like many of Chartres’ other famous attributes. It is a trail of white stone located in the nave of the cathedral, defined with black outlines that is 40 feet in diameter and composed of eleven concentric rings that make up an 858 foot path.203 Like the labyrinth formerly set into the floor of Reims Cathedral, which had in each of the four polygonal corners one of the master masons who created Reims,204 Chartres' labyrinth was also said to celebrate the names of the masters who built it.

Not only did Chartres celebrate its master masons in the labyrinth, but Amiens did as well. At Amiens, there are no other representations of workers or craftsmen that can be seen today. This could be the result of the numerous damaging events and restorations that kept the building from falling down.

The labyrinth of Amiens did not survive unscathed from the various atrocities that

have changed the Amiens artistic program. In the 1830s and 40s, Francious-Auguste Cheussey during a restoration removed the labyrinth and surrounding stone and the richly decorated nave pavement. Later in the late 1800s and early 1900s, the labyrinth and the surrounding pavement was restored along with much of the rest of the cathedral. This restoration is what can be seen today (Figure 6.53).

Originally, the labyrinth at Amiens was laid by the third and final master mason, Reinaud de Cormont in 1288, when he was an old man. Those who were depicted in the labyrinth, which was created by colored tiles on the nave pavement, included the three master masons, Robert de Luzarches, Thomas de Cormont and his son Reinaud de Cormont, along with the founding bishop. These individuals were depicted in the center of the labyrinth on an octagonal plinth that carries their images and an inscription. The inscription gives a specific date for the commencement of construction, 1220, the names of the master masons and the year the labyrinth was installed in 1288. The images of the master masons and bishop, as well as the inscription, can also be seen in the restored labyrinth (Figure 6.54).

As part of the leaders who coordinated the building and decorative program of the cathedral, the master masons earned their prominent placement in the center of the labyrinth. The masters did not only proclaim their position by their inclusion in the center of a path meant for contemplation and reflection, but by their representation in such a place, the Church implies that the visitor should contemplate or reflect on the building they are standing in which was built by these great men. The master mason’s contribution

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205 Murray, Notre-Dame, Cathedral of Amiens, 165.
206 Ibid, 169.
207 Ibid, 84-85.
208 Ibid, 78.
cannot be measured by small marks on stones or in the windows of the cathedral; rather, by being part of the floor the visitor walks on, the master masons have become part of the foundation and support for the cathedral we see today. Their prominence and significance are obvious as they are symbolized prominently; as compared to the small panels of a stained glass window or an inscription on a door.

Because the labyrinth is the only representation of workers at Amiens, we have a skewed view of the importance of the workers who built the cathedral. The master masons represented in the labyrinth at Amiens and elsewhere were far higher up in the social scale than that of a lowly guild worker helping to carry a stone or forge iron; the master mason was closer in status to abbots, canons, and bishops, but they still worked for their income. The master masons are frequently depicted in cathedrals, whereas other craftsmen are not. Because of their high standing in a hierarchical Gothic world, the master mason was more crucial to the community, the Church, and to the building of a cathedral itself. There were few master mason, far less than stone and other guild workers. The master masons, therefore, were a very scarce commodity and their image is most conspicuous of any worker or craftsman.

Those who built the cathedral with their labor were essential to its creation. Images of workmen give an idealized representation of the production of the cathedral, but they bring in a more rounded view rather than just images of those who gave money for the building of the cathedral. In Saint Denis, Chartres and Amiens the representations of these workers, regardless of class, tells the visitor that they were essential to the Church that chose to portray them not purely as labor, but as groups or individuals who created the grand structures where they are displayed. Skilled labor was represented
because of the relevance to the utilization of labor to the surrounding area to the cathedral. The Church defended its use of labor by representing craftsmen and workers in the structure they helped to create, validating the use of this resource through the beautiful structure it created.
Ch. 7 Materials

Soaring stone buildings project the power and everlasting strength of the Church. The materials used to construct a building shape the impression it gives to the viewer. Gothic cathedrals are primarily constructed of stone, and thus like the stone they are made of, embody strength and project the beauty of the man-made structure. Overall, there is even less documentation regarding sources for materials than there are for those who financed and worked on building them. Despite the lack of data, the massive amount of material needed to create even one of these structures displays how the cathedral was an essential element to the town it was in and its importance in showing the Church's dominance in the city. The need for materials in the construction process precluded the Church from using funds that could otherwise been spent on works of mercy, such as feeding the poor, or in other building projects for the city.

