GOTHIC ARCHITECTURE

by Robert Branner

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For nearly four hundred years Gothic style dominated the architecture of Western Europe. Originating in northern France in the twelfth century, it spread rapidly across England and the Continent, invaded the old Viking empire of Scandinavia, confronted the Byzantine provinces of Central Europe and even made appearances, under the aegis of crusader and explorer, in the Near East and the Americas. By 1400 Gothic had become the universal style of building in the Western world, and it subsumed many types of structures. Gothic architects designed town halls, royal palaces, courthouses and hospitals (plates 99, 103, 104), they fortified cities and castles to defend lands against invasion, and they created bridges and hostelries to facilitate communication (plates 101, 102). But it was in the service of the Church that the Gothic style attained its most meaningful expression, for the Church was the most prolific builder of the Middle Ages, providing the widest scope for the development of architectural ideas and calling forth the best talents.

The transcendental character of medieval religious architecture was given a special form in the Gothic church (plate 1). Medieval man considered himself but an imperfect "refraction" of the

Divine Light of God, Whose temple on earth, according to the text of the dedication ritual, stood for the Heavenly City of Jerusalem. The Gothic interpretation of this point of view was a monument that seems to dwarf the man who enters it, for space, light, structure and the plastic effects of the masonry are organized to produce a visionary scale. There is no fixed set of proportions in the parts, such as can be developed from the diameter of a Greek column, and no standard relationship between solid and void. The result is a distortion: large as it may be in real size, the Gothic church becomes prodigiously vast in appearance. Such a visionary character expressed not only the physical and spiritual needs of the Church, but also the general attitude of the people and the aspirations of the individual patron and architect.

Gothic architecture evolved at a time of profound social and economic change in Western Europe. In the late eleventh and twelfth centuries trade and industry were revived, particularly in northern Italy and Flanders, and a lively commerce brought about better communications, not only between neighboring towns but also between far-distant regions. Merchants from the north and south met in central Champagne, for instance, at international fairs that were held at regular intervals throughout the year. Politically, the twelfth century was also the time of the expansion and consolidation of the State. Louis VI of France (1108-37) forced his recalcitrant vassals to acknowledge the royal authority and thereby laid the foundations of the kingdom that was to flourish in the next century, and only a little later Henry II Plantagenet brought order and unity to England and to his recently acquired domains on the Continent. Concurrently with these political and economic developments, a powerful new intellectual movement arose that was stimulated by the translation of ancient authors from Greek and Arabic into Latin, and a new literature, both lyric and epic, came into being. The heroic *chanson de geste*, in particular, gave the people at large a sense of their common European heritage. As a result of all these developments, the isolationism of the earlier feudal era gave way to a new, cosmopolitan world.

Gothic architecture both contributed to these changes and was affected by them. The dissemination of the style from its birthplace in the Ile-de-France, for instance—an important phenomenon which we will examine in detail below—was not unlike the exportation of an industrial technique. And in the thirteenth century, such an exportation easily reached the far

corners of the Western world along the routes of commerce. But architecture is more than simply a technique. It has a permanence of its own, and it conditions the minds as well as the footsteps of the people who make use of it. Gothic was not dark, massive, and contained, like the older Romanesque style, but light, open and aerial, and its appearance in all parts of Europe had an enduring effect on the outlook of succeeding generations.

The Gothic style was essentially urban (plate 2). The cathedrals of course were all situated in towns, and most monasteries, with the notable exception of those of the ascetic Cistercians, had by the twelfth century become centers of communities which possessed many of the functions of civic life. The cathedral or abbey church was the edifice in which the populace congregated on major feast days; it saw the start and the end of splendid and colorful processions, and it housed the earliest dramatic performances or lent its façade to them like stage scenery. The abbey traditionally comprised at least a cloister, a dormitory and a refectory for the monks, but the cathedral also lay amid a complex of buildings, the bishop's palace, a cloister and the houses of the canons, a school, a prison and a hospital. And it dominated them all, rising high above the town like a marker to be seen from afar.

The architectural needs of the Church were expressed in both physical and iconographical terms. Like its Romanesque predecessor, the Gothic cathedral was eminently adaptable (plates 1a, 16a). It could be planned larger or smaller, longer or shorter, with or without transepts and ambulatory, according to the traditions and desires of each community. It had no predetermined proportions or number of parts, like the Roman temple or the centrally planned church of the Renaissance. Its social and liturgical obligations demanded a main altar at the end of a choir where the chapter and the various dignitaries would be seated, a number of minor altars, and an area for processions within the body of the edifice. There were rarely more than about two hundred persons participating in the service, however, a number that even the smallest Gothic cathedral could easily contain. The rest of the building simply supplemented this core and provided space for the laity, who were not permitted to enter the choir or sanctuary. Indeed, after the middle of the thirteenth century, the choir was usually isolated by a monumental screen that effectively prevented laymen from even seeing the service, and special devotional books came into vogue to

supply the congregation with suitable subjects of meditation during the mass.

The more worldly and critical outlook of the twelfth century had an effect on the physical character of the Gothic church, as can be seen for example in the new approach to the cult of relics. Relics continued to be venerated, as they had been in the past, but they ceased to be the object of blind devotion, and they were transferred from the dim recesses of a crypt to bright, bejeweled caskets that were set upon stands behind the altar. The crypt, which had raised the sanctuary to a higher level than the nave, consequently passed out of use and the pavement could now be at a uniform level in all parts of the building. This was symptomatic of other changes tending toward unity of design. The ambulatory and radiating chapels around the sanctuary were inherited from the Romanesque period, but now the chapels were placed next to one another, providing an opportunity to integrate the minor volumes of the monument, and although the transept continued to be employed, it lost much of its architectural independence and was subordinated to the over-all scheme. In the largest sense of the phrase, the Gothic church emphasized the totality, rather than the complexity, of the concept of the Heavenly Jerusalem.

The program of the Gothic church fulfilled iconographical as well as social requirements. The intellectual centers of the Middle Ages had long been associated with the Church, and the tradition of learning that had been preserved in monastic and cathedral schools gave rise, in the late twelfth and thirteenth centuries, to universities such as Paris and Oxford. Such an association obviously had an effect upon the arts, which were still primarily religious in nature. Scholarly clerics, for instance, were delegated to devise the intricate, theological programs for the sculpture and the stained glass that adorned the church. The relationship is thought by some historians to have been even closer, for scholastic thinking first took shape in Paris early in the twelfth century, at the very time that Gothic architecture came into being there.[1] It is possible that architects, who were "abstract" thinkers in their own right, may occasionally have absorbed some of the habits of thought of the philosophers. In the absence of written documents, however, it cannot be proved whether these habits were consistently embodied in the design of the buildings.

Most of the symbolic interpretations of Gothic churches were

written after the buildings had been erected, and therefore do not tell us what the original intentions of the patrons and architects were. Abbot Suger, for instance, whose church at St. Denis is the first Gothic edifice that can be dated precisely, was among the most articulate and interested patrons of the entire Middle Ages. In his two books on the administration of the abbey and the consecration of the church, he dwells on financial matters, on the ceremonies and the prelates who participated in them, and on the various metrical inscriptions he composed for the building and the stained glass. But he says almost nothing about the form of the edifice and its meaning to him, and if he equates the columns of the chevet with the Apostles, it is probably because they both happen to number twelve. In one place only does he seem to have invested the church with a specific and identifiable meaning, and that is in the façade, which was dedicated in 1140 (plate 3). Suger had worked closely with Louis VI in establishing the French State, and he advanced the idea that the Church was the spiritual defender of the realm. This had a particular importance for the abbey of St. Denis, which was not only the traditional burial ground of the Kings of France but also the holder of the *regalia*–the crown, tunic, sword and spurs that were employed in the coronation service. Suger seems to have embodied the concept of *defensor regni* in the façade, which is massive and is dominated by a crenelated parapet recalling the fortifications of a castle (plate 3).[2]

The Gothic cathedral forms a total experience that we can still understand today. The Cathedral of Amiens serves as an example. Begun in 1220 by the architect Robert de Luzarches, the façade of Amiens is dominated, like St. Denis, by two towers (plate 4). The buttresses run down to the level of the portals, dividing the surface into three vertical "bays," which correspond to the three aisles of the nave that lie behind it. The bays are intersected and tied together by two horizontal galleries and by the zigzag of the gables. The height of the side aisles is marked by the arches above and behind the gables–not very clearly or organically, it must be admitted–but the peak of the main vaults is filled by the great "eye," the rose window. To either side of the rose are pairs of arches, and only above this level were the towers originally meant to rise free and unimpeded. The regular vertical and horizontal divisions are not unlike those of St. Denis and form the so-called harmonic façade that is typical of French Gothic design.

