PART TWO

The General Problems of the Gothic Style

1. THE TERM 'GOTHIC' AND THE CONCEPT OF THE GOTHIC STYLE

THE architect who built the choir of Saint-Denis must have spoken to Suger about the *arcus* in the vaults; William of Sens in speaking to the Prior of Canterbury no doubt used the term *fornices arcuatae*, and Villard de Honnecourt probably spoke to his apprentices of *ogives*. However, no name for the style itself is known to have existed at this time; indeed, it is unlikely that any name did exist, for, in the regions where the Gothic style was born and developed, 'building in the Gothic style' was simply called building. In Germany, the chronicler Burckhard von Hall wrote, about 1280, that the church at Wimpfen im Tal, which was begun in 1269, was built *more francigeno*. This name does not describe the style, but simply indicates its origin, which confirms the view that no special name yet existed for the style at a whole.[1]

Petrarch (1304–74) was in Cologne in 1333 and wrote that he had seen an uncommonly beautiful *templum* there which was unfinished, but which was rightly called the most magnificent in the world (*summum*). In spite of that Petrarch was among the first men, if not the first, to value the age of classical antiquity higher than his own on every count. He did not base this conclusion only on the poor quality of the Latin of his time, compared with that of Cicero and Virgil, and on the low standard of scholarship, compared with that of Plato (of whom he knew little); he also compared the poor quality of the painting and sculpture of this age with the perfect reproductions of natural forms achieved by the Greeks and Romans. Since he regarded himself as a descendant of the Romans, it is in his works that the theory that everything bad came from the 'barbarians' was born.

This 'Barbarian theory' was adopted by humanistic circles.[1A] In his biography of Brunelleschi, Manetti wrote that architecture fell into decadence after the end of the Roman Empire, that the Vandals, the Goths, the Lombards, and the Huns brought their own, untalented architects with them, that architecture improved slightly for a few years under Charlemagne, and that it then fell into decadence once more until the appearance of Brunelleschi in 1419.

Filarete, who lived from about 1400 to about 1469, had similar ideas on the history of architecture. He wrote, 'cursed be the man who introduced "modern" architecture'. By 'modern' he meant Gothic, which still appears to have had no name. He continued, 'I believe that it can only have been the barbarians who brought it to Italy'.

Alberti said that it would be absurd to paint Helen or Iphigenia with Gothic hands – with the hands of old women. In the Italian text, the phrase is *mani vecchizze e gotiche*, but, in the Latin edition, Alberti translated this with the words *seniles et rusticanae*. The word Gothic does not therefore seem, as yet, to have acquired its modern sense. Gothic meant rustic or coarse, like the Goths.

Gradually the word Gothic came to be applied not to barbarians in general, but only to certain specific barbarians. Filarete puts the blame on the *transmontani*, expressly adding, 'the Germans and the French'. In 1510, in the report of the so-called Pseudo-Raphael, the idea was further narrowed down: he spoke only of the *maniera tedescha*. In this report, too, the theory is first advanced that the Gothic style had its origins in the forests, because the Germans could not cut down trees, but bound together the branches of living trees, thus creating the pointed arch. This theory that the Gothic style was born in the forests of Germany lived on in various forms with unbelievable tenacity, sometimes in a literal form, and sometimes in the form of metaphors.

In 1521, page xv of Cesariano's translation of Vitruvius shows the proportions of Milan Cathedral 'secundum Germanicam symmetriam'.

Vasari contrasted this bad architecture with the classical orders, and wrote: 'There is also another manner of architecture which is called the German manner.' He completely forgot the real culprits, the French, and went on to say: 'This manner was invented by the Goths.' In writing of the Palazzo dei Signori at Arezzo, he used the term *maniera de' Goti*, while Palladio reverted to the phrase, *maniera tedesca* – not *gotica*.

In France, however, it was never forgotten that the Gothic style was not born in Germany. Philibert de l'Orme, who lived from 1512 to 1570, called it *la mode Françoise*.

In Germany, Sandrart, in his *Teutsche Akademie*, which was published in 1675, revived the Italian theories. He seems to have been familiar with Filarete's manuscript, or at least to have had indirect knowledge of it, for he wrote that, by inventing bad architecture, the Goths 'had called down more than a thousand million curses on their heads'. Filarete had modestly contented himself with a single curse.[2]

From the history of the name of the Gothic style, it can be seen how muddled the concept was. The Goths, who in 410, under the leadership of Alaric, destroyed Rome, or rather parts of it, were made responsible for all the architecture that was created between 410 and 1419, and, in countries other than Italy, even for works executed up to the time of Vasari – that is, about 1550.

During the eighteenth century, in the course of a slow process of development, a more positive view of the Gothic

314. Amiens Cathedral. South transept rose window

style was reached, and, with it, the concept of what was Gothic changed. Historians began to distinguish two periods; they gave separate names to different parts of the earlier periods and reserved the term Gothic for the last period alone. The evil reputation of the men who destroyed the good architecture of Rome, however, stuck until the connexion was either forgotten, or was no longer felt. As early as 1840, Kugler said that we no longer think of the Goths when we say 'Gothic'. Nevertheless, those men who were beginning to feel enthusiasm for the Gothic style tried to find a better name for it, but none of these names, neither *style ogival*, nor Kugler's Germanic style, nor any of the others, found support.

When in the course of the nineteenth century historical knowledge of the birth of the Gothic style, its development, and its spread increased, the Late Gothic style was still regarded as part of the Gothic style. Moreover, the growing study of the essential Gothic elements, beginning with Wetter's book, and the attempts to interpret the essence of the Gothic, which began with the work of Viollet-le-Duc, and have continued to our own day, have neutralized the effects of personal taste and have led to a more intensive analysis of the concept of Gothic style.[2A]

The scholarly consideration of the Gothic style began with descriptions of individual buildings and so came to the study of individual members, such as pointed arches, piers, rib-vaults, windows, doorways, roofs, and towers. At the same time a desire grew to understand the essence of the Gothic style which could permeate such divergent features as piers and windows. The Gothic style was said to possess a picturesque quality, a quality of infinity, a vegetal quality, a romantic quality. All these different concepts were first formulated in the eighteenth century and were then considered more closely in the nineteenth and systematically bound into one unified concept.

Some of these concepts were also applicable to sculpture and painting, and the concept of what was Gothic was widened to include, not only architecture, but also the fine arts. After this, the term became more and more extensible, until critics began to speak of Gothic literature and poetry, of Gothic music, of Gothic philosophy and metaphysics, of Gothic civilization, and, finally, of Gothic man. This process was begun by de Laborde in 1816, when he wrote an introduction on political history to his work on French architecture. In 1843, Schnaase went further; he presented his public with a panorama of medieval civilization. At about the same time, Vitet proposed the theory that the Romanesque style was created by the clergy, whereas the Gothic style was the creation of the laity.[2B] Viollet-le-Duc tacitly accepted this theory, but broadened it with a combination of *l'esprit gaulois* and his own theory of functionalism. Succeeding generations accepted this legacy, and *l'esprit gaulois* developed further under the influence of the fantastic racial theories of Gobineau, whose forerunners had appeared as early as the eighteenth century. The study of medieval symbolism can also be traced back to the Romantic period (e.g. to works of Boisserée and later of Ramée), and the background to the history of Gothic civilization grew more and more rich and colourful.[2C]

The sceptics, who appeared about 1900, did not perceive the metaphorical driving belt which must be assumed to run between Gothic civilization and Gothic architecture, if one is to accept an explanation of stylistic developments in terms of the many factors which go to make a civilization. It was, of course, obvious that certain architectural traits must be a reflection of the civilization of their time, but it was not known whether these traits should be interpreted as reflections either of social factors or of national ones, or whether perhaps they sprang from a change in the nature of piety. Perhaps it was these factors, and many others besides, which were the roots from which history grew, and which provided the branch of architecture with its sap. Historians spoke of many different roots, but, basically, their search was for the primary root of all these roots, and they gave this title sometimes to one root and sometimes to another.

Nobody can doubt the legitimacy of these studies, but, if one stands in front of an actual building and asks oneself what a certain base of a certain pier, or a certain triforium, or a certain rose-window has to do with scholasticism, chivalry, courtly love, or even the liturgy, not to mention politics and economics, one realizes that all these many theories do not give a sufficient answer: and yet the problem is one which must be faced.

The history of the Gothic style which has been presented in the first part of this book has been largely kept free from these general questions. In it I have tried to forget about the background of Gothic civilization, and considered the development of the Gothic style as an immanent process which took place within building lodges. To clarify the problem, one can call those other factors which penetrated the lodges from outside external factors, and one can exclude them from architectural discussion, in which they would only cause confusion. As soon as one starts to look for the influence of these external factors, however, one realizes that every other branch of human activity followed its own immanent development, just as did the field of architecture. The problem that was so disturbing to nineteenth-century historians can be expressed in a single question. Did all these immanent lines of development run parallel to one another, and, if so, what was the force which produced this parallel course?

2. THE DEVELOPMENT OF THE GOTHIC STYLE SEEN AS AN IMMANENT PROCESS

The improvement of Romanesque groin-vaults came about as a result of a rational consideration of the geometric construction of the arches and the surfaces of the cells; the building technique employed, that is, the centering; their statics, both during and after construction; and also the economic problems which they presented. But all these considerations always went hand in hand with the aim of producing an aesthetically satisfying result. The changes had nothing to do with the Crusades, which began only later, or with the liturgy, or with philosophy. The architects were intent simply upon making necessary improvements. As far as can be reconstructed, this was a process of trial and error which led to the replacement of diagonal, wooden centering arches by the stone *cintre permanent*, that is the rib.

Here, the question must indeed have arisen as to whether the architectural patrons of this time, the clergy, were in agreement with the introduction of this innovation; but this question can be ignored for the moment. The development which was described in the first part of this book shows that the rib-vault, in its turn, was further improved by a combination of rational considerations and aesthetic criticism, which resulted in the introduction of pointed arches, first over the four sides of each bay, and finally in the diagonals also. This process, too, was an immanent, or an internal one. Just as master masons did not determine the form of the liturgy or indulge in metaphysics, so the clergy did not build scaffolding, or draw designs for arches or for the profiles of ribs. These are different spheres, different jobs, requiring special skills, and it need hardly be said that no amount of knowledge of metaphysics can help one to build a rib-vault, and that on the other hand the ability of an architect to build a vault cannot help him to decide whether general concepts are realities or mere names.

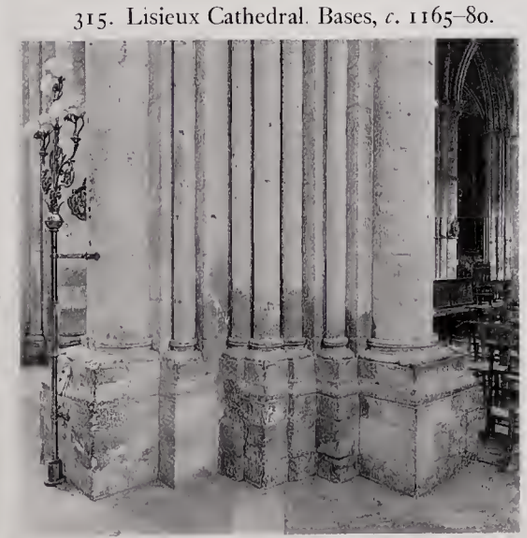
However, rib-vaults presented only part of the problem. The real problem was how to achieve conformity throughout a whole church. History shows that the transformation of Romanesque architectural members to conform with the ribs was not achieved overnight. Ribs, being members crossing each other diagonally, demanded that shafts also be turned diagonally. Therefore, the form of bases and capitals had also to be altered. In the case of sexpartite vaults, this meant that the number of shafts had to be increased. The question as to what form piers should take became an urgent one. The steps taken to solve this problem led ultimately to the dissolution of the wall into a grille and the introduction of the new Gothic kind of relief. In this kind of relief, one layer is conceived as projecting in front of another, not as lying behind it, just as ribs are seen to project in front of the cells of a vault rather than cells to lie behind the ribs. The slenderness of the rib set the proportions for slenderer supports, and its structural character seemed to demand the change from Romanesque structure to specifically Gothic structure. The new system allowed an increased emphasis on verticals, yet left the architect of Sens the possibility of choosing the golden mean, and the architect of the Sainte-Chapelle that of using the fairly moderate proportional ratio of 1:2. The tendency to emphasize verticals only governed the work of certain schools and generations, and the question as to how far this tendency was the product of other factors will be answered later.