The materials used, mainly stone, not only reinforced the importance of the structure but also dictated the building schedule. Building took place in the summer and spring, slowed down in the fall and paused during winter. Exposed raw edges were covered with straw or dung to protect them from the cold of winter. Stones could crack due to the moisture left in them and mortar would harden very slowly.\(^{209}\) The necessity of taking an entire season of the year off work slowed down the building process, adding to the expense of the project. The continuation of the building process, however, also points to the significance of the cathedral, since, the project was not abandoned but continued year after year. Even the unfinished cathedral demonstrated the gravity of the structure because of the scale of the footprint or amount of work that had been completed to the

\(^{209}\) Scott, *The Gothic Enterprise*, 34.
passerby.

Stone is a natural resource and is excavated from quarries. Recent scholarship, beginning in the late 1970s, is starting to explore medieval quarries from which the primary construction material for the cathedrals of Northern France came. This is largely due to the technology needed to analyze the stone. These investigations have mainly focused on the limestone used in most cathedrals and the sculptures that adorned the cathedrals made out of it. Little is also known about those who worked the quarries, or how the stones were extracted from the earth. The material building costs began at the quarries. As at any construction site, to make a building there must be materials to build and the labor to piece them together. Those who worked in the quarry were called quarrymen; they were usually local to the area and had some of the most challenging jobs associated with cathedral building. Quarrymen worked in the open air, cutting stone with axes and saws. There was constant exposure to stone dust and other dangerous conditions that could lead to injury and illness. Despite these hazards, men continued to work on gathering construction materials and in this contributed to the effort of building.

All the important buildings at this time were made of stone. The use of stone guaranteed stability, longevity, and beauty of the building as compared to wood. Since buildings of import were to be built of stone, the demand was such that there would have been an increase in the price of good quality building stone. Not only were cathedrals built in this area, but government buildings and castles were also constructed, albeit far fewer of them in the Gothic period. The Gothic cathedrals of Northern France required much stone to build them. Because of the competition for stone, before embarking on the

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210 Ball, *Universe of Stone*, 176.
construction of a cathedral, the chapter and the Bishop, had to be assured that there would be enough stone to finish the project. It is estimated that between 1050 and 1350 in France more stone was cut than in any period in the of the history of Egypt.\textsuperscript{212} Much of this was limestone because of its availability and ease in which it can be cut and extracted. Approximately two-thirds of France’s surface is floored with limestone.\textsuperscript{213} Some of the larger quarries are known, however; the majority remain to be discovered.\textsuperscript{214} The expense of the material did not stop the Church from using it to build progressively more substantial buildings.

Saint Denis is the smallest in scale of the three cathedrals of this study. Not only is the physical volume the lowest but it was the most renovated from an existing structure. As is not uncommon, the quarry Saint Denis extracted stone from is still being debated. Three capitals now in The Metropolitan Museum and the Glencairn Museum with acanthus leaves are associated with the twelfth century Abbey of Saint Denis; however, their provenance is not definite. A column figure (Figure 7.1) is securely linked to Saint Denis through an eighteenth century engraving of it in situ (Figure 7.2).\textsuperscript{215} Samples from three of these works were tested and all three were determined to be from the same source. The specific quarry from which the limestone to make the capitals and column figure came, as well as the stone for the rest of the church, was sadly not determined. Analysis of samples from each of the three sculptures from Saint Denis indicates stone consistent with that from the Paris region.\textsuperscript{216} The Stone was sourced

\textsuperscript{212} Scott, \textit{The Gothic Enterprise}, 11.
\textsuperscript{214} Ibid, 54.
\textsuperscript{215} Lore L Holmes, "Elemental Characterization of Medieval Limestone Sculpture from Parisian and Burgundian Sources." \textit{Journal of Field Archaeology} 13, no. 4 (1986:430)
\textsuperscript{216} Ibid, 431.
relatively locally likely because it was difficult to move. As it is near the Seine River, the stone used in the construction of Saint Denis could be transported with comparative ease to the city.

Along with the limestone that constructs the majority of Saint Denis, the use of expensive materials was championed by Abbot Suger. He wanted Saint Denis to rival the beauty of Hagia Sophia, and using the best material was one way of doing this along with the new Gothic style. The costly materials used at Saint Denis gave another avenue in which to honor God and to advance spiritual enlightenment. The use of expensive materials, as well as the transformation of limestone into sculpture, transfigured the interior of the space from the exterior and mundane medieval world.

To finance the church, Suger bought gems from other monasteries at some expense, planning to use them in the beautification of Saint Denis. Gems were just one way in which he planned to make all elements of Saint Denis visually stunning. He did not spare any expense when it came to the actual building materials. Suger wanted marble columns, and feared that he would have to bring them all the way from Rome; but luckily he did not have to. Suger found an excellent source of marble near Pontoise, north of Paris. Even the notion that Suger was considering bringing columns from Rome tells the reader of his ambitions as he sought to glorify God through remaking Saint Denis.