The façade of Amiens is covered with decorative sculpture–blind arcades, pinnacles with crockets, and cusps. But more important is the statuary. Just below the rose is the Gallery of the Kings, representing the kings of the Old Testament, and perhaps also at the same time, the spiritual ancestors of the medieval Kings of France. The portals contain a more elaborate iconographical program, however, for in one sense they were considered the gates to Paradise, and in another they formed the area where the doctrines of the Church could best be displayed to the people. Each portal is dedicated to a specific theme–the central one to the Last Judgment, the one on the right to the Virgin and the one on the left to a former bishop of Amiens and a patron saint of the Cathedral, Saint Firmin. These last two themes are repeated on the transept portals, Saint Firmin to the north and the Virgin to the south. On the west façade, each tympanum is embedded in an array of sculpted archivolts, which represent angels, clerics, and subjects from the Bible, such as the Wise and Foolish Virgins. Each archivolt in turn surmounts the statue of a saint, angel, or prophet, beneath which are found reliefs of the Virtues and Vices, the Signs of the Zodiac, and the Labors of the Months. The themes are interrelated vertically, horizontally, and sometimes across the portal, from one side to the other. Thus the façade of Amiens serves both as a monumental frontispiece for the Cathedral and as the bearer of a complex statement of theological doctrine.

Most of all, the portals are wide and welcoming gates which draw the observer through the façade and into the building behind them. As we pass through them, we see the whole length of the monument laid out before us, the nave, the crossing and the chevet, which terminates in the hemicycle (plate 5). The axiality of the tall, narrow volume focuses our attention on the distant sanctuary. But we are not forcibly pulled to the east, as is the case in a Baroque church, since the lighting is evenly diffused from one end to the other (despite the loss of the stained glass), and since the spaces of the transept, which we cannot at once see completely, invite us to turn aside midway down the building (plate 5a). Furthermore, the sanctuary is backed by an ambulatory, which is lighted by the windows of the radiating chapels that are barely visible from the west. The spaces of Amiens do not form a single whole, but rather a series of parts subordinated to the over-all concept of a cruciform, basilican format. The interruption of the crossing provides a rhythmical

interlude between the nave and the chevet, and the curve of the hemicycle brings the space to a conclusion.

On the exterior, the radiating chapels come into their own (plate 6). Elsewhere the plan of the Cathedral is rectilinear, but here, on the great curve of the chevet, the sharp faces of the polygonal chapels undulate in and out, pushing outward between the buttresses and echoing at smaller scale the dominating shape of the hemicycle. The exterior of Amiens is not a simple envelope that seems to transform the volumes into a solid mass, however. It is rather a half-open, half-closed composition of flying buttresses, pinnacles, and pyramidal roofs. If the interior volumes have finite limits, the exterior massing has no distinct beginning or end. The chevet is similar to the transept and to the nave in this respect, but it is only the flat terminals, with their portals, that provide access to the interior. The towers on the west façade, rising above the body of the church, indicate that the main entrance to the Cathedral will be found directly below.

It was Robert de Luzarches, not the bishop or the dean of the chapter, who designed the first part of Amiens to be erected, but both the patron and the architect collaborated to produce the building. One provided the specific program of the monument and the funds to build it, while the other formulated the design in detail and directed the construction. Many medieval patrons were gifted in architectural matters and could give precise directions to the architect, as well as appreciate the subtleties of his work. But their primary function was fund-raising and the administration of the project.

Building funds were assembled in several ways. Abbot Suger recounts how, when he began to construct St. Denis, he first inspected the abbey lands and put them in order, so as to insure a stable income for the work. By far the great majority of Gothic monuments was undertaken because of fire, and the patron therefore had no time to prepare the project properly. He sometimes directed certain Church revenues to the work for a limited number of years, generally three or five, but most of the money had to be sought among the nobility and the people at large. A disaster almost always brought immediate contributions from many persons, some of whom even joined the labor force for a short while as a symbolic statement of their attitude. But after the initial surge of piety had subsided, other means had to be found. The church relics would be sent around the countryside to raise interest in the project, and confraternities would be

formed to nurture it by regular donations of many small sums. As a last resort, the pope would be requested to grant an indulgence to all those contributing to the work. Careful estimates of cost and time were difficult to make, however, and none but the most rudimentary of budgets could be established. As is still the case today, moreover, buildings must often have turned out to be more expensive than was anticipated.

The considerable size of many Gothic monuments meant that they were expensive to construct, and size sometimes also delayed the completion of the work (plate 7). But it is misleading to think that the great cathedrals took centuries to complete, for every major project was organized into sections or campaigns that were undertaken one at a time in a regular and predictable manner. When local interest was high and funds available, work was often quite rapid. Chartres, for example, was built in exactly twenty-seven years (1194–1221), and only minor parts of the exterior, such as belfries and spires, were not finished. Bourges was put up in two massive campaigns, the first from 1195 to 1214 and the second from about 1225 to about 1255; funds for the latter were probably assembled during the intervening years (plate 8). If financial problems arose during this interval, they could of course delay the work, and if the interest of the public and the patrons had waned in the meantime, the later campaigns might be put off for decades or even centuries. This explains the difference in style among the various parts of many medieval edifices, for each period built in the current style, and very few architects were disturbed by the juxtaposition of old and new.

The ultimate responsibility for the design and execution naturally lay with the professional architect. He was called a cementer, stonecutter or simply a master mason, epithets that reveal his intimate and enduring relation to the crafts. Since there were no schools of architecture, the mason had to learn his craft by participation, but he seems to have had a fairly thorough "course of studies" all the same. He was first an apprentice for four or five years, then a journeyman working in another shop for a year or more, and finally he became a master. Peter Parler, who worked at Prague in the mid-fourteenth century (plate 92), seems to have been a master by the time he was twenty-three, but one has the impression that his was a brilliant career and that the majority of Gothic architects were a good bit older and more experienced before they became directors of their own shops.

By the middle of the thirteenth century, the master mason had clearly become the head of his profession. He might take several jobs at the same time, like Pierre de Montreuil, who worked on Notre Dame in Paris and at the abbeys of St. Germain des Prés and St. Denis. He might also, like Pierre, own his own house and even some of the quarries from which he would then, in his capacity as architect, purchase the stone for a building. Most revealing of his new status, however, was the acid comment of the conservative Dominican friar, Nicolas de Biard, who wrote, "The master masons, with rod and glove in hand, say to the others, 'Cut it for me here,' and do none of the work themselves, although they receive the greater pay." This indicates that the Gothic architect had arrived at a level far above that of his Romanesque predecessor. From this time on he usually could afford a tombstone engraved with his name, like Hugh Libergier of Reims (d. 1263) (plate 9). Perhaps more important, the architect's work began to assume an identity of its own in the minds of his contemporaries. The names and activities of the successive architects who worked on the cathedrals of Reims and Amiens, for instance, were preserved for more than three generations and then inscribed in mosaic-like labyrinths laid out on the pavements of the naves (plate 10).

In Germany a veritable "cult" of the master masons developed in the fourteenth and fifteenth centuries, and the craft was organized into what must be called a guild. There were four major shops or lodges conferring the rank of master—at Strasbourg, Vienna, Cologne and Prague—and rules and regulations for the craft were drawn up and rigorously followed. One of the provisions was the prohibition against altering the work of a previous master in any way. At this time, economic problems sharpened by wars and plagues reduced the opportunity to build, and the requirements for mastership were consequently tightened in order to preserve the status quo. Only the son of a master could become a master, and the number of apprentices each could have was limited. This situation probably explains the widely held theory of the "secrecy" of the medieval mason, who was allowed to teach his craft only to a bonafide apprentice.[3] But such secrecy, which was first broken by Matthias Roritzer in 1486, seems to have been a late, and in some ways, a peculiarly German phenomenon. In Spain and Italy masonry was not organized in this manner; and in England and France, from the thirteenth century on, the craft was dominated, but not directed, by Offices of the King's Works.