The real propelling force of the rib lay both in its diagonality, and in its property of dividing each spatial compartment of the church into interdependent, fragmentary spatial units. The tendency towards a more and more resolute reshaping of spatial parts and architectural members to conform to the principle of partiality, and the resulting change in the forces of the members, has been explained in the first part of this book, and this tendency must also be considered in discussing the immanence of the development of Gothic architecture. However, if one concentrates on each step in the development, then this immanence takes on another, peculiar aspect.

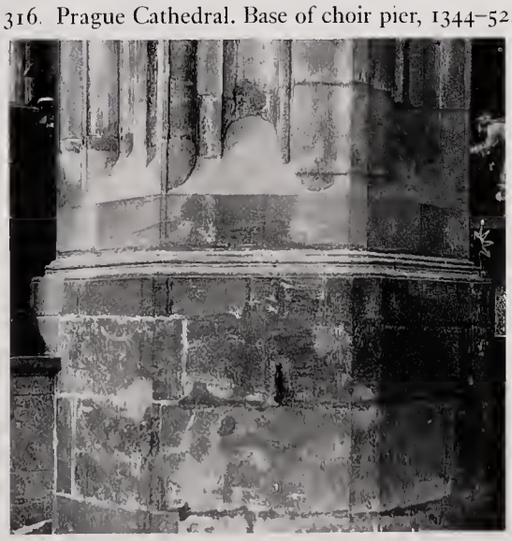
A study of bases and plinths shows these stylistic changes only if one compares early examples with late ones [315–17]. Architects kept to the Romanesque idea that a base should express the fact that, through it, the pier is fixed to the floor. Not only the tall plinths at Saint-Germer, but also the shorter ones in the classic cathedrals of Amiens and Reims, and even the long slab which runs under the whole length of each side of the arcade at Salisbury, remain faithful to this idea, that a plinth is the firm, self-sufficient support on which stand the pier and its shafts. The architects of the High Gothic period made this property of bases even clearer by reducing their height, so that, compared with Romanesque bases, High Gothic ones (*Tellerbasen*) look as if they had been pressed flat into the shape of dishes turned upside down. In profile the concave part becomes so deep that water could stand in it – hence the English term 'water-holding bases'; the lower part of the profile protrudes over the plinth and is sometimes supported by small corbels.

The first work in which bases appear to grow out of the floor is the cathedral in *Prague*.[20] In the church of Saint-*Ouen* at *Rouen*, and in later Spanish churches, the different levels of the bases of the shafts give the impression that the piers do not stand on clearly delineated, horizontal supports, but that the shafts have grown side by side at their

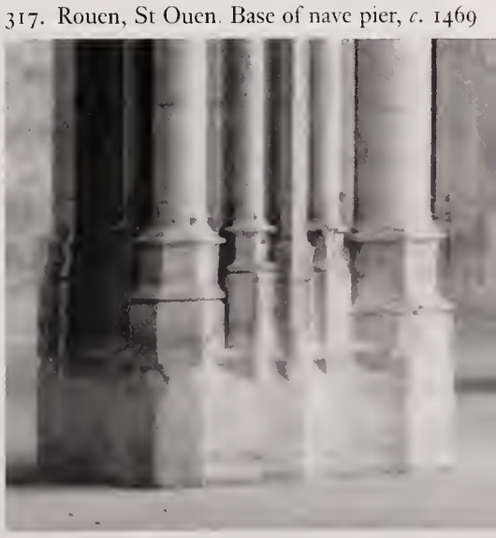
315. Lisieux Cathedral. Bases, *c.* 1165–80.

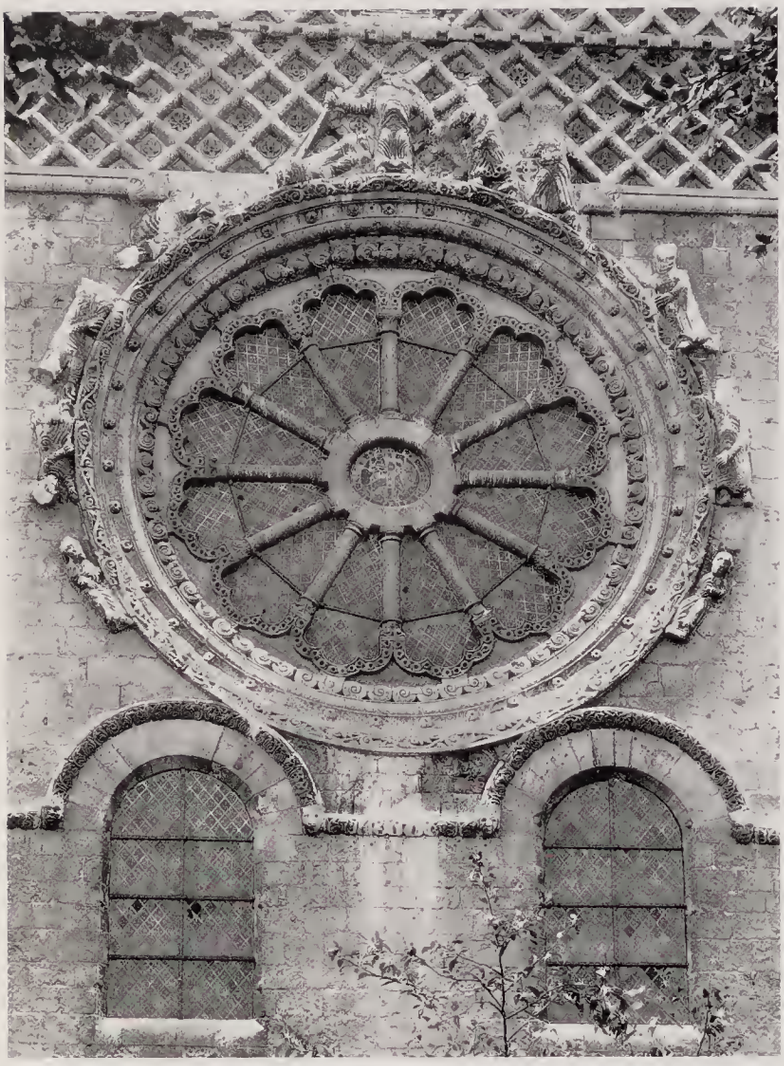


316. Prague Cathedral. Base of choir pier, 1344–52.



317. Rouen, St Ouen. Base of nave pier, *c.* 1469





318. Beauvais, Saint-Etienne. North transept rose window, *c.* 1150

own tempo, and that some of them have grown faster than others [307, 317]. The clear, horizontal division between the bases and the piers and shafts above was disturbed, and the chronological line of slight changes in the forms of bases and plinths shows how difficult it was to create truly Gothic forms at a point at which isolation and the horizontal positioning of one member over another exercised such strong demands.

It must not be supposed that all architectural members became Gothic to the same degree at the same time. Vaults had achieved their classic Gothic form long before bases had undergone the same degree of change. But, in every case, it was the criticism of architects and their imaginative energy which demanded these changes, devised them, and finally realized them. The philosophers, the clergy, the knights, and the kings played no part in the solution of these problems; they were internal problems of the lodges.

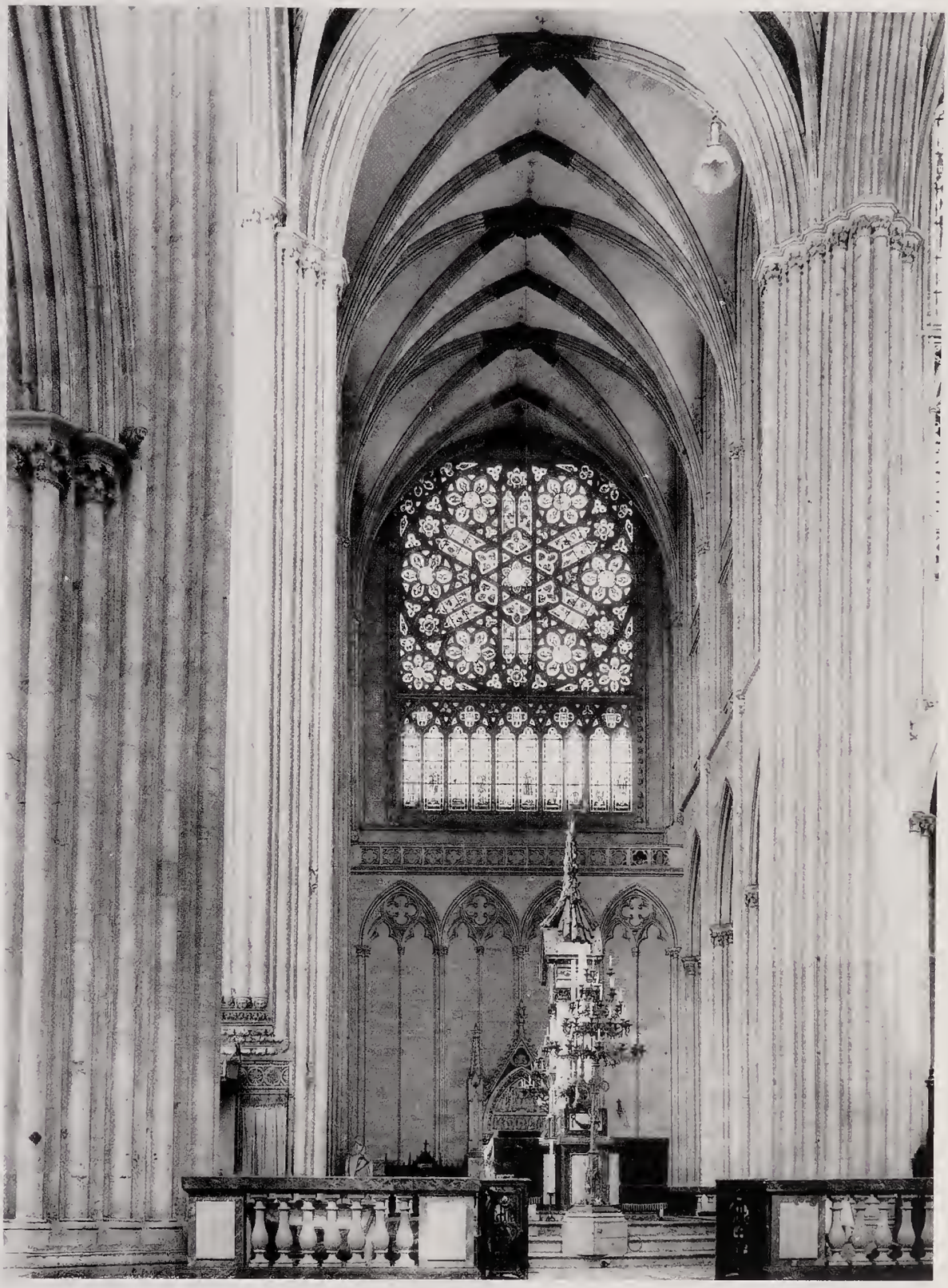
Although every good monograph deals with the forms of bases, and distinguishes between the work of architects by the profiles they used, a detailed examination of the history of this one member would not be sufficient to explain the immanent development of the Gothic style.

The changes in the forms of the great circular windows show this development much more clearly. This theme was first formulated in the north transept of the church of *Saint-Etienne at Beauvais* [318]. Here, there is a central hub, on which columns, supporting trefoil arches inside the circumference, stand radially. The surrounding figures show that this wheel was to be interpreted as the wheel of fortune, and there are other examples of similar wheels of fortune, such as that in the cathedral at *Basel*, and the much later south transept rose at *Amiens* Cathedral [314].[2E] There was another solution to the problem of filling circular windows. The centre of the window could be filled not with spokes, but with stone slabs, out of which were carved smaller circles of varying size, distributed in various patterns. But there were yet more possibilities. At *Lausanne*, as noted by Villard de Honnecourt, the central area is filled with a quatrefoil.[2F] The progression of circular windows also included forms which deviate from the basic idea of the wheel. The great west window at *Laon* [56] uses twelve semicircles springing inwards from the circumference, and the columns which radiate from the hub meet these semicircles at their apexes. The inner part of the rose-window of the west front at *Chartres* [55] is a proper wheel, again with twelve lights, each with a semicircular arch, and there are then twelve smaller circles running round inside the circumference, each of which stands between two of the inner, semicircular arches. For the oculus in the south transept at Chartres [117] the same form was chosen as for the west window, but it was enriched by the addition of semicircles springing inwards from the circumference, like those used at Laon.