The building of Saint Denis with the use of scarce and expensive materials, like marble, reinforces the importance of the church or cathedral to the society. Suger writes that over one hundred men brought the columns to the Saint Denis; however, it is unclear where

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218 Ball, *Universe of Stone* 176-177.
219 Ibid, 177.
they were used, if at all; today they do not exist in the church.

Assuming that Suger’s writings are correct and the marble columns were part of the Abbey’s decorations, Saint Denis would have stood out not only in scale from the surrounding buildings but also in material. Bernard of Clairvaux disagreed with the use of showy and costly materials, especially in an abbey church like Saint Denis because the monks did not require extravagant decoration to connect them to God. Bernard would have the monastery give to the destitute and the monks live a modest lifestyle, instead of building lavish churches.\(^{220}\) Suger defends his use of costly materials, like gems and marble by saying it is all to honor and glorify both St. Denis and God.\(^ {221}\) Displaying the best and most expensive materials would tell the viewer that it was not just another building but one where both the God’s and the King’s power was held. The physical presence of the materials depleted from quarries in construction give a reason for their use in the structure they create. The sacrifice of materials is justified through the functionality and beauty of the church.

The amount of stone used to create Saint Denis, Chartres, and Amiens have not been discussed in previous scholarship. It is significant information, however, when considering the impact they would have had on the surrounding area regarding both the natural and financial resources expended in building. Extensive research on Salisbury Cathedral, however, has yielded the volume as well as the approximate tonnage of stones used in the construction of that cathedral. Salisbury is 129,000 cubic yards,\(^ {222}\) and roughly 60,000 tons of stone was used during its building.\(^ {223}\) As Salisbury is a Gothic


\(^{221}\) Halsall, “Medieval Sourcebook.”

\(^{222}\) Johnson, “Cathedral Building and the Medieval Economy,” 205.

cathedral and similar materials would have been used in England as in Northern France an equation for the tons of stones and volume of Salisbury can be used to find the tons of stone used in the renovations of Saint Denis, as well as the other cathedrals. Saint Denis is approximately 114,500 cubic yards.\(^2\)

\[
\frac{Salisbury\ yd^3}{\text{tons of stone at Salisbury}} = \frac{volume\ of\ Saint\ Denis\ yd^3}{SS}
\]

\[
SS = \frac{129,000\ yd^3}{60,000\ tons} = \frac{114,500\ yd^3}{SS}
\]

\[
SS = 53,255 \text{ tons of stone used at Saint Denis}
\]

Materials would have been a large part of the building costs, as well as labor. In using 53,255 tons of stone to remake a monastic church, Suger impressed upon the town of Saint Denis this is no mere parish church, but rather the home and resting place of kings. No other structure in the town was as large at the Abbey of Saint Denis, thus in the materials used alone it was the dominating structure in the city.

Chartres is also constructed mainly of limestone, which is very dense,\(^3\) and the strength of this stone has helped to keep the structure of Chartres remarkably undamaged since its initial building.\(^4\) There are three carved limestone heads currently in The Metropolitan Museum (Figure 7.3), The Louvre (Figure 7.4) and the Depôt. It is quite likely that the three sculpture fragments were once part of similar statues of kings on the south porch of Chartres Cathedral (Figure 7.5); however, like the sculptures from Saint Denis, their connection to each other and their provenance was not solidified. Samples from the New York and Louvre heads were analyzed. It was determined that through a

\(^{224}\) The volume for Saint Denis, as well as the following cathedrals, is the same as that found in the chapter on labor used.

\(^{225}\) Ball, *Universe of Stone*, 18.

\(^{226}\) That the windows are still intact to the extent, they seem almost miraculous compared to others, seemingly having nothing to do with the type of stone used.
comparison of trace element concentrations that the stone for the two heads came from the same quarry, and this quarry was in Northern France. Although the specific quarry is unknown, in using local materials to create Chartres Cathedral and the images of the kings that adorn it, the Church identifies itself with the surrounding area and those who rule over it. The stone is not solely stone but a representation of power.

Chartres is larger than Saint Denis, and therefore more stone was required to create the edifice that remains to this day mostly unharmed. Chartres Cathedral is 150,000 cubic yards of definitively Gothic architecture.

\[
\text{(2)} \quad \frac{\text{Salisbury yd}^3}{\text{tons of stone at Salisbury}} = \frac{\text{volume of Chartres yd}^3}{\text{Cs}}
\]

\[
\text{Cs} = \text{tons of stone used in constructing Chartres Cathedral} = \frac{129,000 \text{ yd}^3}{60,000 \text{ tons}} = \frac{150,000 \text{ yd}^3}{\text{Cs}}
\]

\[
\text{Cs} = 69,767 \text{ tons of stone used at Chartres Cathedral}
\]

In using nearly 70,000 tons of stone to rebuild Chartres after it was destroyed in 1194 by fire, the chapter at Chartres created a structure that would dominate the town, and proclaim the authority of the Church over every part of life as funds were directed away from charitable works and put towards paying for labor and purchasing materials. Still today the cathedral towers over the rest of the city, it is the most important building for miles.