One of the most interesting architects of the early thirteenth century was Villard de Honnecourt, a Picard from northeastern France. While no monuments can definitely be attributed to him, he has left us a manuscript, the only one of its kind prior to the fifteenth century to have survived (plates 11, 12, 13).[4] Villard seems to have begun the manuscript as a sketchbook and then to have turned it into a manual for the guidance of apprentices, adding explanatory phrases and directions to the drawings. Along with ground plans, elevations, and views of monuments, he sketched church furnishings, such as choir stalls, a lectern, and a great clock case. He also copied sculpture and perhaps even some images from stained glass, and he was fascinated by nature, drawing pictures of insects and animals. He included sections on roof-making, on mechanical devices—a perpetual-motion machine, saws, and levers—and of course one on masonry procedures. Thus the manual is a kind of summation, showing us how important the medieval master mason thought it was to have examples or models to follow, and also enumerating the many areas in which he might be expected to function competently.

One of the major responsibilities of the Gothic architect was the structure of the building. Whether it was large or small, simple or complex, the edifice had to stand, or it would serve no purpose whatever. Our clearest insight into Gothic solutions to structural problems is provided by the controversy that arose in 1386 at the Cathedral of Milan (plate 88).[5] The Milanese had begun an enormous church that seems shortly to have gotten out of hand. In their unfamiliarity with building on such a scale and in such a style, they were uncertain how big to make the piers or what form to give them. But most important of all, they could not decide how tall the piers, aisles, and vaults of the nave should be. They called upon experienced masters from France and Germany to aid them, and the visiting foreigners attempted to answer their questions by proposing that the shape of the nave should be determined by a simple geometrical figure. But each proposed a different one—an equilateral triangle, a series of squares, of rectangles, and a combination of these. The discussion, which lasted until 1401, brings into focus the principles of design employed north of the Alps in the fourteenth century. Proportion was almost an incidental question; what mattered was the over-all, abstract scheme or figure of the edifice, which the northerners called the "science" of building and which they

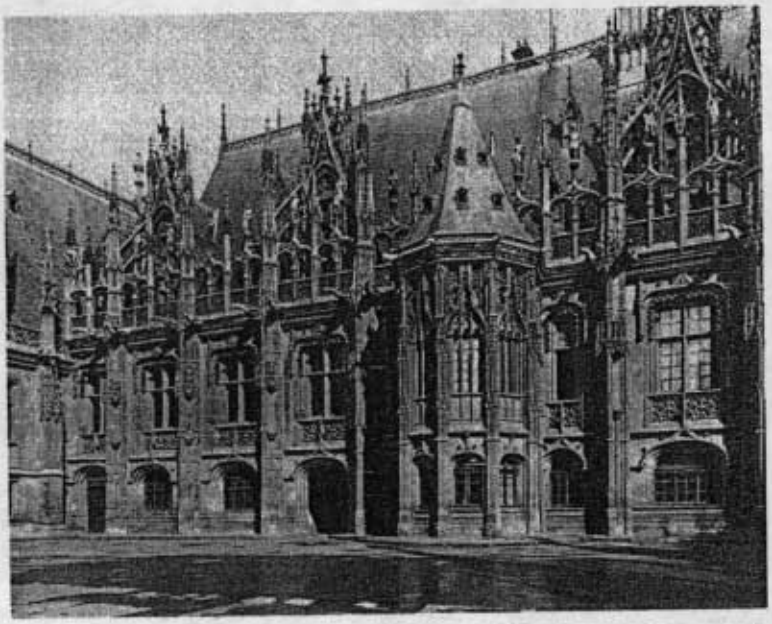
thought helped to solve problems of stability. The fact that each master proposed a different solution indicates that these were not based on accurate statical considerations but were merely rules-of-thumb found to have been successful by generations of builders. Rodrigo Gil de Hontañon, the late Gothic architect of Salamanca Cathedral (plate 95), understood this approach quite clearly when he wrote that no master "appears to have established a rule verified by other than his own judgment."[6]

This is in marked contrast to the analysis of Gothic structure made only a century ago. For Viollet-le-Duc, the dean of nineteenth-century art historians, for example, the ribbed vault commanded the form and disposition of all the other members of the edifice, each of which was shaped with a view toward its function as a support; and the most important structural devices, in addition to the ribbed vault, were the pointed arch and the flying buttress. This theory was purely mechanical, however, and it also overlooked several historical facts. The flying buttress was not employed in all Gothic buildings—it was almost completely eschewed in England, for instance—and while the pointed arch was unquestionably useful in a Gothic structure, it was also employed in many Romanesque buildings, notably in Burgundy. And as the documents themselves indicate, the attempts of Gothic architects to make statical calculations in the modern sense were little better than infantile. More than a few churches collapsed during or shortly after construction, and those that stood were probably "overbuilt," with more masonry than a modern engineer would consider necessary. Gothic architects profited, not from their failures, but from their successes. On the other hand, it is clear on all counts that the medieval mason *was* concerned with statics in his own way. The evolution of structural schemes in the course of the twelfth century is in a certain sense like the development of a geometrical theorem, as Henri Focillon once said,[7] and we must therefore make a distinction between structural realities as they are now understood, and what the Gothic masters thought they were doing.

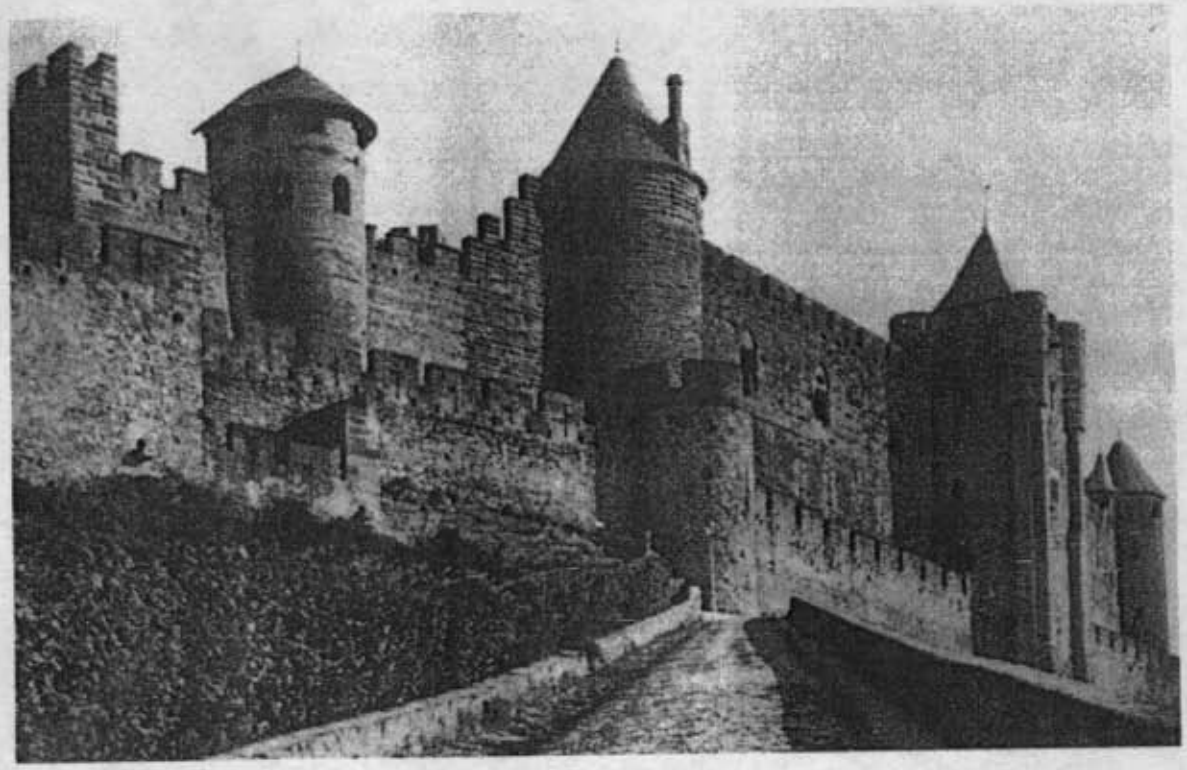
EARLY GOTHIC

Structure was, of course, closely related to questions of space, light, and plastic effects in the Gothic period, but there was no literary language in which these aspects of architecture could be discussed. We learn about Abbot Suger's theory of light, for instance, from his theological statements. Based upon the Neo-