It is easy to recognize the variations and combinations in the forms of circular windows as the result of consistent steps. In *Notre-Dame* in *Paris* [116], the wheel consists of two concentric zones. In the inner zone, the same system was used as in the church of Saint-Etienne at Beauvais, that is, twelve spokes round a central hub, but here it was improved by the fact that the spokes do not lie on the central vertical axis. The outer zone has twenty-four panels.[3] At *Mantes*, the spokes have their capitals at the centre, so that they appear to stand, not on the hub, but on the circumference.

A new stage of development began when the architects of the rose-window in the west façade of *Reims* [122] and that of the *Sainte-Chapelle* in *Paris* (in its original form) decided to transplant the tracery of the usual oblong windows into circular ones. They made the shape of an oblong window with tracery taper at the bottom, so that its sides converge radially and meet on the hub. This might be called akyrism, or it might equally be called an abuse, a misinterpretation, or a deliberate change in interpretation.[3A] Later architects, for instance those of the north transept of the cathedral at *Sées* and of the transepts of the church of *Saint-Germain* at *Auxerre*,[4] made the sides of the components panels parallel once again, and thus completely gave up the original idea of the hub [319]. One of the richest combinations to be found is the tracery in the northern oculus of the cathedral at *Amiens*, inserted in the fourteenth century, which is a star with five points in the centre and some panels with parallel sides and some with.[4A] We can understand from the general development of the Gothic style why tracery lost its structural character and took on a purely textural one, and once again, we can follow the way in which succeeding architects

319. Sées Cathedral. North transept, rose window *c.* 1310



gradually progressed, step by step, along this line of development.

The terms 'wheel-window' and 'rose-window' are usually used indiscriminately, but the comparison with a rose is better suited to oculi with tracery such as that used at Reims and Strasbourg [169], where the pattern spreads like a flower, with pointed petals lying in a circle. Such windows have sometimes been compared with the sun – a comparison referring to their radiating rays – and, because of this likeness, the French call the whole High Gothic style *Rayonnant*.[48] Although this radiation of rays from the centre is preserved in the Flamboyant style, the textural character of the tracery filling the surface predominates, and the idea of a wheel, a rose, or the sun disappears.

This interpretation of the development of circular windows, and their gradual alteration to a form which preserved little of the idea of a wheel, should be sufficient to show what is meant by the internal tasks of the lodges. Oculi in west

façades, and those of transepts, were not isolated decoration, but integral parts of the façades, which in turn were parts of whole churches. Every step which marked some degree of progress in the solving of the problem of filling oculi was conditioned by the demands of the whole church, and was therefore part of the greater progress of the continual increase in the emphasis on partiality: and yet every such step also set its own special problems within the greater overall problem. Every architect was involved in the common task as a follower of his predecessors and, more particularly, of his own teacher, and found in this general task his own personal task, which he fulfilled with his own imaginative powers and his own spiritual energy, according to the nature and the degree of his personal talents.

Within this process, there are those who vary, those who combine, and those who correct, some tending towards increased clarity, others towards increased splendour, yet others to both. There are steps which created something entirely new, like the system of Noyon (or earlier of the choir at Saint-Denis), the consequences that were drawn from the form of the buttresses and flying buttresses at Chartres, and the form of the tracery at Reims. In our historical consideration we follow the works of all these architects, both the modest ones, like the architect of Senlis, and the men of genius, like the designer of Lincoln, the architects of the English chapter houses and their successors at Ely and Gloucester, Peter Parler, and many others. It is their spiritual achievements which have given us such rich gifts. However, even these men of genius were firmly bound by the whole process of development; for even the great intuitions come only out of hard work. No man who was not a member of one of the lodges could take part in the creative development of the Gothic style, not even Albert the Great, although, according to legend, he is supposed to have done so. To participate, one had to belong to the profession.

The continuity of the development was the product of instruction, and on this subject we are fairly well informed. The more the Gothic style developed, and the more complicated it became, the more impossible it was for a self-educated man to enter the field. From the ranks of the trained masons the most gifted were picked out, after they had completed their compulsory period of journeying, and were made the foremen who constituted the link between the creative architect and his executive craftsmen. Where foremen not only seemed capable of forming this link and controlling the actual labour, but also showed some aptitude for creative design, they were put to work as draughtsmen under the supervision of the architect, until they were finally equipped to carry out their own designs. The reason we have better knowledge of the organization of Late Gothic lodges is that the architects of the earlier period had easier problems to solve and could therefore treat legal and instructional problems more lightly. In the Late Gothic period, proper examinations were held, at which the apprentices had to produce a master-piece.[5] But by whatever process architects were selected from the twelfth century onwards, it is clear that an apprentice was subject to the judgement of the older generation and that he had to be familiar with the ideas of the masters before he could reach the stage at which he himself, when faced with a new problem, could make his own constructive criticism of their work.

This explains the small extent of the steps taken within the lodges, and the interplay of influences, which was the result of the travel of apprentices and of the calling of architects from one place to another. Even in the spread of the style over regions far distant from one another, which was the result of journeys of whole bands of masons, or of educational journeys like that of the German architect who began the church at Wimpfen in 1269 and 'had just returned from Paris', continuity was always conditioned by the personal ties which kept architects to lodges. Every architect was, according to his talent and imagination, free to make a leap if he dared, but his spring-board was provided for him, and his work became, in turn, a spring-board for his pupils.

The picture drawn here explains the connexion between the factors of tradition and originality: what we call immanence is founded on both. Younger architects followed existing tracks and continued them, and they were bound to understand the sense of direction set by a strong tradition, because they had to append their innovations organically to what already existed. Only rarely, as in the case of Brunelleschi, did an architect make a radical break with this sense of direction, and even he stood in a current and was the exponent of the ideas of his own social class of humanists. The lodge of S. Maria del Fiore at Florence did not consist so exclusively of masons as did those in other towns. Here there were also laymen, and it was their presence which produced the spiritual atmosphere that enabled Brunelleschi to break with all the traditions of the Gothic style. The tradition that he followed was that of the 'good' architecture which had been destroyed by the wicked Goths, and it was from this tradition that he drew his faith in a style of totality, whereas Gothic architects had, since the introduction of the rib, taken the aim of a style of partiality as a matter of course. The problem facing the Gothic architects was not, however, the choice between a style of totality and one of partiality, for this problem had been solved by the Norman school about 1100; it was the problem of strengthening the tendency towards partiality and of widening its scope until it embraced every part of the building.

The immanence of the development of the Gothic style is no mystery. It would be one if one were to believe that the last Gothic works, such as King Henry VII's Chapel, Annaberg, and the network of flying ribs at Frankfurt, had been in existence in some other sphere outside our world since 1093, waiting for their own realization and, like a magnet, directing the countless little steps in the development towards their own creation. Immanence, on the contrary, operates the other way round. The introduction of the rib-vault proposed a general sense of direction, leading to a goal which could not be foretold, but could only be realized through a strict adherence to this direction. This is not like a search for the North Pole, which already exists, but is a chain of creations providing a chain of surprises, which culminates in the final surprises of the ultimate Late Gothic style.

This aspect of the immanence of the development is the product of the inner, spiritual labours of the professional

workers engaged in the field of architecture. *Immanere* means to stay within. By immanence, we mean that tendency in a course of development which is determined from within the subject of the development. However, as has already been explained, the different immanent processes in different spheres of activity existing within the same cultural environment seem to be subject to another, higher, and all-embracing immanence. It is to these other spheres that we shall turn next.

3. THE MEANING AND THE PURPOSE OF CHURCH ARCHITECTURE

An architect builds a pulpit as well suited as possible to its purpose; he seeks the most suitable position in the church, raises the level of its floor, and builds steps, a rail, and a sounding-board. The purpose of the pulpit is that sermons shall be preached from it. The sermon, too, has a purpose; it is intended to instruct, to edify, and to confirm belief, but its meaning lies in what is preached. To understand the meaning of a pulpit, it is sufficient to recognize its purpose, but to understand the meaning of a sermon, it is not enough to understand that its purpose is to edify: one must actually understand what is said by the preacher. Purpose is a limited case within the wider concept of meaning.

The same thing is true of an altar. The architect must arrange it to fulfil its purpose, so that Mass can be read and a congregation attend, but the meaning of this arrangement lies within the Mass itself.[5A]

Church architecture embraces a number of purposes, which are the products of the various actions of the Christian cult. The overall purpose of a church is to serve the whole cult, but its meaning lies in religious devotion. The meaning embraces the whole gamut of religious ideas and feelings – contemplation, repentance, and the resolution not to sin any more, consolation and hope. The meaning of a church lies in belief, and only the differentiation between all the activities of the cult splits this meaning into a variety of individual functions. To understand the meaning of a Gothic church, one must understand both the meaning of religion and, more especially, the meaning of the Christian religion during the age of Gothic architecture, and the special purposes underlying the church, according to whether one is entering either a cathedral, a monastic church, a parish church, or a chapel of a castle.

Dehio has discussed very fully the changes within the architectural programme of the church while the Gothic style reigned.[6] Some of the innovations which were introduced had their roots in the period of the Romanesque, for instance the building of longer choirs to allow for the larger number of clergy. The lengthening of an existing choir at *Laon* is a specially clear expression of the demands of the clergy about 1205.

A second innovation which influenced architecture was the exhibition of newly acquired relics on altars, and the translation of older relics from crypts to the churches above. Even within the Romanesque style, the Cluniacs of Hirsau and the Cistercians had decided against crypts. At Saint-*Denis* Suger preserved the old crypts because, as consecrated

320. Naumberg Cathedral. Screen of the western choir, *c.* 1255

ground, they seemed sacrosanct to him. From the time of the building of *Noyon*, however, crypts were only built where the site demanded it, for instance at *Bourges*, *Siena*, and *Erfurt*. The building of crypts resulted in choirs lying several steps higher than the naves: with their disappearance, choirs and naves came to lie at the same, or almost the same, level.[6A]

The clergy needed some kind of barrier to separate them from the laity, in order not to be disturbed at their prayers, which took place seven times a day, and it was from this need that rood-screens and screens dividing choirs from choir aisles developed. Especially in Spain and in England, this tendency was taken a stage further, and the east end of the nave was also reserved for the clergy. These high screens, which sometimes take the form of walls (for instance, at *Lugo* in Spain), destroy the open view that was originally intended, and, because of this, many rood-screens in France and Germany were later removed. The exclusion of the congregation was felt to be too aristocratic, and even the clergy probably found this attitude of separation presumptuous. The usual criticisms, especially those of the *coros* in Spain, must be understood in the light of this later attitude, and it must also be remembered that many of these *coros* date from after the end of the Gothic style. There were Gothic rood-screens in *Notre-Dame* in *Paris*, in the cathedrals at *Reims*, *Naumburg*, and *Strasbourg*, and in many other churches [320]. Moreover, in Paris, the screens between the choir and the choir aisles have been preserved, and one can experience for oneself how exclusive the effect of these insertions is in every sense. Judged stylistically, they are extreme cases of the insertion of one spatial unity into another, and certainly

nobody would wish that the one at *Albi* did not exist. However, it can be seen in all these parts of churches whose access was more or less forbidden to the laity, that their purpose, stated barely and soberly, was to express a system of social strata.[6B]

The increase in the number of the clergy was one of the reasons for the increase in the number of altars and therefore also of chapels. The rows of chapels round choirs were continued along choir aisles. Dehio noted that the cathedral in *Barcelona* has thirty-one chapels and that the church of *S. Petronio* at *Bologna* was intended to have fifty-eight; and, in an imaginary description of the church of the *Holy Grail*, there are seventy-two. Although this was a church on a central plan and the number is probably connected with some symbolism of numbers (3 times 24), the need for so many chapels must, nevertheless, be understood to be the result of the number of the Knights of the Holy Grail, who must also be regarded as clergy.[6C]

The significance of purpose can be seen equally clearly where its action is negative. In parish churches, where there were few priests, and sometimes only one, there was no increase in the number of chapels, and in the churches of the mendicant orders the position of the chapels and the significance of sermons influenced the designs to which they were built.[6D]

To these factors must be added the fact that allowances had to be made for processions. We know that the ante-rooms or porches at *Cluny* and *Vézelay* served the purpose of protecting participants in processions from the weather while they were lining up for their entrance into the church. Both these ante-rooms date from the Transitional period, and they had only a few impressive Gothic successors; their function appears to have been transferred to porches and the lower storeys of towers.[7] The arrangement of processions may have been variable, but it is nevertheless legitimate to say that Gothic cathedrals are processional spaces.