To transport all of the stones to the site of the cathedral would have been no easy task. To keep transportation costs down, the stones were cut down at the quarry and brought to the building site by a few methods. At Saint Denis, as previously discussed, the limestone was likely brought by the river. In cutting the stone down before

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227 Lore L Holmes, "Elemental Characterization of Medieval Limestone Sculpture from Parisian and Burgundian Sources." *Journal of Field Archaeology* 13, no. 4 (1986:430)
transportation, both manipulations of the rocks and transport was made easier. By the time Chartres was being built, horse-drawn transport was becoming more common.\(^{228}\) The use of horse-drawn carts gives an explanation for the depiction of the blacksmiths shoeing a horse (Figure 6.22), as not only builders worked with materials. Horse-drawn transport is likely how many of the stones were brought to Chartres, as horses could be controlled in urban areas and using carts would have required less manual labor than carrying stones.

Amiens, as compared to Saint Denis and Chartres, has the most documentation for the sources of its materials, particularly the stone. In the areas surrounding Amiens there was stone; however, it was not suitable for building. Instead, it was chalk which is soft, malleable, and not good for building. This locally available stone was extracted from subterranean quarries to the north of the city.\(^{229}\) As the chalk from these quarries is mediocre, the builders of Amiens chose to go further to get stone for the primary structure. The local quarries, however, were still used in some manner. The local chalk was used as rubble for building. Rubble is used as filling, along with mortar, to fill the gap between the inner and outer facing walls of the cathedral. Since the quarries were located just outside the city, the northern suburbs of Amiens would have been thick with smoke from the kilns used to produce mortar.\(^{230}\)

Amiens’s chapter was lucky to be able to purchase the use of a quarry from the chapter of Saint Martin de Picardy in March of 1235, for 50 pounds of Paris.\(^{231}\) This purchase included the right to quarry for eleven years at the quarries of Beaumetz. The

\(^{228}\) Ball, *Universe of stone*, 176.

\(^{229}\) Murray, *Notre-Dame, Cathedral of Amiens*, 18.

\(^{230}\) Ibid, 21.

quarries of Beaumetz are subterranean, and the entrance is now blocked; however, its approximate whereabouts is still known. The purchasing of rights to use the Beaumetz quarry is documented in a letter concerning the quarries of the canons at Picquigny. The letter states that “we [the chapter of Saint Martin Picquigny] have sold to the fabric of the church of Amiens for the work of said fabric,” ensuring that the sale and use of the quarry by Amiens was official.

The letter also says that Amiens was given the power to license boats and go through the lands of Saint Martin Picquigny and use the waterways to transport the stone. Upon getting the rights to Beaumetz quarry, the Church of Amiens was now able to get stone from approximately eight miles away from the city. The close location and the use of boats, likely barges, would have made the transportation and the costs associated with it lower, rather than having to haul stones over land on carts as was done at Chartres. Other local quarries were also used in the building of Amiens. These quarries were held by local chapters at Croisy, Fontaine-Bonneleau, and Domèliers in the valley of the shallow river of the Selle. The proximity of these many sources of stone was remarkable and would have helped to keep transportation costs low. The grand size and use of four separate quarries used in the creation of Amiens Cathedral speak to how much stone was needed to erect the 260,000 cubic yard cathedral.

\[
(3) \quad \frac{\text{Salisbury yd}^3}{\text{tons of stone at Salisbury}} \cdot \frac{\text{volume of Amiens yd}^3}{\text{As}} = \text{tons of stone used in constructing Amiens Cathedral}
\]

As=\begin{align*}
\frac{129,000 \text{ yd}^3}{60,000 \text{ tons}} \cdot \frac{260,000 \text{ yd}^3}{\text{As}} \\
\text{As}= 120,930 \text{ tons of stone used at Amiens Cathedral}
\end{align*}

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232 Murray, *Notre-Dame, Cathedral of Amiens*, 135. Here can also be found the letter in its entirety and more commentary on it.

233 Ibid, 135.

234 Ibid, 135.
Similarly to Saint Denis and Chartres, Amiens’s massive use of stone, the most of the three, veritably proclaims the importance of this building to the Church and to the community in which the cathedral sat contemporary with its creation. The 120,930 tons of stone, requiring four separate quarries depleted resources that no other structure could use. In the way of using more materials and making the cathedral larger, the chapter and master mason create a piece of architecture that competes with all other cathedrals and churches. Perhaps, the availability of stone inspired the master mason and the chapter of Chartres to create the second largest cathedral in France. Stone was not the only resource needed to build a cathedral and by using more stone to create a larger building, other resources were also utilized.