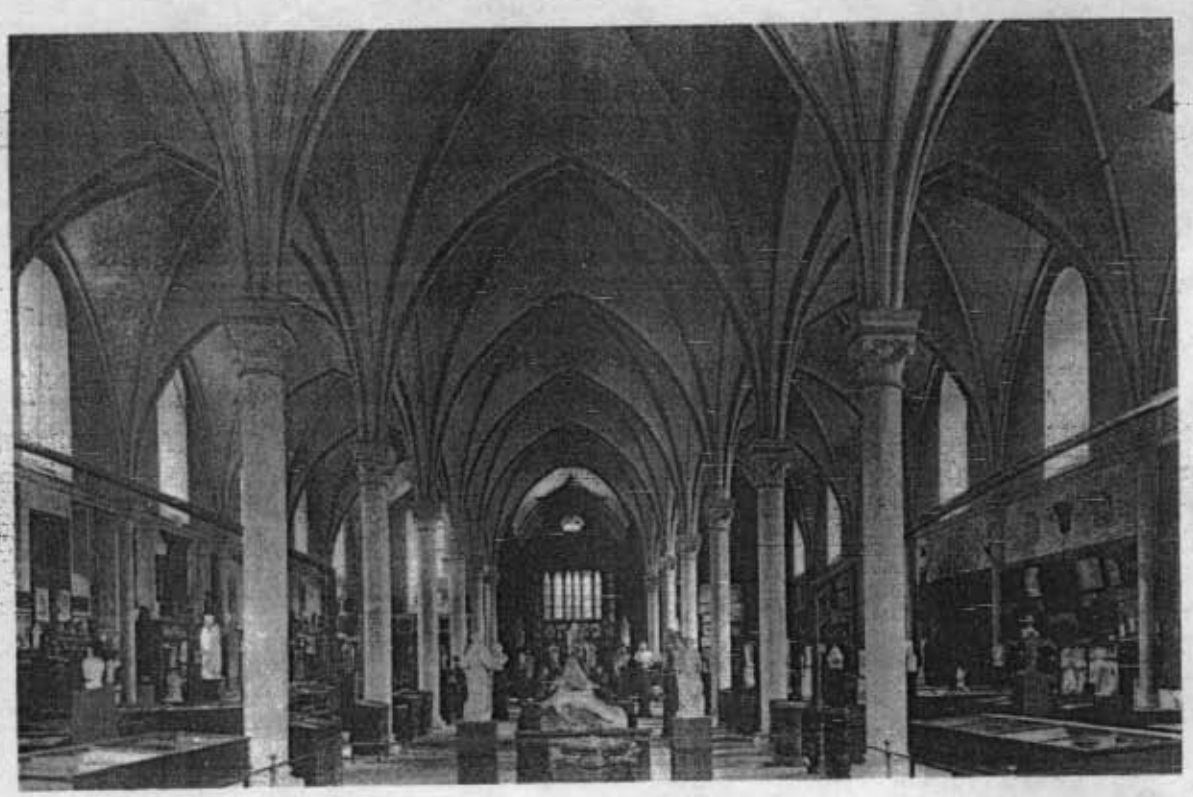
98. London, Westminster Abbey. Chapel of Henry VII, 1502–20.



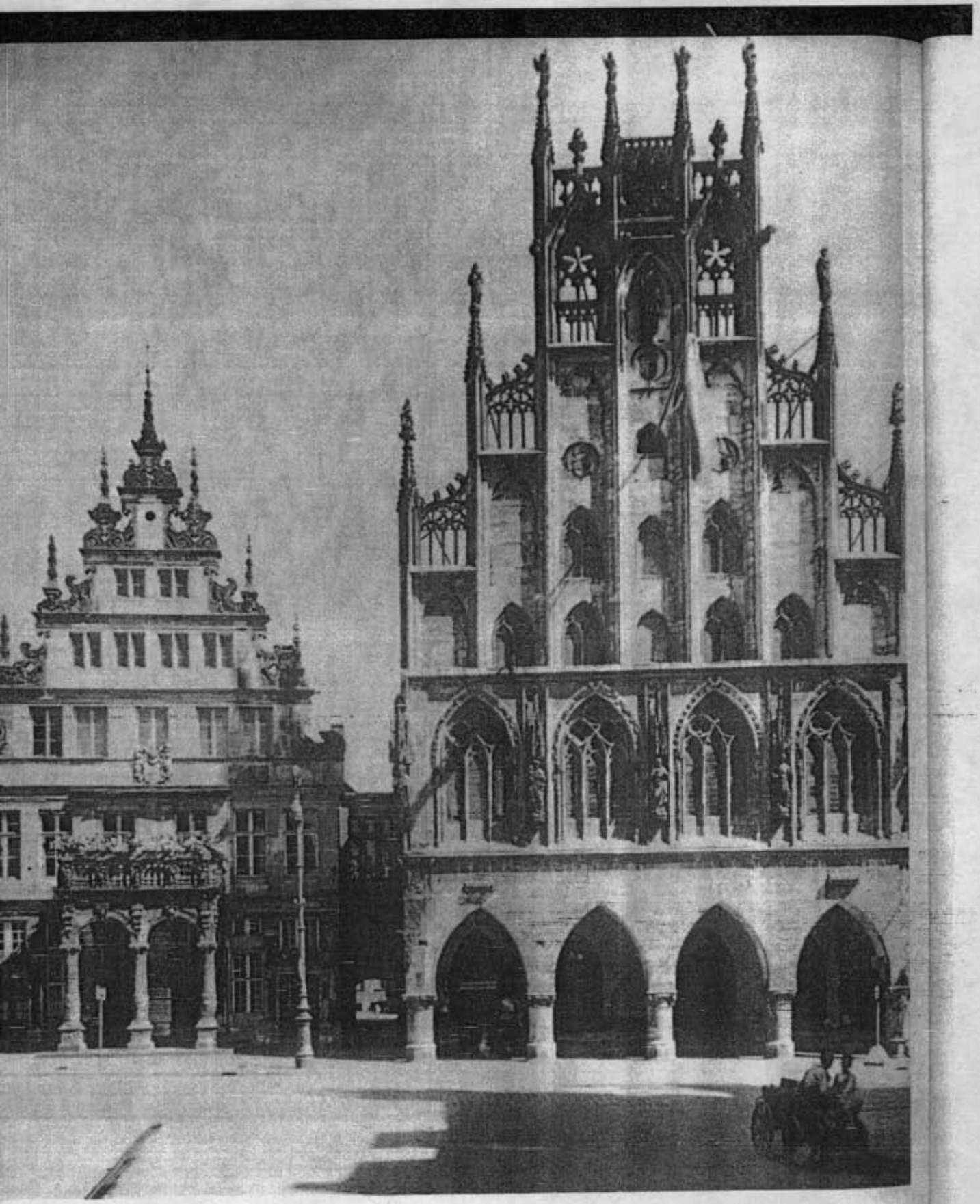
99. Rouen, Palais de Justice, begun 1482. Courtyard.