Sacristies, towers, cloisters, and the domestic buildings of the clergy all exercised an influence on church architecture proper, because they concealed the lateral elevations of churches. Later additions, such as those at *Burgos* and *Toledo*, form a solid ring round a church, which not only alters the appearance of the exterior, but also tends to take up much of the interest in the interior.

Defensive arrangements in churches, like the battlements at Saint-Denis, Moissac, and other places, too, were not the general rule, but they show that, in the Gothic style as in any other, purposes determined spatial plans and that the study of these purposes is therefore one of the duties of the historian of architecture.

However, the form of a building is not determined by purposes only. This is true even if one does not confine oneself to the consideration of subsidiary functions, such as those of altars and pulpits. Even the reciprocal interplay of all the ritual functions embraced within a whole church does not give a clear, unequivocal solution, although the architect must try to achieve the best possible interplay. It is not in this respect that sacred functions can be differentiated from secular ones. The fabrication of tools, weapons, clothes, bridges, means of transport, or signs proceeds, in every case, from a general conception of what is required, and continues with a search for the most suitable materials and forms. The fabrication of a hammer proceeds from a general conception of its purpose and its mechanical principles; this conception is then narrowed by a consideration of the special function which it is to serve – whether it is to be used by a mason or a precision engineer. Finally, however, it must be decided what materials are to be used for the handle and the head and what form they shall take. In other words, function always leaves a 'margin of freedom' which cannot be resolved by utilitarian considerations and which is not objectively pre-determined.

So far we have only considered purposes which spring from human activity, but one can also speak of the functions of structural members. It is just as much a matter of course to demand that they should function in a church building as in a secular building. The forms of piers, arches, walls, and vaults are dictated by their own special functions, but even these functions never entirely determine their forms: there always remains a 'margin of freedom'. A purely utilitarian building is determined by its own special purpose in just the same way as a church, but even here, purpose can never determine form completely. Gothic vaults must be examined in the light of their function; it is important to understand their static principles and the functions of diagonal ribs, ridge-ribs, and tiercerons, but, even when these functions have been understood, the question as to why these members have so many different profiles in different churches still remains unanswered, since each profile fulfils the necessary static function, in so far as it exists, equally well.

Although much could be said about the functions of the spatial parts of a church, and about the functions of its architectural members, it need not be said here. It will also be sufficient to say that lighting and the arrangement of windows and lamps primarily serve a practical purpose, but that there is, once again, a 'margin of freedom' in the siting of windows and lamps, and in the choice of the dimensions and the shape of windows.

This consideration leads to the question as to what are the tendencies by which the 'margin of freedom' is eradicated and a final form reached. In reaching it, the architect appears to be absolutely free; but he is not, for the question of cost always plays a part, either by inhibiting his imaginative powers, or by influencing him to build something of great splendour. The designs for most of the buildings of rich monasteries and dioceses were made with confidence in the charity of future generations, and economic factors, combined with the course of wars, often determined the fate of Gothic buildings. Some, like the cathedrals of Beauvais and Narbonne, have remained unfinished to our day; some, like the cathedrals of Cologne and Prague, were not finished during the Middle Ages; and others, like the façade at Strasbourg, were completed in the Middle Ages, but to a changed plan. In every case, the financial administrator had a say in the discussions.[7A] However, the economic position only laid down the general framework of how much splendour the architect could allow himself. The actual form to be taken within the 'margin of freedom' was not determined by the treasurer, but by the architect. Within the bounds of the conditions laid down, he seems, then, to have been perfectly free – but even this is not quite true.

4. SYMBOLS OF MEANING

In addition to the actual programme of building, there were sometimes also special wishes and demands of a patron to be taken into consideration. Suger wrote that the choir of Saint-Denis was built with twelve supports, to signify the twelve apostles: *duodecim apostolorum exponentes numerum*. He went on to say that the twelve supports in the ambulatory signify the twelve minor prophets. He gave the *tertium comparationis* by quoting St Paul's epistle to the Ephesians 2:19: both believers and churches are built upon the foundations of the apostles and the prophets; both are *habitaculum Dei in Spiritu*, and both therefore signify the same thing. Our text does not say that these piers portray the apostles and the prophets, but that those in the choir indicate (*exponentes*) the number of the apostles, and that those in the ambulatory signify (*significantes*) the number of the prophets. Portrayal would require caryatids. There may be other documentary evidence of cases in which it would be justifiable to say that an architectural member portrays something, but, in the chapters that follow, I shall adhere to normal linguistic usage and employ the word 'portray' only in connexion with sculpture or painting. In the case of Saint-Denis, it would be senseless to say that the figure twelve was portrayed, and inexact to say that the apostles and the prophets were portrayed in the figure twelve. The number of the piers indicates the number of the apostles which, in turn, directs the attention of the visitor to the text from St Paul. In this way, it can be understood that the meaning of church architecture as a *habitaculum Dei in Spiritu* came to life in Suger's mind – as it can in anybody's mind who counts the supports and knows the relevant text.

This kind of 'representation' is called symbolic. The piers and columns at Saint-Denis are only piers and columns to a visitor – and were even to Suger and his architect. The connexion between the number and its significance was made in Suger's mind; we can understand this process only if we are told of it; and this is true also of many other cases.[7B] Often, of course, patrons and architects did not think of any symbolism. At Saint-Denis, the thirteenth-century architect added a pair of piers to the end of Suger's series of twelve. The older piers, of course, preserve their symbolism, but there are now fourteen, and the two new ones either represent nothing, or something other than apostles. In countless cases, symbols were fitted to architectural members afterwards, and, since the time of the Romantics, much research has been done into this symbolism. Nowadays, people often find it difficult to understand. For example, Durandus says that the tiles on the roof of a church are the warriors and princes who defend it against the heathens.[8] Of course, one can easily answer that a heathen is unlikely to climb on the roof, and that the tiles protect the church against rain and snow; or one can answer that mosques also have tiles, but that these are not designed as a protection against Christians. What is meant, however, is that, just as the princes protect the Church as an institution, so the tiles protect the church as a building. To examine every one of these countless abstruse likenesses and comparisons from a rational point of view would be to miss the point. None of the men who created these symbols intended his likenesses to be taken literally. To those who claim that any simile limps, one can reply that they should trust to the leg that does not limp. It must be realized, however, that these symbols vary in value, and that some of them are immediately convincing, while others are far-fetched.[8A]

Suger was not an architect: he was a theologian and had been educated according to the precepts of his age. From the time that Christian churches were first built, it was the theologians who ordered their construction, even if princes and emperors sometimes decided the programme and gave money for the project. Theologians were thoroughly familiar with the New Testament, which is full of comparisons and symbols – 'For he that walketh in darkness knoweth not whither he goeth. While ye have light, believe in the light, that ye may be the children of light' (John 12:36); 'I am the light of the world. . . .' (John 8:12); 'But whosoever drinketh of the waters that I shall give him shall never thirst' (John 4:13); 'I am the door: by me if any man enter, he shall be saved. . . .' (John 10:9); Jesus spoke in metaphors, and he gave his reasons for doing so in Matthew 13:11. Jesus's metaphors and symbols refer to purely spiritual things which are illuminated by the metaphor, and can often not be expressed better, if at all, in any other terms.

Medieval theologians altered the direction of these comparisons. Jesus had said, 'I am the door' (that is, to the Father): they inverted this and said that the door was Jesus. This difference may seem small, but the idea of Jesus remained a spiritual one, and, in this connexion, even the door became an intellectual and spiritual passageway, for the symbolists mentally changed the real doorway into a spiritual one. Whether one takes this difference seriously or not, one must understand the inversion involved if one is to understand the way in which the Gothic clergy regarded churches, and the way in which they educated the laity to grasp this kind of symbolism.

Where symbolism made use of sculpture or painting, the underlying idea was more easily comprehensible. Where a statue of Christ was placed in front of the central pier of a main doorway, and one therefore walked past him into the interior, anyone could understand that here Christ was supposed to be understood as a spiritual door.

However, we shall first confine ourselves to the realm of architectural symbolism. Just as every architectural member represents something, so does every spatial part, and so, above all, does the church as a whole. Research has been very productive in giving interpretations of Romanesque architecture. Thus, the building of a west as well as an east choir in the same church, as it was done in the Romanesque period, has been shown to derive from the opposition between *sacerdotium* and *imperium*. The emperor, when he personally attended state services, sat in the western choir, and the purpose of building a fixed architectural section of a church to correspond to the choir which was the ceremonial territory of the bishop can be traced to the rivalry between popes and emperors, which dates back to the time of Constantine.[9] However, functions do not always produce symbols: thus, while naves were built for the laity, they do not represent the laity. In the case of a reserved space, the idea may arise that this space represents the person for whom it is reserved. A choir does not necessarily represent

God, or the bishop as the representative of God, but this meaning could be introduced, and probably was, where a western choir, as the space reserved for the emperor, was set opposite an eastern choir. There are also other interpretations of spatial parts as symbols representing something, and they can be very fruitful, but they do not yet seem to have been studied with reference to the Gothic style. In the Gothic churches, double choirs disappeared, and this may lead one to conclude that the French kings did not feel the same opposition to the papacy, nor the same rivalry over certain questions of their rights and powers, as the German emperors. However, it is doubtful whether the significance of this disappearance contributes much to the understanding of the Gothic style. There are other, analogous questions, too: for instance, the question as to whether or not the building of galleries, and their subsequent disappearance (at Chartres), had any symbolical significance.[9A]

The interpretation of double choirs as representing the split between the Church and the Empire leads to the idea of the indivisible unity of the *Civitas Dei*, and thus to the real meaning of the architecture of a church as a whole – the Christian idea of the kingdom of God. This idea embraces both the eternal, that is the timeless and placeless, existence and omnipotence of God, and his temporary and earthly existence in Man and the works of Man. The building of churches on earth as the seat for religious services is, at the same time, always a symbol of the transcendent kingdom of God. Church architecture may mark the contrast between pope and emperor or between monks and laymen; it may set nuns' galleries in isolation,[9B] and so on; but these functional divisions always reflect the differences between certain social strata, or at least strata of responsibilities within the *Civitas Dei*, which remains an immutable idea to which any division is subordinate. The building of churches as houses of God can therefore always be interpreted as a symbol of the *Civitas Dei*, of the *regnum Dei*, both here and in eternity – and this is the sense in which it was interpreted.

A Christian church has this idea in common with every holy place of every other religion. Greek and Roman temples, too, were intended to be places that were not of this world – to be 'numinous'. Even the flat ceilings and vaults of classical antiquity were characterized, by their decoration with sculpture and painting, to represent the sky.[10] According to ancient beliefs, the sky was a spherical bowl in which, or beyond which, lay a world to come; it was the boundary between the visible and the invisible, though, of course, there is also much on earth that is invisible, especially the ideas of men and their intellectual processes. Man embraces within himself the world to come. 'The kingdom of God is within you.'[11] Man is the *habitaculum Dei*, but with the essential addition, *in Spiritu*. God dwells in the mind and in the heart: this is his kingdom. If one says that the kingdom of Heaven lies in the heart of Man, then Heaven becomes a symbol; it ceases to be the astronomical sky of classical antiquity or of Copernicus and Kepler, and becomes a symbol of the life to come, which is within Man, who lives continuously in this world and the next at one and the same time.

Symbols are a special kind of concept. The material parts of a church are drawn from nature; they consist of minerals, metals, and woods, and even if, like glass, they are artificially made, their raw material still comes from natural sources. In the building of a church, this aspect is always the main consideration, and Suger showed great concern for the finding of a suitable quarry and of trees of the right length for roof-beams. Even in the preservation of buildings, one is bound to return to this first degree of concepts, for it is physical and chemical aspects which come to the fore when downpours, or a change in the level of the water-table, or lightning, or fire produce material changes.