At Amiens, there are prominent examples of other materials that were used to construct the cathedral instead of stone. Iron was used as structural support in most cathedrals; at Amiens, iron was employed in the tying of piers, rather than wood which was used previously.235 The use of iron adds to the strength of the building and shows the evolution of building techniques. It also means that skilled labor other than just stone masons and carpenters were necessary to build the cathedral; more skilled workers had to be paid. Although iron did become a necessary material for building, it was still used to a lesser extent than stone. The supply of iron for building was in this way less of a concern for building, and its supply did not have to be established even before the building process began.

Wood was also an essential part of building. Scaffolding was required to bring the worker to the level of the building as well as hold up an incomplete structure. Wood was

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235 Ibid, 66.
used in multiple ways on every building site, and like stone was an essential natural resource for building; however, wood is renewable whereas stone is not. At Amiens Cathedral, wooden tie beams are used, and can still be seen, in the westernmost bays of the choir aisles. The wood for these beams, and the scaffolding, that no longer exists, was probably sourced from the deciduous forests, hardwoods that the Picardy region and with the rest of Northern France was covered in. One could not just cut down trees whenever they desired, but rather individuals owned the forests, including the canons of Amiens. Thus, wood would not have been a problematic resource to acquire. The addition to the types of labor required to work with each material, the cost of building increased. The increase in cost was not only due to the increase in materials needed but also in the increase in skilled labor that was required. The necessity of the different types of labor, employment of a large portion of the skilled labor force, is then validated by cathedrals as each laborer is depicted with the material they worked with. At Chartres, including the workers in the artistic program of the cathedral acknowledges their effort.

The many materials used in the construction of cathedrals include both natural and man-made resources. A single cathedral used many of these materials in an area, but in Northern France, the 22 Gothic cathedrals used a massive amount of stone. As found in Chapter 5, the total volume of the 22 cathedrals in Northern France is 3,846,326 cubic yards.

\[236\] Murray, *Notre-Dame, Cathedral of Amiens*, 64.
\[237\] Epstein, *An Economic and Social History of Later Medieval Europe, 1000-1500*, 44.
\[ \text{Ts} = \frac{\text{yards of stone at Salisbury}}{\text{tons of stone used the 22 cathedrals of Northern France}} \]

\[ \frac{129,000 \text{ yd}^3}{60,000 \text{ tons of stone}} = \frac{3,846,326 \text{ yd}^3}{\text{Ts}} \]

\[ \text{Ts} = 1,788,989 \text{ tons of stone used in constructing the 22 Gothic cathedrals of Northern France} \]

The tremendous amount of stone used in Northern France in the 300-year time span of Gothic architecture makes it difficult to believe that many other structures could have been made of the excellent quality building stone that was used in every cathedral. If Amiens alone required four quarries to build, the 22 cathedrals then dominated the market for building material. This usage of stone would have increased the price of stone because of fierce competition over limited resources.\(^{239} \)

Each cathedral points to the importance of the Church in each town by its domination over the market for building resources.

In comparing the amount of stone needed to create Salisbury Cathedral to other cathedrals, there are variables that are not accounted for. The main issue is the increased use of windows as the Gothic period progressed. Construction on Salisbury began in 1220, so it is contemporary with the French Gothic cathedrals, particularly Amiens which was also begun in 1220. The stone to window ratio in each cathedral is different, and thus this could impact the results; glass, however, still was costly, especially when it was made into intricate artistic programs.

The use of stone, iron, and wood would on Saint Denis, Chartres, and Amiens along with the other cathedrals of Northern France, used enormous amounts of resources. The use of these resources, both purposefully expensive as at Saint Denis as well as the

necessary yet still costly materials used up in all cathedral building, speak to the power of the Church in every location to gather the funding to pay for the materials and the materials themselves. The importance of the church in the everyday lives of people and the towns they were in is stressed because in all likelihood other buildings could not have been made. The final domineering scale of the Gothic cathedrals impresses upon the viewer that the resources used created something greater than their parts.
Ch. 8 Conclusion

Saint Denis, Chartres, and Amiens are different from each other, but each of these three cathedrals stands today as testaments to the strength of Gothic construction over time. In the intervening centuries since the Gothic Era, they have survived revolutions and World Wars. Even during their construction, each underwent events that challenged their completion. Their seemingly mysterious construction and complex artistic programs have fascinated visitors since their creation. Constructing a Gothic cathedral in Northern France required the use of scarce resources, particularly financial capital, skilled labor, and material. The commitment of these resources helped to solidify the Church’s dominance and power in a city as the construction of a Gothic cathedral directed these resources away from other building projects and responsibilities to the community the Church held. The depiction of donors, clergy, and workers in the cathedral acknowledges their sacrifices and gifts.