102. Carcassonne, thirteenth century. City walls.

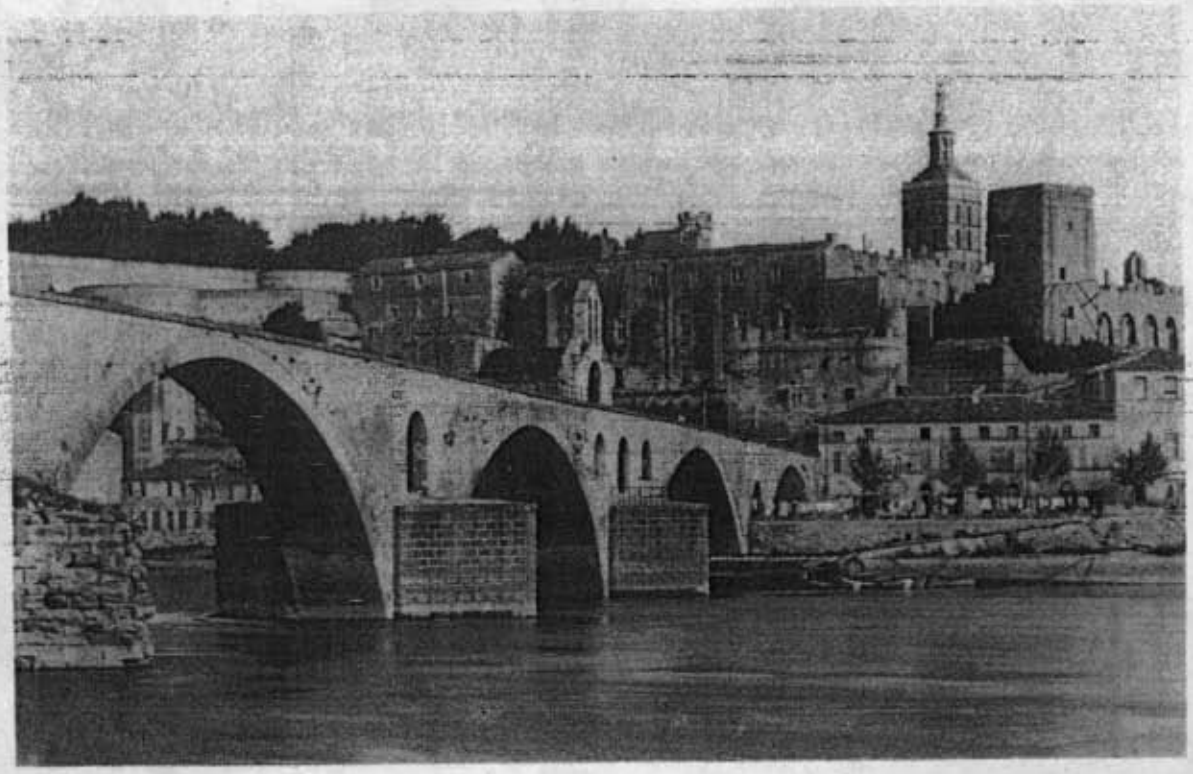


103. Angers, Hospital of St. Jean, 1170's. Interior.

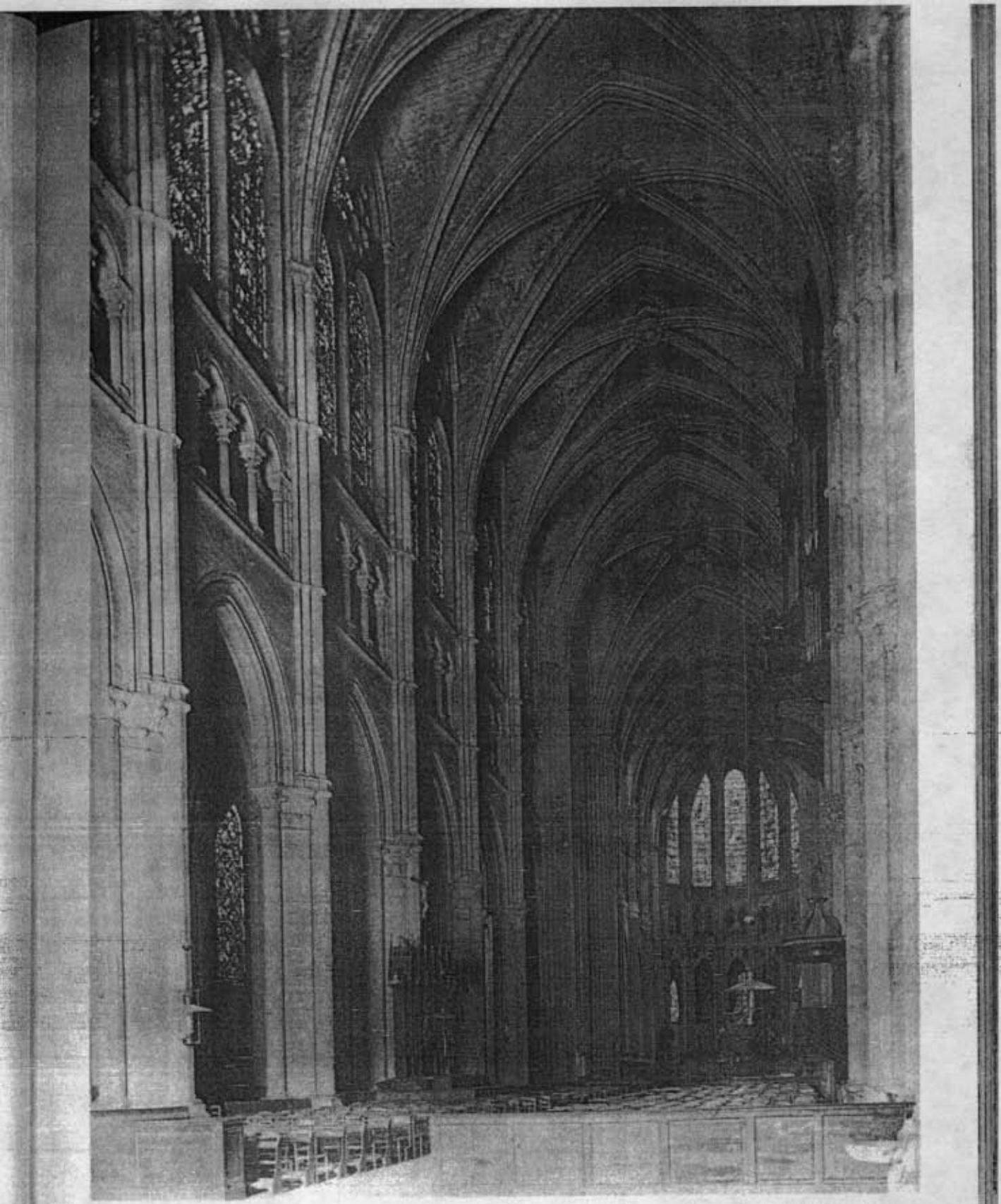


104. Münster, Town Hall, mid-fourteenth century. Façade.

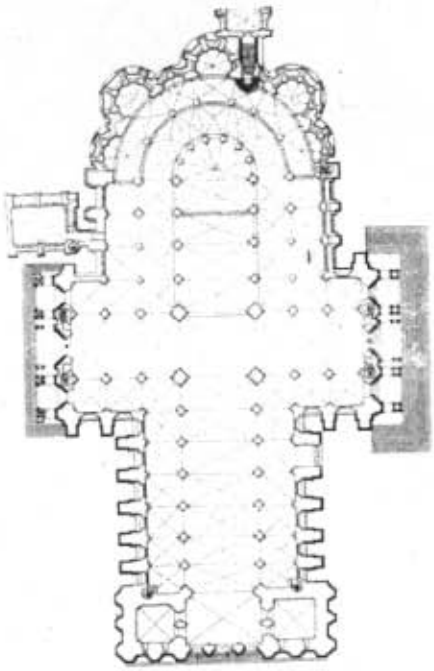
100. Segovia, Santa Cruz, begun 1482. Portal.