In a finished church, the materials from which it is built become part of the concept of the church as a whole. The spiritual meaning of the activities which take place in the church, in so far as they have a function, is not a natural product, but a human conception or a combination of human conceptions. All that is material remains as an integrating factor, but the fact that this visible, tangible, and spatial distribution of materials has been created for the purpose of Divine Service means that there is a second degree of concepts. In this second concept of church architecture, which exists within the concept of function, a church is regarded as 'suitable' for the sacred activities of religious men. In the formulation of the programme for the building of a church, and in its design, this concept is perpetually alive and active. If the building is suitable for religious services, then the material structure of the church is embraced in the conception of the *habitaculum Dei* – but *in Spiritu*. A 'suitable' building thus becomes a 'suitable' sacred building; it offers all that the spiritual man demands. All the reformers who wanted to make the life of the spirit more sincere, more intensive, and more exclusive in actual fact merely wanted exactly this kind of 'suitable' building. Bernard of Clairvaux criticized the Cluniacs, and even Suger, because they offered more than mere 'suitable' religious buildings; he wanted monks to build prayer chambers, *oratoria*, not churches, and St Francis and other, later ascetics, such as Calvin, agreed with him.[11A]

This second degree of concepts is contained within a third degree. *In Spiritu*, one can regard any church, even Bernard's Oratorium and the barn in which St Francis preached, as a *habitaculum Dei*. In this context, *habitaculum* is a metaphor, for God dwells in a church in the same way as he does in the hearts of men.[11B] A material structure which is regarded as a building suitable for the holding of religious services becomes an element in the concept of a house of God. The first degree of this concept comprises natural objects; the second comprises the works of Man; but the third embraces the field of symbols.[12] Even spiritual conceptions which are not based on natural objects are works of Man; what they signify is not, of course, the work of Man, but the conceptions and concepts themselves are human.[13] Every symbol combines the first and the second degree within itself, but it is higher and greater, just as, mathematically, the cube of a number comprises within itself the number and its square.

A church as a whole is a symbol of God – or rather, one symbol of God, for there are many others. Kingship is another symbol: a king possesses the kingdom over which he reigns. The Church is the kingdom of God. The Christian religion is eschatological. The world is temporary; it was

created, and, on the Day of Judgement, it will cease to exist. Then the everlasting kingdom of God will come into being, in the form of an eternal heaven and an eternal hell. It is of this kingdom that St John speaks in the book of the Revelation. 'The dragon, that old serpent, which is the Devil, and Satan' is imprisoned for a thousand years (Revelation 20:2). There follows Satan's first resurrection, after the thousand years, and his final fight for the Holy City (Revelation 20:9), but the Devil is defeated and cast into the lake of fire and brimstone, where he is to be tormented day and night for ever and ever. Finally, there follows the Last Judgement, and the whole earth passes away (Revelation 21): 'And I John saw the holy city, new Jerusalem, coming down from God out of heaven, prepared as a bride adorned for her husband.' All suffering ends, 'and he that sat upon the throne said, Behold, I make all things new'. All this is symbolism: St John speaks of the bride and of the city, but both are symbols of the same thing. 'Come hither, I will shew thee the bride, the Lamb's wife. And he carried me away *in the spirit* to a great and high mountain, and showed me that great city, the holy Jerusalem, descending out of heaven from God.' There follows, now, a description of the city, which is the city of Light. The angel has a golden reed and measures it. Its length, breadth, and height are all equal: it is a cube of 144 cubits (12 by 12), which is not so surprising if the addition 'according to the measure of a man' is meant, but this is doubtful in view of the sentence: 'And he measured the city with the reed, twelve thousand furlongs.' The walls consist of twelve kinds of precious stone, and there are three gates on every side, each of them consisting of a single pearl. The gates are named after the twelve tribes of Israel, and the twelve foundations of the walls after the twelve apostles. The streets are made of 'pure gold, as it were transparent glass'. There is no temple in the city, 'for the Lord God Almighty and the Lamb are the temple of it'. In it is the river of the water of life, and the tree of life 'which bare twelve manner of fruits, and yielded her fruit every month'.

These quotations must suffice. One would like to quote the whole book, for it is a continuous chain of symbols; every conception in it contains more than is inherent in the words in which it is expressed. The city, its dimensions, its geometrical form, precious stones, pearls, gold, and glass: all these are symbols, and, in combination, they symbolize the kingdom of heaven after the end of the world. If one sees them as symbols, one can similarly regard any church as a representation of the kingdom of heaven – here and now, or after the end of the world. A church is not a portrayal of the New Jerusalem, but both St John's conception of a church and its structure are co-ordinated and equivalent symbols of the third – and primary – concept of the kingdom of heaven. Probably those scholars who speak of portrayal have the same meaning in mind. Perhaps they subscribe to the usage of calling any metaphor an image; but, in the study of the history of art, one must choose one's terms more strictly.[13A]

Real portrayals of the New Jerusalem do exist in illuminated manscripts, which are real pictures, but they do not follow the text absolutely rigidly. In the Apocalypse at Trier, MS 31, fol. 69, which dates from the eighth or ninth century, it is pictured with a wall with twelve towers round a basilica with transepts and a crossing tower, although St John says that there was no temple in the city.[13B] The Apocalypse at Valenciennes, MS 99, fol. 38, which also dates from the eighth or ninth century, shows a round city instead of a square one.[13C] The Apocalypse at Bamberg, which dates from about 1000, follows the text more closely; the Lamb stands in the city, but the walls are very low, not nearly as high as the city is broad, and the gates are grouped together in the form of gate-towers, three to each corner. The streets of gold and glass are also missing. The Apocalypse at Trinity College, Cambridge, Coll. R. 16.2., which dates from between 1230 and 1250, shows a square city, with its walls folded down and twelve towers. Within the square, God the Father sits on the left in a great *mandorla*, and next to him stands the tree of life with the river of life running out of it.[13D] One could quote many more examples, but in all of them one would find that the portrayal of the New Jerusalem was different from that described in the original text. Even here, artists felt themselves free of any obligation faithfully to illustrate St John's symbols, because they drew on the core of these symbols, on their underlying idea.[13E]

Since architecture is not the same as illumination and does not present a picture in the sense in which sculpture and painting do, it cannot be expected that St John's vision should ever have been portrayed in architecture. It is, however, to be expected that architects should have drawn on the basic idea of the book of the Revelation, which could be expressed in many different forms, as a bride, as a city, as a second paradise, or as a church. It is obvious, of course, that the architecture of a church can never portray a bride,[14] but it is not so immediately obvious that it cannot portray a city either. St John arrived at the poetical image of the New Jerusalem because, under the Greek political system, city and state were identical, and this is why the kingdom of God is identified with the idea of a city. He arrived at the name Jerusalem for the city through the connexion of that city with the Christian doctrine of redemption, and he then describes this future Jerusalem as magnificently as he can, using the means and the language of earthly splendour. He probably had literary predecessors,[15] and his architectural knowledge of oriental royal palaces was probably based on visits to ruins, or on hearsay. In the field of literature, later authors followed the metaphors of the Apocalypse, or other sources, or the free exercise of their own imaginations. One of the most important architectural fantasies of the Gothic style is the description of the Temple of the Holy Grail in the epic known as the Younger Titurel, which does not draw on the New Jerusalem of the end of the Apocalypse, but derives from its description in chapter 4.[16]

In the book of the Revelation, the New Jerusalem is mentioned as early as chapter 3, and here it is connected with the symbolism which appears in Suger's writings. From verse 12, it reads: 'Him that overcometh will I make a pillar in the temple of my God, and he shall go no more out: and I will write upon him the name of my God, and the name of the city of my God, which is new Jerusalem, which cometh out of heaven from my God: and I will write upon him my new name. He that hath an ear, let him hear what the Spirit saith unto the churches.' Here the New Jerusalem is not described: instead its name is written on a pillar which rep-

resents every Christian who has overcome, and has thus become a *habitaculum Dei in Spiritu*. The name Jerusalem is here used as a term for a conception which surpasses all that is conceivable. Finally, however, St John describes this conception positively with the metaphor of the city representing the kingdom of God.

The inverse method of connecting buildings, and their parts, with texts, words, and phrases has led theologians to interpret churches as representations of the New Jerusalem, and, in recent times, this idea of regarding architecture as a kind of pictorial script has been taken very seriously. In a scholarly work, Kitschelt has tried to prove that Early Christian basilicas were symbols of the New Jerusalem, based on patterns borrowed from Roman cities. He claimed that the main component parts of an Early Christian basilica correspond to the parts of an actual city of that time; the west doorway is supposed to correspond to the city gate, the nave to a street with arcades, the upper walls to the walls of the houses with their windows, the flat ceiling to the actual sky (or, metaphorically, to the world to come), the transepts to the *cardo*, the main transverse street of a Roman city, and the apse to the throne-room of the royal palace (or, metaphorically, of the palace of God). The arguments that can be made against this theory are as follows. In the fourth century, the only similarity between west doors of churches and city gates was that they were both doorways. In the main street of a real city, the light shines through the windows from the centre of the street, whereas the opposite is true in the nave of a church. Not all churches had transepts, and an apse only represents half a throne-room. However, all these arguments are pedantic, and a much more important one is that the parts of a church 'can be found in the same combination in heathen basilicas'.[17] The main criticism of this theory must remain the fact that the church building, as it is autonomous, is a symbol of the kingdom of God, and does not derive from a comparison of this kingdom with the plan of a Roman city: it symbolizes the kingdom of God even without the intermediate connexion or analogy with a city.

With their material substance (this is the first degree, that of natural materials), painting and sculpture can reproduce a natural model, or an inner conception (the second degree, that of representation); but they can also be symbols (and this is the third degree). It increases our understanding when iconography reconstructs the literary or poetic source on which the painter or the sculptor has drawn. To understand the reproductions of the New Jerusalem in medieval illumination and right up to Dürer's Apocalypse, in which Jerusalem is a Late Gothic German city, requires no erudition, but in other cases it sometimes requires extensive knowledge of the literary sources, and it is both possible and fruitful to make an analogous connexion between architecture on the one hand, and literature and poetry on the other.[18] Our differentiation between the three degrees of meaning makes it possible to recognize that iconography deals with the mere portrayal of a person, a landscape, an action, etc., that is, with the second degree, and at the same time to investigate whether this meaning itself is a symbol – that is, a symbol of a meaning. Iconography as such remains within the literary, or, in some cases, the poetic sphere of painting or sculpture, that is, it remains within the intellectual content of the fine arts.[19] However, studies of iconography usually move beyond the consideration of symbols of meaning to that of symbols of form.

The difference between these two fields of symbolism is an important one, and leads to the real root of the problem. It has been shown that a Gothic church, like every other church, is a symbol of the kingdom of God; and this symbol remains a literary one. How, then, can a Gothic church be a means to opening the mind to the idea of this kingdom, or of the New Jerusalem, even if the visitor does not know the Apocalypse and has never heard of the idea of the kingdom of God?

5. FORM SYMBOLS

What we call form is the result of limitation; but we do not mean by this the actual limit, but what is limited by it. Nor do we think of the meaning of what is limited, but of the way in which it is limited. The most obvious examples of this are spatial forms. A circular line encloses a circular surface, and a circular form is therefore the product of its limiting line and of the form of that line.[20] The sun, the full moon, the face of a clock, the iris in the eye, a wheel, and many buildings and other things are circular; but we do not consider the meaning of the sun or of these other objects when we concentrate on their form alone. The form of a circle, as such, is devoid of meaning.

Not only objects, such as the sun, are limited; the concept of these objects is limited also. If we confine ourselves to the realm of ideas we work either with sharply defined and separated concepts, or with conceptions, separated vaguely and fluidly. Even if our conceptions lack clear limitations, that is, definitions, the core of one conception is still separated from the core of another. Science and scholarship seek to set clear limits to our vague conceptions, and so to create concepts, such as the concepts of the Romanesque and the Gothic styles. Symbols of meaning, such as those in church architecture, the bride, the house of God, the city, or paradise, are also concepts which are clearly limited and separated one from another, However, our business is not only to find the relationship between church architecture and these symbols of meaning; for form itself can become a symbol, coordinated with the realm of the symbolism of meaning and expressing the same things by the use of its own means. If we can understand the symbolism of the form of a church, it will tell us more than can a comprehension of the symbolism of its meaning.