Financing a cathedral drew capital from many sources. Complications during construction often stemmed from financing. The Church itself could only provide so much funding for a structure whose materials were both costly and limited. Other means of financing, including gifts from the aristocracy and laity of various social classes, meant that the construction of the cathedral drew funds away from the city and region as a whole; the expenditure of financial resources on the cathedral meant those funds could not be given or spent elsewhere.

Because we do not know the net worth of wealthy individuals or institutions at the time, it is difficult to understand precisely how much of the finances of the individual, city, or region were pulled into cathedral building, and therefore what percentage of their
wealth was given to the project. Labor and population estimates, however, give a method of comparison to examine the impact of cathedral building in that area. Using Johnson's method to determine the number of laborers required to build each cathedral, and all of the cathedrals in Northern France, a significant use of the population in the area was not found. When looking at the workers who are not included in the estimates, and the need for predominantly skilled labor, a more substantial utilization of the labor force is seen. If the majority of the stonemasons in a city, as well as others who had to be called to the project, were involved in the cathedral’s construction, then other structures could not be built. Not only was the labor not available to build other structures, but the sheer amount of physical materials -such as stone- needed exhausted the region's resources. The construction of Amiens alone took four quarries to gather enough stone,\textsuperscript{240} depleting the surrounding area of this resource.

For the secular donors and religious figures, the gift of their financial resources is recognized through their depiction in the cathedral.\textsuperscript{241} Donors are depicted in signature panels, which include either their coat of arms or the donor’s likeness. The donor demonstrates publically that they are pious in giving to the Church but also generous to the community, as the cathedral was for the entire city. These representations use hierarchical scale to show the relative status of the donor both in society and in the amount they gave. The rose window given by Blanche de Castille and her arms in it are much larger than the guild windows and the images of the guild workers in them. By contrast, at Amiens, the woad merchants are shown not only in sizeable and recognizable

\textsuperscript{240} Murray, \textit{Notre-Dame, Cathedral of Amiens}, 135
\textsuperscript{241} This is not too different from today where large donors to a museum or theater's names are displayed on a list in an entryway. These donors want to give money to institutions they support and this the donor portrays themselves as cultured and wealthy.
relief sculptures on the façade, but also they gave a chapel in the cathedral. The woad merchants’ claimed a social status above those workers in the windows at Chartres. The difference in the resources, and the need to acknowledge these resources, pulled from each source is evident in how they are portrayed.

Depictions of workers also use hierarchical scale. The depictions of workers are much smaller than depictions of donors. At Saint Denis the only representation of craftsmen is through an inscription on the door that that celebrates their work. The craftsmanship symbolizes the craftsmen in this case, however; not everyone could read the inscription. The craftsmen’s work was important to Abbot Suger but the craftsmen did not come close to the status of the King or even Suger. The stone masons, carpenters, and ironworkers at Chartres are only slightly more visible tough their appearance at all reflects a growing need for the recognition. The need for recognition extends to the master masons as well, who at Amiens are prominently included in the center of the labyrinth. The skilled labor that was needed is shown in these depictions as the sacrifice of the workers time and energy on the project needed recognition. The use of skilled labor resources is acknowledged through displaying images of the workers and craftsmen in the cathedrals they made. Today this craftsmanship in the form of the finished cathedral is all that can be seen.

Given more time, and greater availability of data, I would have liked to have explored other questions that appeared in my research. Mainly, I would like compare the costs of stained glass windows, which both became larger and more frequent as the Gothic era advanced, and the stone used to build the majority of the structure. Was glass used more and more because it was less expensive than stone? After all stained glass is
only heated sand, lead, and pigment. Or did the glass cost as much as the stone, or more, because of the craftsmanship needed to create it? Or some combination thereof? The stained glass certainly adds to the otherworldly appearance of a Gothic cathedral, but further research looking for a price comparison between glass and stone could give reason to why more stained glass was used in each cathedral, other than for its decorative qualities. The price for the average guild window at Chartres Cathedral is known, about 30 livres, however in the course of my research I was unable to find any sources, primary or secondary, that indicated the unit cost of the stone that was used to build the cathedral. Finding this information may be possible when looking at archives to which here in the United States I do not have access. Other than the comparison of glass to stone, I would be interested in investigating more of the cathedrals in Northern France, and elsewhere, for both their economic impact and artistic representations.