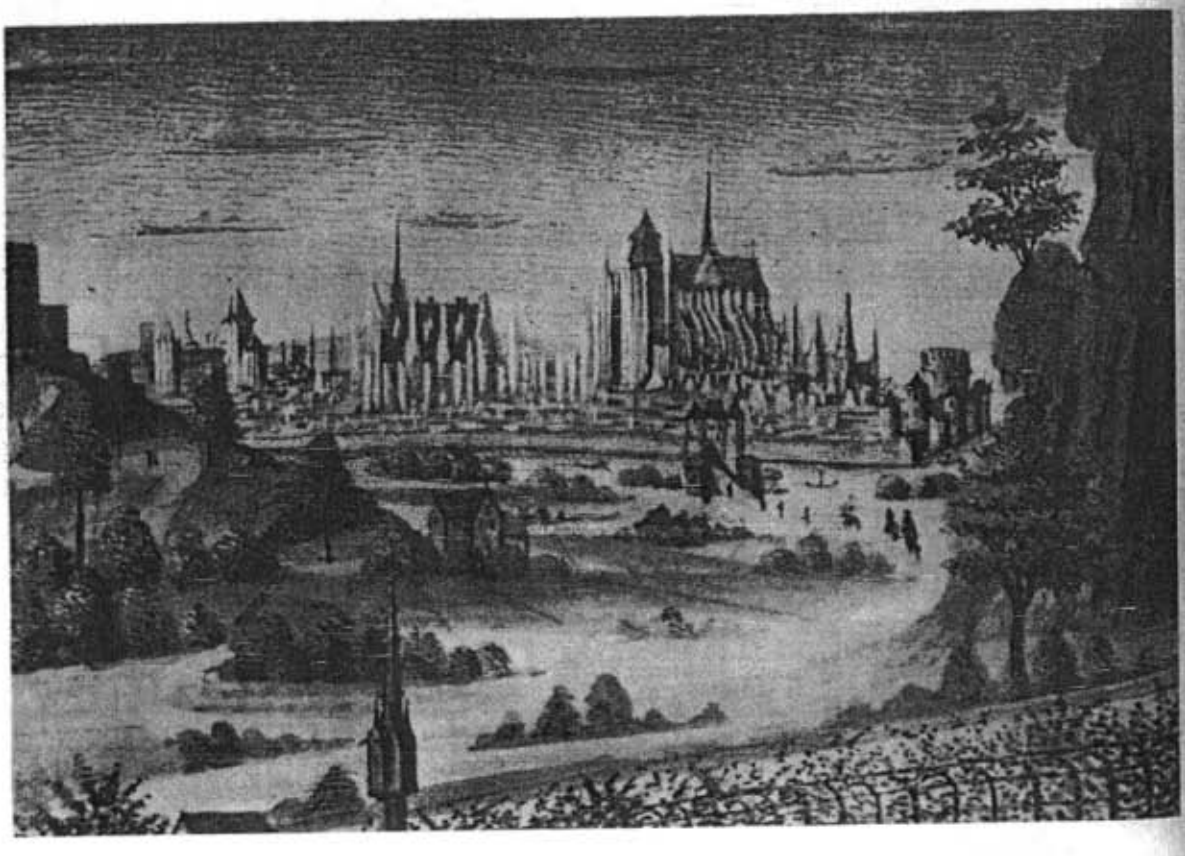
101. Avignon, Pont St. Bénézit, late twelfth century.



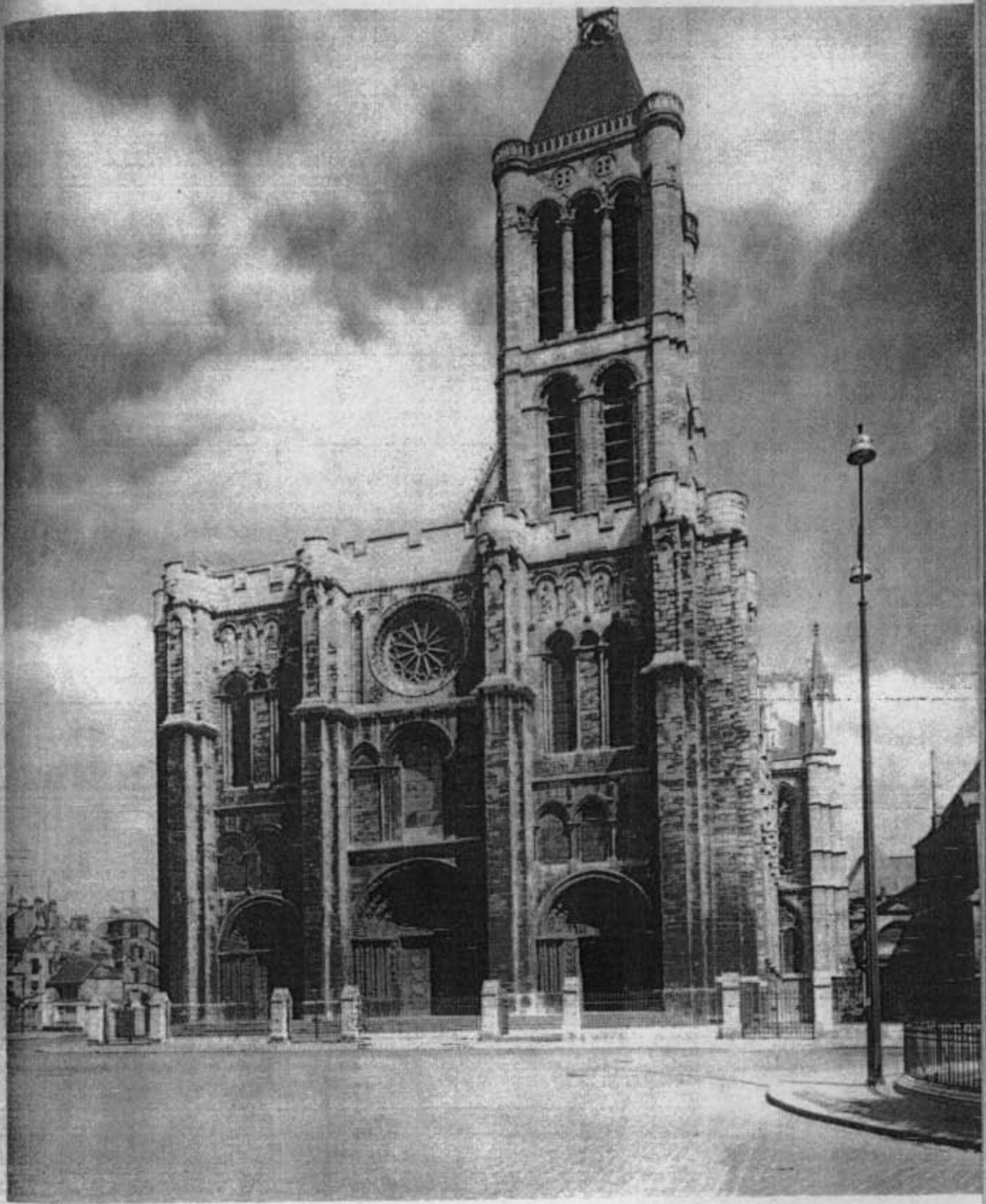
1. Chartres. Cathedral. 1194-1221. Nave.