Every church is different in form; the form of its space, of its members, and of its light are all different from those in any other church. It consists of different-coloured materials, of light limestone, dark granite, red brick, etc., or it may have had colour added in the form of paint or plaster. Every individual building is a unification of these factors, tending towards a particular style. It is always true to say that a church represents *the* New Jerusalem, but, according to its form or, more especially, to its style, the New Jerusalem may be Byzantine, Carolingian, Romanesque, or Gothic. Within each style, one can further differentiate between its phases and between its local schools. Hagia Sophia and St Mark in

Venice represent a different New Jerusalem; so do the church of St Mary-in-Capitol at Cologne and the cathedral at Speyer, Notre-Dame in Paris and the cathedral at Reims, Annaberg and King's College Chapel, Cambridge.

We have progressed through the entire history of the Gothic style, and have taken it for granted that everyone knows not only that every church is a house of God or the new paradise, but also that the form of the house or the garden changed from Romanesque to Early Gothic, High Gothic, and finally Late Gothic. Incidentally, the interpretation of a church as a symbol of the garden is a rare one, although some scholars see an allusion to paradise in the foliage on the capitals at Reims, and in the framework of tree-trunks which appeared in church architecture after 1490. There is no evidence that this was the meaning assigned to a framework of tree-trunks in the Middle Ages, and it is hard to see why the Gothic style should be interpreted as representing a garden even where there are no trees, branches, or capitals with foliage, or why the Ca' d'Oro and the Doges' Palace in Venice should have capitals with foliage, although they do not represent paradise.[20A]

A garden is not quite the same thing as a forest. The metaphor of the forest was first expressed in extremely hostile terms (by the so-called Pseudo-Raphael in 1510, see p. 263) but he and his followers never spoke of cathedrals as gardens. This method of analysis leads to great embarrassment if we think of the bride of the Lamb in the Apocalypse, whom St John called up before our imagination as equivalent to the city. No Gothic church is a cube with twelve gates, and certainly none has the figure of a bride. On the other hand, the church can be related to gardens and forests in that the upward stream of forces is reminiscent of vegetal growth – an analogy which was drawn by Friedrich von Schlegel. In the eighteenth century, neo-Gothic architects built ribs in the form of reeds;[21] Laugier, too, toyed with this idea. However, as far as we know, the architect of Durham did not ask himself how he could give a vault the form of a tree-top, so that it should represent paradise: it was only after the Gothic style had logically developed within the terms of 'the law according to which it had been born' (to use a quotation from Goethe concerning the development of a man's character) that the house of God became vegetal in form.[21A] The 'sidereal' house of God (Schlegel) is also a New Jerusalem (for sidereal meant for Schlegel relation to the realm of the stars), but, as it were, a New Jerusalem come down from a different heaven. It is quite certain that, in the period of the Romanesque style as well, the fundamental meaning of a church was expressed symbolically through its form: a Romanesque church was also 'heavenly'.

We have seen that symbols of meaning grow as a third degree out of the second. A heraldic lion is a portrayal of a real lion, and this portrayal then joins the ranks of the elements of the symbolism of meaning. Now there are Romanesque and Gothic heraldic lions, and which of the two a certain heraldic lion is depends on its form. A Gothic form changes the portrayal of the lion into a Gothic lion, and symbolism of form is thus added to the symbol of meaning which is a matter of heraldry. How is this possible? It is the same question as the following: why should the *habitaculum Dei in Spiritu* itself become Gothic when it takes on a Gothic form? Since we know that Man, too, is *in Spiritu*, a house of God, the answer to this question will take us close to the root of the problem. A man who feels in a Gothic way, and who stylizes himself accordingly, requires, for divine services, not only a building which fulfils its utilitarian purposes and furthermore the function of symbolizing the concept of the house of God, but also a building which, through its Gothic form, symbolizes what that particular man feels.[22]

The question as to how a form devoid of meaning can become a symbol, and thus take on a meaning, can easily be answered: it assumes meaning through our own aesthetic attitude.

Man is born into this world and, from the cradle to the grave, stands in a perpetually changing relationship to it; he is determined by it, and, with tools and other means, works to create his own world out of it. This is a practical attitude towards the world. Only in the course of the development of mankind and of the individual does a second attitude appear, by which the world is seen independently of its usefulness. In the pursuit of scientific knowledge, man does not ask himself whether a circular form can be used to create a wheel, but what a circle is, what it was before the world was created, and what it will be after the end of the world. When man assumes an objective attitude he strives to see beyond himself and to consider the world separately from himself. The aesthetic attitude is the exact opposite of this: here man seeks to draw the world *into himself*. The fact that subjectivity takes a different form in the case of every individual is immaterial, for subjectivity draws on the views of man, in contrast to the scientific exclusion of the human being. This change does not take place in the realm of reason, but in the realm of feeling.

When a Gothic architect built a circular window, his work was bound up with a practical and theoretical attitude: for he had to know how to construct a circle geometrically and how, in practice, to set about building it in stone on a big scale, on a façade, and at a considerable height; but his decision to make the window circular was based on aesthetic grounds. There were many possibilities open to him, and this multiplicity corresponds to the 'margin of freedom' mentioned earlier (p. 270). Economic and practical questions may also have played a part in determining, for instance, whether or not it would have been cheaper to build a rectangular window. Questions of symbolism may have arisen too, for instance as to whether the window was intended to represent a wheel of fortune, or the sun; but the final decision regarding the position of the centre, the length of the radius, and the interior form could only spring from the aesthetic attitude of the architect.

Historians of mechanics say that, originally, fallen trees were used for the transportation of loads; later, circular discs were made by sawing or, more probably, chopping logs, and finally the wheel, with a hub and spokes, was invented. It is impossible to say whether this is what did in fact happen; the wheel, however, was presumably not the product of an aesthetic attitude. A mechanic considers a circular form valuable because it can be rolled; a theorist, as such, assigns no value to anything, but merely defines concepts; but the man who considers a circular form aesthetically, feels the connexion between any point on the circumference and the

centre as an inter-relationship, as a contrast between radial movement and concentration, and as a form representing repose. The symbolist moves past objective existence, and can choose a circle as a symbol for the *orbis*, for fortune, for the sun, or for Christ. If he remains within the realm of meaning he creates a symbol of meaning, but even this is based on the aesthetic factor of comparison. Science seeks identities and equations; poetry seeks likenesses and metaphors; but the symbolist of form regards a circle aesthetically, and he chooses a circular form as a symbol of perfection and eternal tranquillity and peace. His symbol is not conventional: it is immediate and compelling.

Science seeks to recognize what things are in terms of themselves: an aesthetic attitude feels what they are in relation to us. A blue ceiling can be cold or warm, according to the temperature, but, to our feeling, it is always cool. It stands at a measurable distance from us, but, for us, it is always far away, even if we climb on to a scaffolding. We thus change the temperature and the distance of an objectively existent colour. Every aesthetic reaction produces an interchange within various fields of the senses – in visibility, warmth, taste, statics, dynamics, and so on. For instance, blue is restful, yellow is pungent; everyone is familiar with these frequently quoted phenomena. The architect lives perpetually in this realm of empathy in which forms are felt. Some decisions can be made without any hesitation, but others can only be made through a careful weighing of whether one form matches others which have already been chosen – whether it creates harmony or disturbs it.

A visitor who is susceptible to aesthetic effects can understand the forms chosen by the architect. He may be delighted by them, or he may be passionately opposed to them, but before he feels one or other of these emotions, he must thrust his practical and theoretical ideas to the back of his mind for the moment and consider the work aesthetically. If he cannot do that, he is like a blind man trying to see light. There are people who are unmusical; others have no feeling for architecture and cannot understand the language of stone. Some people understand the language of poetry better than that of architecture. Anyone who has feeling for architecture also possesses a certain degree of understanding of it, and the creative master must possess this understanding in its highest degree. The Gothic style has not always been understood. In the seventeenth and eighteenth centuries, the French spoke of their ancestors' *mauvais goût*. Taste is another of the fields of meaning into which spatial forms can be converted; forms can be sweet or astringent, gentle or sharp. This was not only a matter of taste, in the true sense of the word; *le bon goût* was a fundamental prejudice against the Gothic style.[23] The people of that time missed the rational system of supports and loads, and Gothic proportions offended them. In classical antiquity it was demanded of the column that it should conform to Man; the Gothic style, on the other hand, demanded that Man should try to conform to the proportions of its shafts: its demands were inhuman, super-human.

Some historians of architecture lay great store by the presentation of proportions in numerical form. Admittedly, according to whether they are more or less steep, proportions do show the tendencies of various generations, but nobody need tell us what figures are involved at Amiens, at Speyer, or in the church of S. Francesco at Siena; for the proportions exercise an immediate effect, and it is quite unnecessary to run through all the buildings which we have studied in their historical sequence in order to prove this point. Every form of vault and pier, of spatial subdivision, of window and doorway, and of tower and roof was directed at the aesthetic understanding of the visitor; every one was a formal symbol, as were density, laxity, movement, rotation, colour, sparkle, roughness, shadow, etc. They say an infinite quantity of things, and one need only be able to see in order to hear what is said tacitly. Beside this symbolism of form, the symbols of meaning pale.

In the symbolism of form, we can see splendour or asceticism, oppression or verve, sterility or elastic vitality, a cheerful enjoyment of life or sombre depression. One says of space that it spreads, it rises, that it is quick or slow in tempo, that it circles, it spirals, or it concentrates. Some historians of art positively luxuriate in the application of their own feelings to architectural interiors, and it is equally possible to project one's feelings into architectural members. Figures cannot do justice to the wealth of the proportions and rhythms at Saint-Germer, although everything there still breathes simplicity, nor to the infinitely more complicated proportions and rhythms of Pirna or Tomar, and even the best description of an aesthetic impression is far surpassed by the original impression. We rarely speak of the colour of stone, and we can never convey in words the different aspects of an interior caused by the constant changes of light, or the difference between an exterior at sunset and by moonlight.[24] Admittedly, well-chosen words can open the eyes of an unpractised visitor, but perfectly to understand the symbolism of form is like understanding the mime of a great actor.

Besides the three attitudes that we have discussed, which Man can adopt towards the world, there is a fourth. We can regard, recognize, and feel ourselves and the world as standing on a common, metaphysical foundation; and this is the religious attitude, in which the common background is God. During his devotions, a religious man performs a certain mime; he kneels, lowers his head, and folds his hands. This is the visible expression of the fact that he submits, that his hands are inactive, and that his spirit is seeking contemplation. He can pray anywhere, in his own room, even in the open air, but a prayer chamber for the multitude, a church, must aim, through its symbolism of form, to provide a suitable aesthetic framework for the prayers of the many.

One should be wary of anthropomorphic discussions of works of art, but they can sometimes be of more help than a host of words. We can say, for instance, that a church should be practical for the holding of services, and that its meaning can be left to the realm of the imagination. We can simply say, 'This must be the house of God', but, in fact, we demand more than this. We want to be able to *see* that it is the house of God. Metaphorically, we demand that a church should itself be devout, that it should praise the Lord day and night, and at all times. This is what church architecture is.

However, its language changes; it can be Romanesque or Gothic. Style interprets the meaning.[25]

6. GOTHIC ARCHITECTURE CONSIDERED AS ART

Art is the particular inter-relationship of form and meaning in which form becomes the symbol of meaning. The Gothic style is art because the forms created by Gothic artists interpret the meaning of church buildings. The conception of God has undergone many changes, from animism, magie, and polytheism to monotheism and Christianity, and the stylistic changes in Christian church architecture accompany the changes in the coneeption of God within the Christian religion. Houses of God change, and in changing express the changing conceptions of religious men. It is not God who changes, but his refleetion in the minds of men; it is the mirror whieh changes, and this reflected meaning is the subject of architecture as art. Gothic man reflects God in a Gothic way, and Gothic church architecture is art because Gothic forms symbolize the conception of God that was valid in the Gothic age. The conception is based on Man's relationship to God; in the Gothic period, Man always knew that he was only part of a whole, but he could feel that, even as a part, he represented a whole if his own will governed that of other men, or at least played a part in determining the whole. The fight for sovereignty of states and cities whieh was waged during the time of the Romanesque went on in the Gothic age, but the pope had achieved the position of representing the idea of a superior state – the kingdom of God. Even though they did not achieve their aim, the crusades were communal wars, waged together by all Christian states. There was a live eonception of the whole of which every individual was a part. Out of the rcligious life of the time thc individual also drew the tendency to play the same modest role in his private life. The eschatological aspect of Christianity made politieal, military, and eeonomic ambitions and suecesses seem insignificant, for the enjoyments of this world were regarded as the temptations of Satan; the life of this world was only a part of eternal life. During this provisional existence, man was therefore preoccupied with eternal existence.