All of the resources consumed by the cathedral did not necessarily have a negative impact on individuals, cities or the region, although a cathedral's construction precluded other structures from being created. Cathedrals and the relics housed within them drew pilgrims to the city. For Saint Denis, Chartres, and Amiens pilgrimage was a key source of funding, but the continual influx of pilgrims also kept the cities alive. After the destruction of the woad industry, Amiens’ economy was decimated and likely would have been even more so without the cathedral and the pilgrims it drew. The investment of resources in the cathedral has paid off. The work done hundreds of years ago is still recognized by the viewer of a cathedral and the donors’ legacies are maintained. When Googling each city, an image of the Gothic cathedral is what first appears. The legacy of each cathedral and the tourism it brings, is what keeps each of these cities alive.
Bibliography


Appendix 1: List of Figures

Figure 1.1 Exterior view of Chartres Cathedral, Chartres, France, 13th century with later changes
Figure 1.2 Exterior view of Amiens Cathedral, Amiens, France, 13th century with later changes
Figure 4.1 Tree of Jesse window, Basilica de Saint Denis, Saint Denis, France, c.1140
Figure 4.2 Detail of abbot Suger, Tree of Jesse, Basilica de Saint Denis, France, c.1140
Figure 4.3 Current placement of Tree of Jesse window, floor plan of Basilica de Saint Denis, 12th-14th centuries
Figure 4.4 Tomb of King Louis the VI, Basilica de Saint Denis, Saint Denis, France, 19th century
Figure 4.5 Royal Portal at Chartres Cathedral, Chartres, France, c. 1144
Figure 4.6 North rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.7 South rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.8 Coat of Arms of Pierre Mauclerc, South rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.9 The Arms of the Royal House of France, North rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.10, Figure 4.11 The arms of the Royal Houses of France and Castille, North rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.12 Clement Family window, North Transept, Chartres Cathedral, Chartres, France, 13th century
Figure 4.13 Location of Clement family window, floor plan of Chartres Cathedral, France
Figure 4.14 Clement Family Crest, Clement Family window, North Transept, Chartres Cathedral, Chartres, France, 13th century
Figure 4.15 Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.16 Shoemakers working, Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.17 Shoemakers giving a small window with an accompanying inscription, Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.18 The Good Samaritan window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.19 Shoemakers kneeling and holding up a miniature window with inscription, The Good Samaritan window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.20 Flor plan of Amiens Cathedral, arrow to where the woad merchants are shown
Figure 4.21 Woad Merchants, Southern Façade, Amiens Cathedral, Amiens, France, 13th century
Figure 4.22 Tomb of Bishop Evrard de Fouilly, nave of Amiens Cathedral, Amiens, France, 13th century
Figure 5.1 The Gothic cathedrals of Northern France, Map by Phillip Ball in Universe of Stone
Figure 6.1 Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.2 Two men carrying a stone, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.3 Masons constructing a cathedral, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.4 Mason’s tools and templates, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.5 The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century
Figure 6.6 Masons are dressing stones, The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century
Figure 6.7 Masons are seen to be carving statues of kings, The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century
Figure 6.9 St. Savinien and St. Potentien window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.10 Mason working with serrated stone hammer, St. Savinien and St. Potentien window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.11 Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.12 Wheelwright trimming a wheel, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.13 Cooper tightening the hoops on a barrel, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.14 Carpenters strip the bark from a tree-trunk, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.15 Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.16 Carpenters building a house with a wooden framework, Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.17 Carpenters building a house with a wooden framework, Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.18 Carpenters working on their benches Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.19 Passion window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.20 Blacksmiths charging the forge with charcoal, Passion window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.21 Blacksmiths working at their forge, Passion window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.22 Blacksmiths shoeing a horse, Passion window, Chartres Cathedral, Chartres, France, 13th century
Figures 6.23-24 Mason’s marks on the west narthex, Chartres Cathedral, Chartres, France, Romanesque
Figures 6.25-48 Mason’s marks on wall and north tower staircase, Chartres Cathedral, Chartres, France, Romanesque
Figures 6.49-51 Mason’s marks in triforium attic, Chartres Cathedral, Chartres, France, 13th century
Figure 6.52 Labyrinth at Chartres Cathedral, floor of nave, Chartres Cathedral, Chartres, France, 13th
Figure 6.53 Labyrinth at Amiens Cathedral, floor of nave, Amiens Cathedral, Amiens, France, 1288
Figure 6.54 Detail of Labyrinth at Amiens Cathedral, Master Masons and Founding Bishop, floor of nave, Amiens Cathedral, Amiens, France, 1288
Figure 7.1 Head of King David, Metropolitan Museum of Art, 13th century
Figure 7.2 Engraving of by Dom Bernard de Montfaucon, column figure at Saint Denis, 1729
Figure 7.3 Head of King, Metropolitan Museum of Art, 13th century
Figure 7.4 Head of King, Louvre, 13th century
Figure 7.5 Heads of Kings, South Porch at Chartres Cathedral, France, 13th century
Appendix 2: Figures

Figure 1.1 Exterior view of Chartres Cathedral, Chartres, France, 13th century with later changes

Figure 1.2 Exterior view of Amiens Cathedral, Amiens, France, 13th century with later changes
Figure 4.1 Tree of Jesse window, Basilica de Saint Denis, Saint Denis, France, c.1140