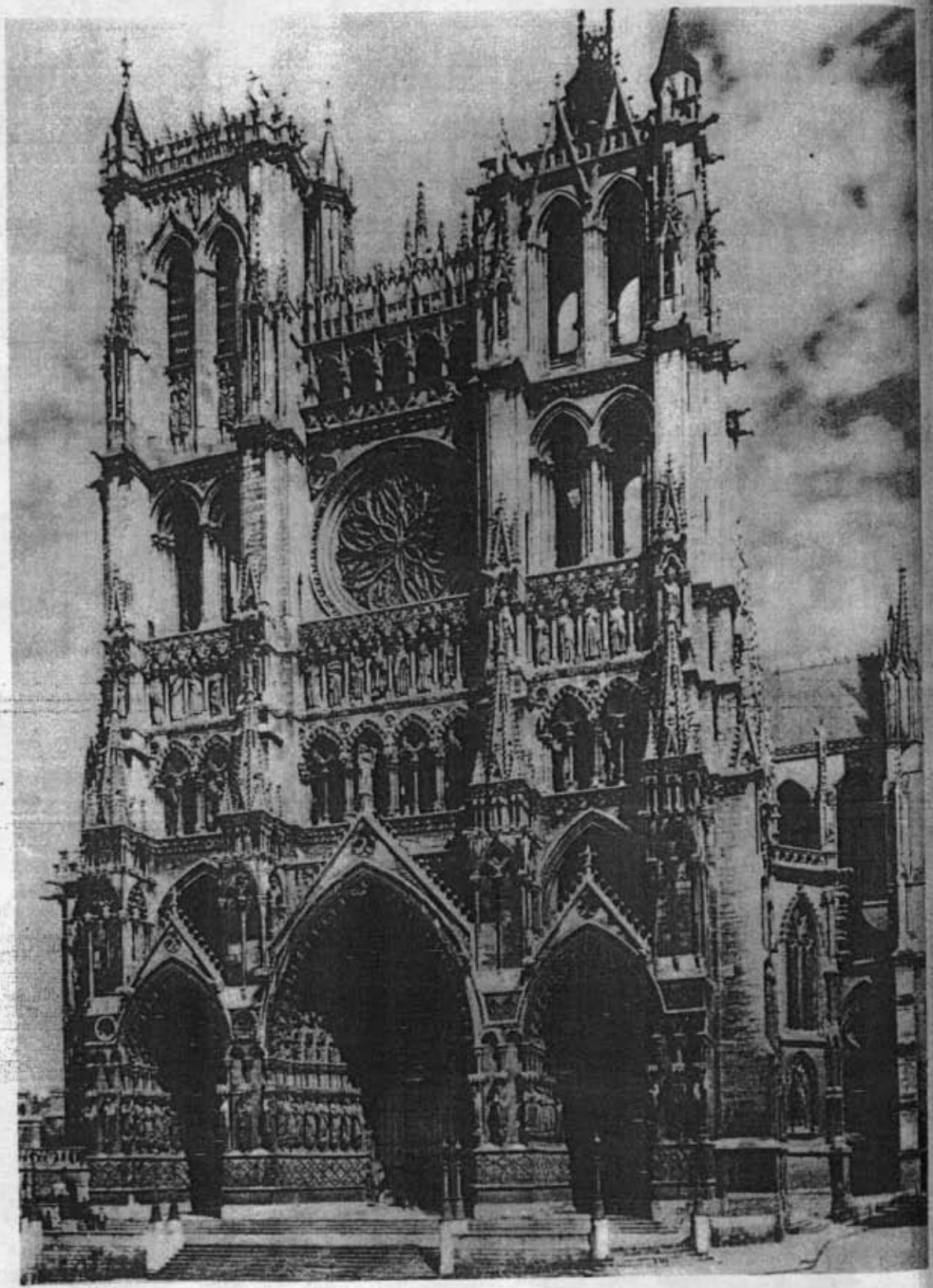
1a. *Chartres, Cathedral. Plan*



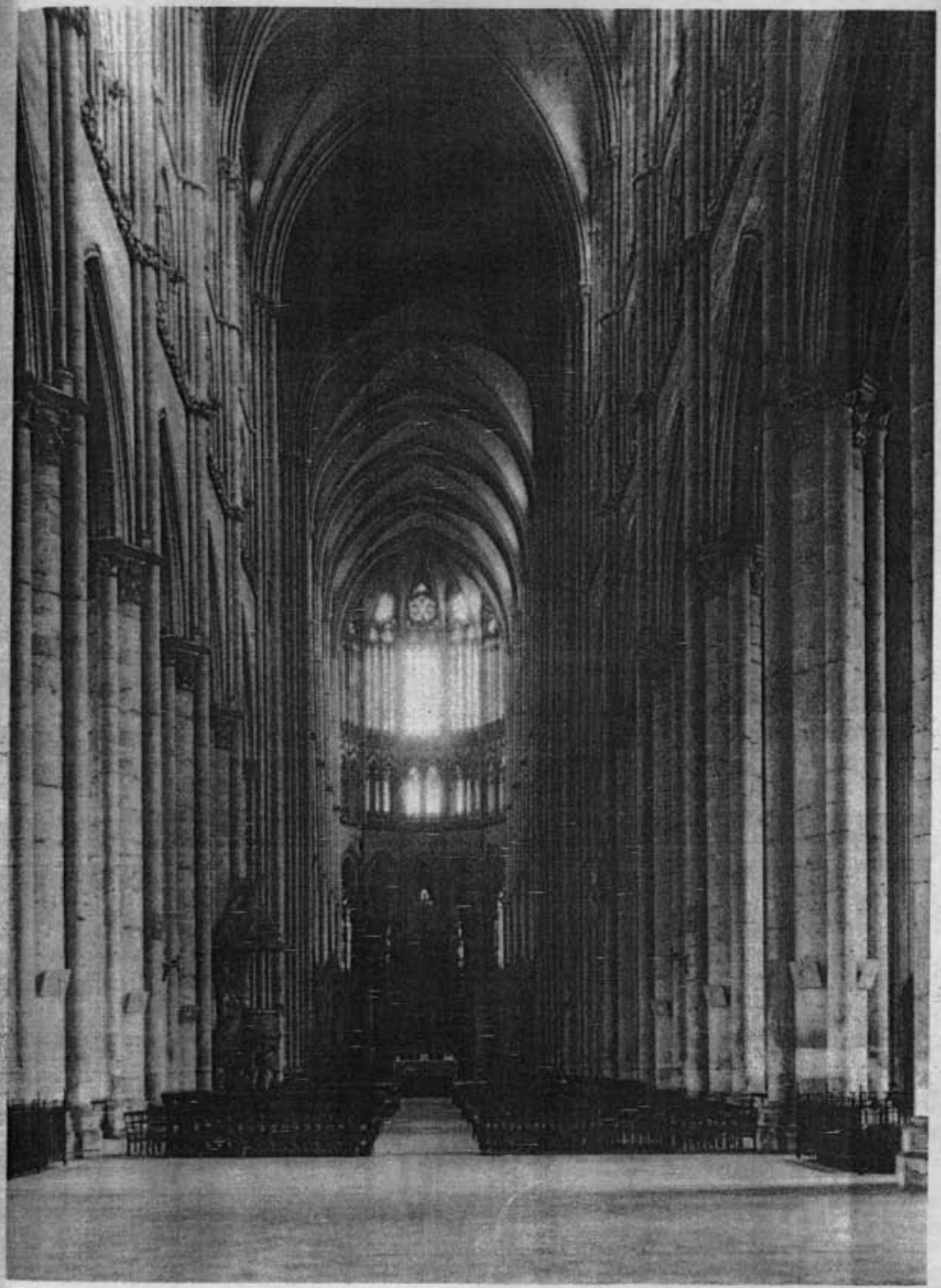
2. *Bourges in the fifteenth century, from the* Book of Hours of Laval.



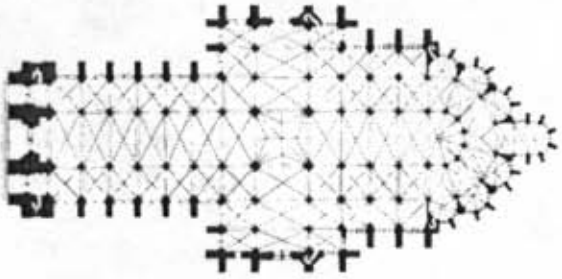
3. St. Denis. West façade, consecrated 1140.