This had been the teaching of the Church, even during the time of the Romanesque style, but, at that time, the princes and barons kept this world and the next apart. Men were concerned with the life to come, but their eoneern rather took the form of laying in a store of prayers and making endowments for the time after their death; it was not a penetration of the next world into this, not a really permanent religious feeling. Even the monks remained lords, and the abbots princes, as, with few exeeptions, did the bishops. Only at the time of St Franeis, St Dominic, and Pope Innoeent III, the time of the Lateran Council of 1215 and of the promulgation of the dogma of transubstantiation, did the idea of the superior unity of the Church reach maturity.

The spiritual atmosphere that was ereated by these three men was the logieal outeome of the politieal and social development that preceded it. It was the vietory of the idea of the partiality of the individual over the idea of his totality. The Romanesque style is art because, to anyone who understands its language, its forms, through their aesthetic ehanges, say something fundamental about the attitude of their creators towards themselves, to the soeiety to whieh they belonged, and to this world and the next. Because of this, the Romanesque style symbolizes the conception of God which was current at its time. The Romanesque house of God recognizes the conception of God as the highest power – unapproachable, *tremendum*. Similarly, the Gothic style is art because Christ, in his suffering, is elose to Man, and beeause Gothie forms symbolize the disappearance of thé boundary between Man and God.

In so far as these eontrasts also determine aetivity in other eultural spheres, they are based on the same 'aesthetic logic'[26] of the part and the whole, and the Gothic style is an expression of these aspects of civilization. Whether or not the decision that Man is a fragment of the universe, 'absolutely dependent' and in 'ultimate bondage' (*religio*), also governs other cultural spheres, is a question for historical research. Within the sphere of architecture, the style of partiality gradually gained complete mastery; and even if this was also the case in other spheres, for instance in the liturgy, in theology, or in sculpture, the difference between these spheres was still obvious. In Gothie architecture, our attention is drawn to the fundamental meaning of partiality, and this meaning remains the actual basis whieh is directed at our powers of observation, and out of which the style of partiality appears. The house of God has its eonception of God in common with scholasticism, but it is a house, built by masons, while scholasticism was a philosophy, evolved by theologians. It is a house, with rib-vaults and diagonally set shafts, pointed arehes and flying buttresses, tracery and gables, pinnacles, balustrades, and so on, and, even if theological or literary imagination sueeeds in interpreting certain details, or even the whole, as symbols of meaning, the actual spatial parts, the architectural members, and the whole ehurch remain what they are. Its form is determined by the daily work and preoeeupations of a masons' lodge, not by those of a theologieal lecture-hall. The internal, immanent proeess of the Gothic style is not guided, step by step, by eonnexions with other spheres, even where sueh connexions exist: its direetion of development simply springs from the same eommon root.

The Gothie style, therefore, has not been exhausted when we have spoken of the formal symbolism of partiality; we must also take note of its arehitectural members. There are other styles based on partiality, for instance the Baroque; the difference between them lies in their treatment of space and of architectural members. An aesthetic consideration of the Gothie style is exhausted when we have felt its upward swing or in other cases its horizontal spread, when we have tasted the fineness of its members and the beauty of its stained glass, the menaeing stare of its towers and the upward stab of its pinnacles. An artistie consideration of the Gothie style is more than an aesthetic consideration. It presupposes an aesthetie understanding, but verticalism only beeomes a *sursum corda* when we also understand its meaning; then the width of an interior eomes to suggest the world outside the ehurch and the extent of religious domains, and the stained glass beeomes a symbol of the transcendent world and of mysticism. Art applies simultaneously to what is felt and to what is known. A man who suffers from aesthetie blindness has no access to art, but a man with aesthetic feeling ean equally well be blind to art. An artistic sense enables a man to apply his aesthetic feelings to the

321. Maulbronn Abbey. South wing of Cloister, *c.* 1220

322. Maulbronn Abbey. Monks' parlour, after 1493

meaning of a building and to deduce the meaning from its form, even if he has read no learned books on the subject of this meaning.

A man who understands architecture as art needs no history of civilization as a commentary, and, similarly, a man who understands the history of civilization needs no history of art as an illustration. Yet the problem of the connexion between these two forms of history is an urgent one which cannot be avoided: it exists in its own right.

7. SECULAR ARCHITECTURE DURING THE PERIOD OF THE GOTHIC STYLE

The history of secular architecture in the age of the Gothic style really requires a separate discussion and is too broad a subject to deal with adequately in this book. It is only touched on here because secular architecture stands closer to religious architecture than does any other cultural field, and therefore shows the different conditions underlying the two with great clarity.

Within the field of secular architecture, it is monastic buildings and the domestic buildings for canons which stand closest to sacred architecture, and here the purposes are simple, everyday ones. The architectural programme of a monastery, which was laid down very clearly as early as the plan of *c.* 820 for St Gall,[26A] consists of a refectory, a dormitory, offices (kitchens and store-rooms), a chapter house, sometimes separate living quarters for the abbot, a reception room for strangers, and so on. These rooms lie round a square courtyard, called a garden, which sometimes also served as a graveyard, and this garden is surrounded by the cloister walks. It was the general rule for the architect of the church also to design the other adjacent buildings, and it is therefore not surprising that the forms used in the churches were also introduced in cloisters and refectories, and in other buildings. Even if only cloisters had been preserved, they would, in themselves, give a fairly complete picture of the history of the Gothic style.[26B]

A fruitful theme must wait for the appearance of a man capable of developing it. The four ranges round a cloister generally have solid, articulated walls with isolated doorways facing the church, and open arcades towards the courtyard. Stylistically the roof and the supports are decisive. Every kind of vault appears in succession. The north wing of the cloister of Saint-Trophime at *Arles*, built about 1180,[27] has a semi-cylindrical tunnel-vault with transverse arches, which is still purely Romanesque in style, although it is contemporary with Notre-Dame in Paris. The vault at *Le Thoronet*, which was built about the same time, is a tun-

nel-vault with a cross-section in the shape of a pointed arch, and achieves uncommon splendour through its great wall-surfaces and its lack of any division.[28] At *Fontenay*, severies with horizontal ridges cut into the tunnel-vault, which also has a pointed section.[29] Before the end of the twelfth century a rib-vault was introduced in the cloister at *Longuay* (Haute-Marne), a Cistercian monastery.[30] At *Noirlac*,[31] sexpartite vaults were built in the second half of the thirteenth century, that is, at a time when they had long since ceased to be used in churches; nor was there any reason to build them here, unless it was to match the coupled openings of the arcades, which, however, are subdivided yet further. Because of the lack of sufficient research, it is impossible to say when ridge-ribs were first introduced in cloisters, but certainly those in the south wing of the cloister at *Fontfroid* look very early.[32] The incomplete cloister which was added to the south side of the cathedral at *Laon* about 1200, and which has only two wings, has quadripartite rib-vaults.[33] The cloister on *Mont Saint-Michel* was completed by 1228, and has a tunnel-vault with a pointed section – made of wood.[34] Whereas, at this time, arcades usually took the form of open windows with tracery, here there are double-tier arcades of pointed arches supported on slender columns, arranged so that the two rows of arches are in syncopation with each other (like the arcades on the walls of St Hugh's Choir at Lincoln, *c.* 1200). The gap between the two rows is so wide that one could walk along it, and this narrow passage has rib-vaults consisting of triangular bays.[34A]

The classic High Gothic style is realized in the cloister at *Noyon*,[35] begun some time after 1240, and in that at *Westminster Abbey*, begun after 1245;[36] and the cloister at *Salisbury*, begun in *c.* 1263 and complete in the early fourteenth century, is also High Gothic.[36A] The south walk of the cloister at *Maulbronn*, begun some time around 1220, and still built with a sexpartite vault [321], must be judged in comparison with these High Gothic cloisters. The architecture of the Cistercian order reached different stages of development in different countries at different times, and at Maulbronn it had lagged behind the stage reached at *Longuay*. However, the development to the High Gothic style was achieved even at Maulbronn in the second half of the thirteenth century, when the other three wings of the cloister were built with quadripartite vaults.[36B]

The cloister at Salisbury has no gables above the arcade

323. Pamplona Cathedral. Cloister, begun 1311

324. Avignon, Palace of the Popes, *c.* 1335–52. West front

openings, although it is later in date than the Sainte-Chapelle. However, the combination of tracery divided into four lights with gables cutting through the balustrades, which appears in the cloister at *Pamplona*, begun in 1311 and completed during the episcopate of Arnaud de Barbazan (1317–56),[37] when the choir at Cologne had just been finished, is fully developed [323]. It is tempting to try to follow this development further. The cloisters that have been quoted so far suggest that new ideas always appeared first in church architecture, and were only later introduced into designs for cloisters, and it is therefore reasonable to presume that net-vaults, for instance, were not built in cloisters until after the date of the vault in the choir of the cathedral in Prague (*c.* 1380).[38] It is not yet known when this form was introduced in cloisters, but it is certainly ideally suited to their narrow passages and was frequently used in the fifteenth century. Examples can be seen in the south walk of the great cloister at *Basel*, begun after *c.* 1440[39] in the cloister at *Bebenhausen*, built between 1471 and 1496[40] (where there are also double-curved ribs in the well-house), and in the monks' parlour at *Maulbronn* of 1493 [322], where the meshes of the net are as close as in the later vault at Pirna.

Only the fan-vault appeared earlier in secular architecture than in church architecture, the first fan-vault on a large scale having been built after 1351 in the cloister at *Gloucester* [230].[40A]

A study of chapter houses shows that here, too, the forms were almost without exception those which had already been used in churches. Only the English chapter houses at *Wells* and *Old St Paul's London* realized new ideas which were to revolutionize church architecture.[40B] The double-naved form of refectories, dormitories, and store-rooms began earlier than in Gothic and Late Gothic hall-churches, but it was a product of the function of these rooms and cannot really be interpreted as a model for the later forms of church architecture.[40C]

Since they were retreats for peace-loving men, monasteries were only rarely provided with means of defence, and, even when they were, provision was made only to a very modest degree.

On the other hand, sieges and wars for the purpose of increasing power and possessions were among the ideals of the secular lords, and they had always to be prepared for the attacks of other lords with similar intentions. Beginning in the ninth century, castles and the fortifications of towns were developed on a monumental scale. These fortifications were perfected by the architects of the Romanesque and Gothic ages, always in accordance with the development of weapons of war, political demands, and geographical conditions. Just as the fundamental meaning of a church is the kingdom of God, so that of a castle, while it may not quite be the empire of the Devil, is certainly the realm of the all-too-human. Castles had their own chapels, which were just as Gothic as the churches of their time; for example, the chapel in the castle at *Marburg*,[40D] the *Sainte-Chapelle* in *Paris* and the many chapels that followed its design.[41] However, the actual castles had their own style, and one would hesitate to call Gothic those built during the period of the Gothic style. Coucy is one of the most magnificent ruins in France: Viollet-le-Duc dated it as between 1225 and 1242, and this is probably fairly accurate for some parts of it.[42] Apart from an extensive modernization between 1380 and 1387, especially in the great hall and *corps de logis* on the south-western side, the castle was essentially a building of the first half of the thirteenth century, dating from the same time as Amiens. Of course, as regards the structure of the walls, the towers, and the keep, there is no similarity to what we call Gothic; rather, it is Romanesque.[42A] Castles and the whole field of military architecture have their own immanence; their artistic quality lies in the fact that their form was made to symbolize threats, arrogance, and the instillation of fear. 'They seek to give the effect of a Gorgon's head.'[43] They announce the belief of a large number of men in their own strength and in their readiness to reward evil with evil, or even simply to do evil on the principle that might is right. They are no symbol of the Sermon on the Mount.

In some details, however, one can find Gothic forms. Just as they exist in the cloister on the Mont Saint-Michel, so they exist also in the Palace of the Popes at *Avignon* [324], where there are rib-vaults and Gothic supports with Gothic bases and capitals. The palace was begun by Pope Benedict

325. Malbork (Marienburg). Exterior, late thirteenth to early fifteenth centuries

XII between 1335 and 1342, and was continued by Pope Clement VI between 1342 and 1352. Because of details such as these, one can often describe castles and palaces built during the reign of the Gothic style as Gothic, but one should always ask oneself to what extent a castle, because of the form of its silhouette, can really be called Gothic.[44] The so-called picturesque quality of many castles was not the original intention of their architects, and the aura of romanticism which surrounds any ruin is a delusion which gives place to a quality of frightening sobriety as soon as a ruined castle or palace is restored, as has been done, for instance, at *Pierrefonds* in France and at *Karlštejn* (*Karlstein*)[44A] in Bohemia.