Figure 4.2 Detail of abbot Suger, Tree of Jesse, Saint Denis, France, c.1140
Figure 4.3 Current placement of Tree of Jesse window, floor plan of Basilica de Saint Denis, 12th-14th centuries

Figure 4.4 Tomb of King Louis the VI, Basilica de Saint Denis, Saint Denis, France, 19th century

Figure 4.5 Royal Portal at Chartres Cathedral, Chartres, France, c. 1144
Figure 4.5 Royal Portal at Chartres Cathedral, Chartres, France, c. 1144
Figure 4.6 North rose window, Chartres Cathedral, Chartres, France, 13th century

Figure 4.8 Coat of Arms of Pierre Mauclerc, South rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.9 The Arms of the Royal House of France, North rose window, Chartres Cathedral, Chartres, France, 13th century

Figure 4.10, Figure 4.11 The arms of the Royal Houses of France and Castille, North rose window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.12 Clement Family window, North Transept, Chartres Cathedral, Chartres, France, 13th century

Figure 4.13 Location of Clement family window, Chartres Cathedral, France
Figure 4.14 Clement Family Crest, Clement Family window, North Transept, Chartres Cathedral, Chartres, France, 13th century

Figure 4.15 Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.16 Shoemakers working, Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century

Figure 4.17 Shoemakers giving a small window with an accompanying inscription, Life and relics of St Stephen window, Chartres Cathedral, Chartres, France, 13th century
Figure 4.18 The Good Samaritan window, Chartres Cathedral, Chartres, France, 13\textsuperscript{th} century

Figure 4.19 Shoemakers kneeling and holding up a miniature window with inscription, The Good Samaritan window, Chartres Cathedral, Chartres, France, 13\textsuperscript{th} century
Figure 4.20 Flor plan of Amiens Cathedral, arrow to where the woad merchants are shown

Figure 4.21 Woad Merchants, Southern Façade, Amiens Cathedral, Amiens, France, 13th century
Figure 4.22 Tomb of Bishop Evrard de Fouilly, nave of Amiens Cathedral, Amiens, France, 13th century

Figure 5.1 The Gothic cathedrals of Northern France, Map by Phillip Ball in *Universe of Stone*, page 13
Figure 6.1 Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.2 Two men carrying a stone, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.3 Masons constructing a cathedral, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.4 Mason’s tools and templates, Story of St. Sylvester window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.5 The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century

Figure 6.6 Masons are dressing stones, The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century
Figure 6.7 Masons are seen to be carving statues of kings, The Story and the Life of St. Cheron, Chartres Cathedral, Chartres, France, 13th century

Figure 6.9 St. Savinien and St. Potentien window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.10 Mason working with serrated stone hammer, St. Savinien and St. Potentien window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.11 Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.12 Wheelwright trimming a wheel, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.13 Cooper tightening the hoops on a barrel, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.14 Carpenters strip the bark from a tree-trunk, Noah and the Flood window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.15 Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.16 Carpenters building a house with a wooden framework, Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.17 Carpenters building a house with a wooden framework, Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.18 Carpenters working on their benches Life of St. Julien the Hospitaller window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.19 Passion window, Chartres Cathedral, Chartres, France, 13th century
Figure 6.20 Blacksmiths charging the forge with charcoal, Passion window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.21 Blacksmiths working at their forge, Passion window, Chartres Cathedral, Chartres, France, 13th century

Figure 6.22 Blacksmiths shoeing a horse, Passion window, Chartres Cathedral, Chartres, France, 13th century
Figures 6.23-24 Mason’s marks on the west narthex, Chartres Cathedral, Chartres, France, Romanesque

Figures 6.25-48 Mason’s marks on wall and north tower staircase, Chartres Cathedral, Chartres, France, Romanesque

Figures 6.49-51 Mason’s marks in triforium attic, Chartres Cathedral, Chartres, France, 13th century
Figure 6.52 Labyrinth at Chartres Cathedral, floor of nave, Chartres Cathedral, Chartres, France, 13th

Figure 6.53 Labyrinth at Amiens Cathedral, floor of nave, Amiens Cathedral, Amiens, France, 1288
Figure 6.54 Detail of Labyrinth at Amiens Cathedral, Master Masons and Founding Bishop, floor of nave, Amiens Cathedral, Amiens, France, 1288

Figure 7.1 Head of King David, Metropolitan Museum of Art, 13th century

Figure 7.2 Engraving of by Dom Bernard de Montfaucon, column figure at Saint Denis, 1729
Figure 7.3 Head of King, Metropolitan Museum of Art, 13th century

Figure 7.4 Head of King, Louvre, 13th century

Figure 7.5 Heads of Kings, South Porch at Chartres Cathedral, France, 13th century