4. Amiens, Cathedral, begun 1220. West façade.



5. Amiens, Cathedral. Nave.



5a. *Amiens, Cathedral. Plan.*

6. *Amiens, Cathedral. Chevet.*

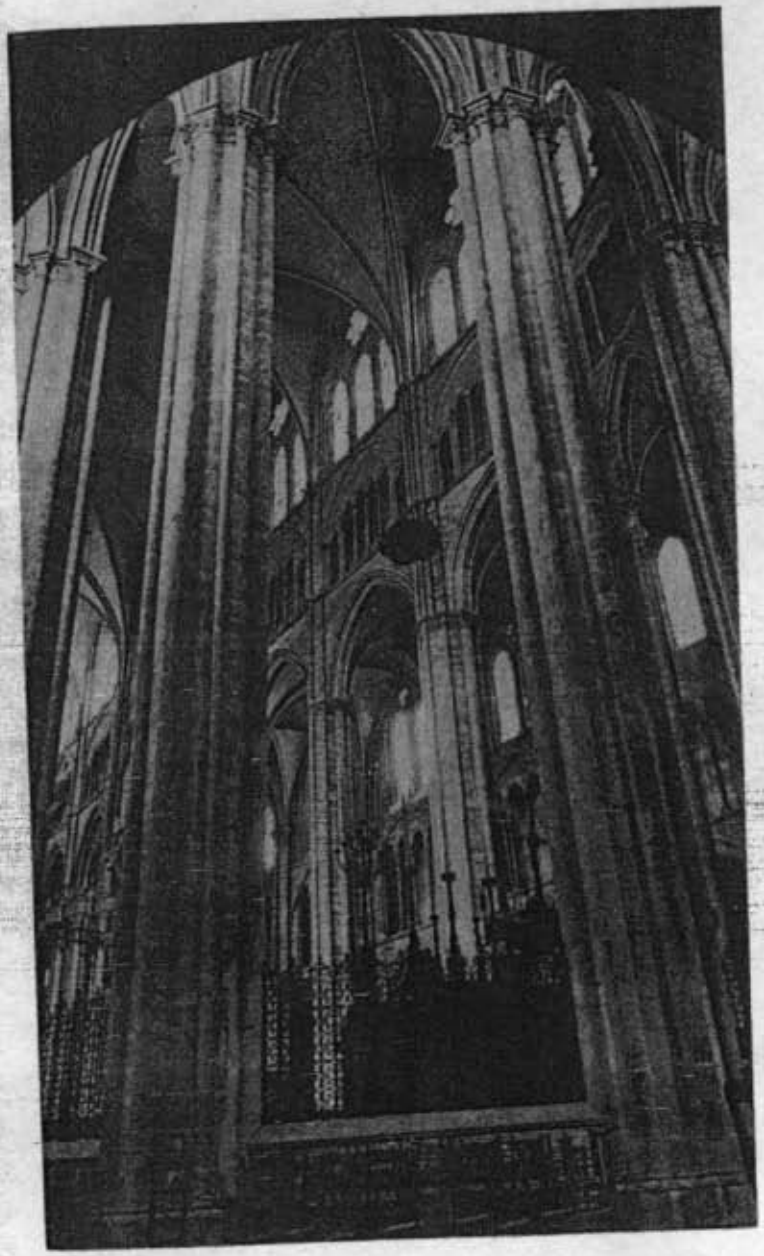
7. *Chartres, Cathedral, 1194–1221. South transept façade.*

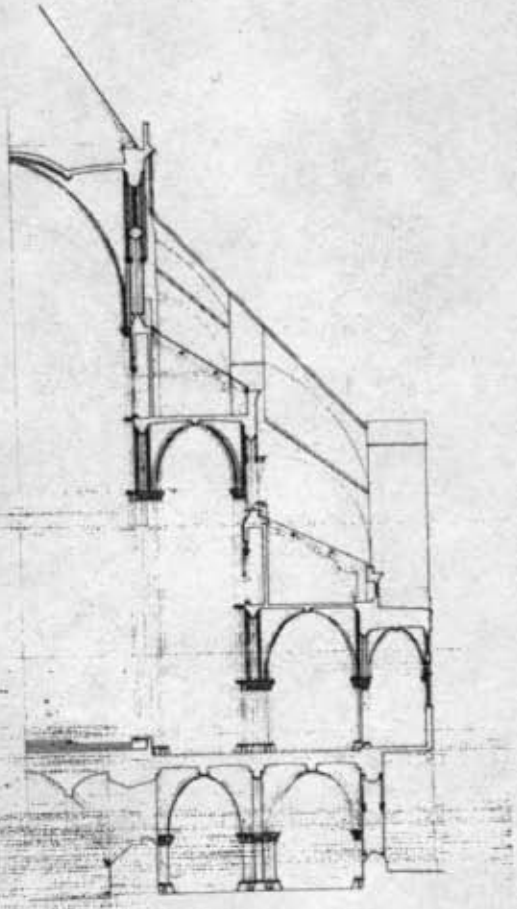
7a. *Chartres, Cathedral. Transverse section of nave.*

h transept façade.

e section of nave.

8. Bourges, Cathedral, begun 1195. Chevet.





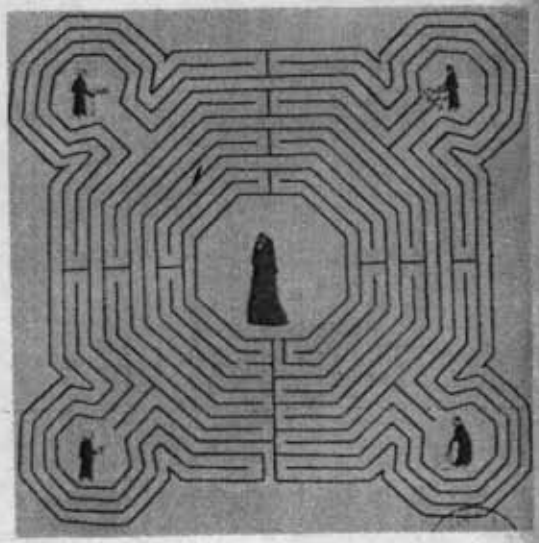
8a. Bourges, Cathedral. Transverse section of chevet.

91. Gloucester, Cathedral. Choir, 1330's.

92. Prague, Cathedral, begun 1344. Chevet.

93. Narbonne, Cathedral, 1272. Ambulatory.

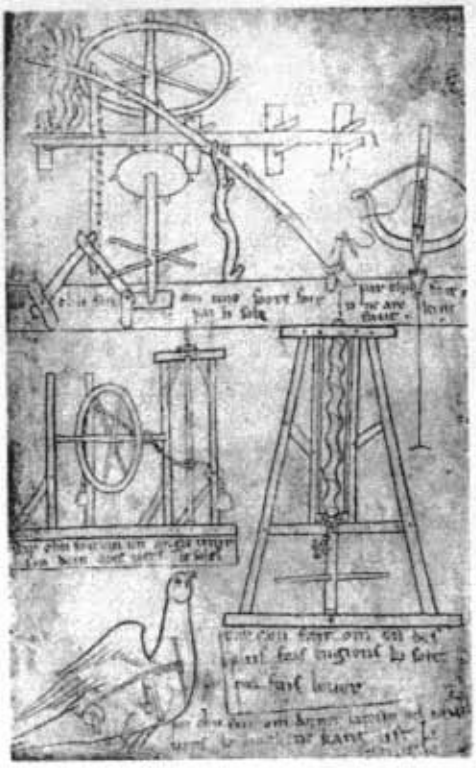
9. *Tombstone of Hugh Libergier, d. 1263.*



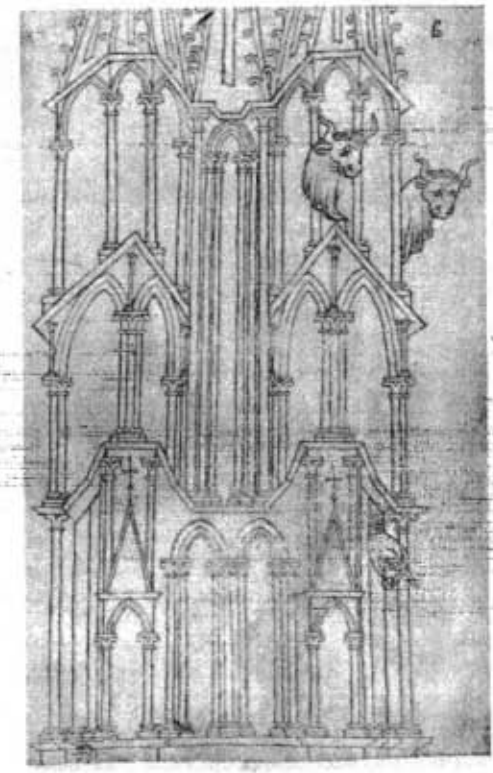
10. *Reims, Cathedral, begun 1210. Labyrinth.*

1210. Labyrinth.

11. Villard de Honnecourt, Sketchbook, c. 1235. Choir stalls.



12. Villard de Honnecourt, Sketchbook. Machinery.



13. Villard de Honnecourt, Sketchbook. Tower of Laon Cathedral.

87. *Florence, Santa Croce, begun 1294. Nave.*

88. *Milan, Cathedral, begun 1386. Nave.*

94. Strasbourg, Cathedral. North spire, begun 1399.

95. Salamanca, New Cathedral, begun 1509. Interior.