Medieval thought succeeded in creating a blend between monks and knights. The orders of chivalry built their monasteries in the form of castles. The Prussian Order, for instance, had subjected the Slav population with fire and the sword and it needed strong castles to preserve its mastery and to give a show of princely presence. In *Malbork* (*Marienburg*) castle in West Prussia [325, 326], the chapter house and Grand Master's Refectory have vaults with the triradial patterns which were introduced from England about 1330, and they give a solemn effect which blends religious and secular feeling.[44B]

Castles and palaces represent individual, powerful lords; knights' castles represent groups of monks organized on a

326. Malbork (Marienburg). High Castle, chapter house, *c.* 1330

military basis; but the fortifications of towns represent civic communities who were essentially peaceable, but who also sometimes found it necessary to fight one another. Town walls, in their developed form, and fortified gates were also designed to frighten. The basic intention of town walls is directed outwards against possible attackers, but they also have a secondary function which is directed inwards; they crowd the population together because a short circumference is easier to defend. Thus they have an influence in determining the narrowness of the streets, the small extent of the individual plots, and the verticalism of the houses; so they indirectly produce the very factor which makes these towns look Gothic – that is, their proportions. However, walls and gates cannot always be called Gothic. The gatehouse of the Fort Saint-André at *Villeneuve-lès-Avignon* [327], built from 1362–68, has a gateway with a pointed arch, and its profiles and its jambs, too, are Gothic, but the whole gate is pressed into insignificance by the enormous round towers (originally without windows), crowned with machicolations, which flank it.[44c] *Castel de Monte*, begun in 1240 by Frederick II of Hohenstaufen, shows how relatively unimportant the form of a gateway is when it stands between two round towers. Here, the classical forms in the framework round the pointed archway do not turn the whole palace into a Renaissance work, nor does the Gothic window above this classical framework make the whole palace Gothic.[45] There is, as yet, no terminology for the styles of military architecture, and this is a subject to which more thought could profitably be devoted.

However, there are some gate-towers which, by the incorporation of the Gothic system of articulation and by the form of their roofs, can really be called Gothic – for example, the Stargard Gate in Neubrandenburg [328], the Powder Tower in *Prague* and the Old Town Bridge Tower, also in Prague, the latter designed by Peter Parler.[45a]

Inside the circumference of town walls, new secular buildings were made to match the architecture of churches. Once again, it goes without saying that the Synodal Hall at *Sens* [329], which was built sometime between 1222 and 1241 as part of the archbishop's palace, should have been built with High Gothic forms, just as the cathedral had been built, about a century earlier, with Early Gothic ones. This

327. Villeneuve-lès-Avignon, Fort Saint-André, *c.* 1362–8

328. Neubrandenburg, Stargard Gate, fifteenth century

long hall, with its great windows filled with tracery, was used for councils, courts of law, festivities, and banquets. The archbishop must have found it comforting to exercise his secular office as judge and domestic master in an environment with a religious aura. This example can usefully be taken as a perfect paradigm in evaluating secular architecture, in so far as it is Gothic. It can immediately be seen that the rectangular building, of which this hall is the upper storey, is not a church. Some churches are also without a tower or an apse, but the combination of their absence with the splendour of the windows, the battlements, and the pinnacles produces a blend of a secular function with the forms of church architecture.[45B]

Similarly, the needs of growing civic communities also produced various types of buildings, such as the cloth-halls in Belgium, the town halls in every large town [331][45C], public halls for dances, buildings for law courts, and hospitals. Where it was decided to make these buildings into symbols of civic dignity and common wealth, architects turned to Gothic forms and used them to decorate their façades, interiors, and courtyards. Plans and sections, on the other hand,

329. Sens, Archbishop's Palace, Synodal Hall, 1222–41

330. Braunschweig Town Hall, begun 1302. The Martinikirche on the left

were the product of the purpose of each building, and, to determine whether these spatial forms are specifically Gothic or not, each case must be considered separately. If the rooms inside are vaulted and the vaults have ribs, then there can be no doubt that they are Gothic, but it is by no means certain that such vaults determine the style of the whole building, as they do in a church. In so far as decoration is taken from the forms of Gothic churches, they again are Gothic, but, once again, one must differentiate between them and the form of the whole building. Sometimes forms are taken as adornment from military architecture, especially battlements, whose zigzag line is stylistically related to the line of rows of gables and pinnacles. The façades of the *Palazzo Vecchio* at *Florence*, built between 1299 and 1310/15, can only be called Gothic if one applies the term blindly to anything built during the Gothic period. Tradition has it that it was designed by Arnolfo di Cambio, the designer of the cathedral and of S. Croce, and, if this is correct, then this architect has three designs to his credit as different from one another as they could possibly have been at this time.[46] This heavy block has an embattled sentries' walk, projecting and supported on corbels; the windows

331. Markgröningen, Town Hall, fifteenth and seventeenth centuries

have round arches, are mainly irregularly distributed, and are filled with a kind of tracery. The main entrance is near the right-hand corner, and the tower, which stands on the sentries' walk, strengthens the impression of asymmetry. Much of the interior was altered later, and the rib-vaults which appear here and there do not determine the style of the whole – a style for which, once again, we have no real term.

The cloth-hall at *Ypres* (which was destroyed in the first World War) was built between *c.* 1250 and 1304.[46A] Its long façade, with twenty-two windows to the left and twenty-three to the right of the central tower, which was four windows wide, was Gothic because the windows had pointed arches and tracery, and the ring of battlements could also have been called Gothic. Certainly the central tower with the four pinnacles at its corners, the pinnacles at the ends of the façade, and the enormous pitched roof were all Gothic. However, the interior of the upper storey had an open timber roof.

The town hall at *Braunschweig* falls entirely within the concept of the Gothic style [330]. The building has two main wings which meet in the shape of a letter 'L' and form the corner of a big square; it was begun in 1302, but the arcades were added later – those on the west wing in 1393–96 and those on the north in 1447–68. Buttresses rising through the entire height of the building divide each wing into four bays in which, above the low, arcaded bottom storey, there are tall, arched openings with tracery beneath gables. The vertical members of the tracery stand on semicircular arches – an idea that has no parallel in church architecture, except in the English Perpendicular style (from 1292).[46B] The complete elimination of solid surfaces, in the Gothic sense, should be compared with the solidity of the Palazzo Vecchio at Florence and with the combination of penetration and solidity in the *Doges' Palace* at *Venice* [332]. Two of the façades of the palace at Venice – that facing the Piazzetta and that facing the Molo – have pointed arches standing on short columns, and rib-vaults in the long galleries on the ground floor. Above this there are slender columns, of which every other one stands over the apex of one of the arches below. Between the ogee arches in the upper row there are circles filled with quatrefoils, and the ogee arches run smoothly into the circumference of these circles. The upper gallery has a flat, wooden ceiling. The Gothic elements are actually just as original in their composition as those at Brunswick, but here no attempt has been

332. Venice, Doges' Palace, fourteenth–fifteenth centuries

333. Bourges, house of Jacques Cœur, 1443–51. East wing, showing the main entrance, the chapel above and the staircase turret to the left of the chapel tower

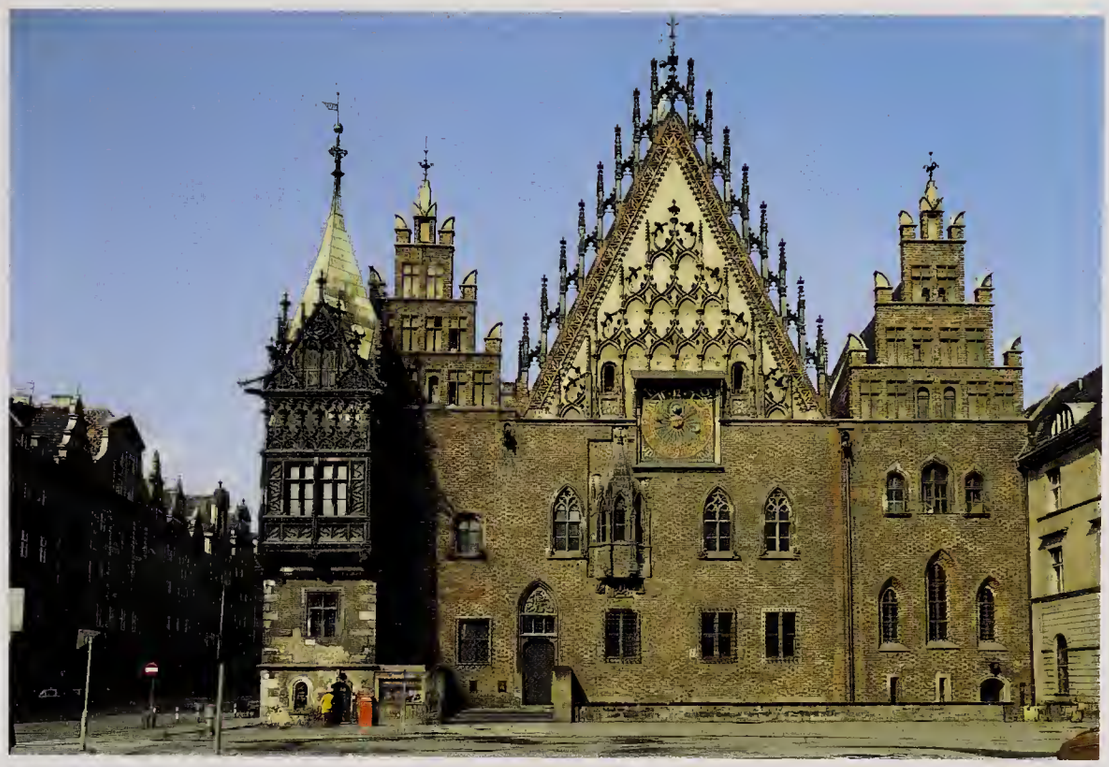
made to remind us of Gothic church architecture. The walls which rise above the columns and arcades are the same height as the two lower storeys together, and their effect is one of thinness and lightness, partly because of the two-dimensional pattern on them. The lower gallery is purely structural; the upper one is also structural, but with a textural quality, and the ogee arches also prepare the eye for the textural character of the patterned surface above. The façade of the south side, the side facing the Molo – up to and including the fifth of the present seven windows – was begun *c.* 1340 and executed up to the last quarter of the fourteenth century. The balcony and rich surrounds of its fourth window were the work of Pierpaolo and Jacobello dalle Masegne between 1400 and 1404/5, though the marbled diaper facing was not installed until the second quarter of the fifteenth century. Also belonging to the late fourteenth century is the corresponding façade on the west side, facing the Piazzetta, at that time consisting of only the first six arcades and two windows. Some of the most prominent sculpture of the ground floor – the Adam and Eve, and the drunken Noah – are by Matteo Raverti and Michelino da Besozzo, and date from some time between 1404 and 1421. From 1422/24, during the reign of Doge Francesco Foscari (1423–57), this western façade was extended up to the south side of S. Marco. Between 1438 and 1443 Giovanni and Bartolomeo Bon completed the richly decorated Porta della Carta (also called the 'Golden Doorway') between the south transept of S. Marco and the Piazzetta façade, while at the same time Stefano Bon built four of the six vaults in the passage behind it leading to the courtyard.[46E] The whole building can be considered Gothic, but one need only compare it with the church of the Frari in Venice, begun in around 1330,[46D] to realize that secular architecture combined Gothic forms in the members with quite different spatial forms. Ogee-arched loggias with quatrefoils reappear in the façade of the *Ca' d'Oro* in *Venice* which was built by the Venetian noble Marino Contarini in 1421–38.[46E] Here again, it is quite clear that existent forms have been matched to decorate particular conditions, but this consideration of the architect's creative method need not detract from the beauty of his work.

The further one progresses into the fifteenth century, the stronger is the assimilation of secular architecture to the forms of Late Gothic churches. In the town hall at *Louvain*, built between 1438 and 1468, the forms of the architectural members are drawn from church architecture. Its secular purpose is quite obvious, yet the Gothic forms used inevitably instil into it some measure of ecclesiastical spirit. It is not known whether the architect, Matthaeus de Layens, wanted the most important secular building in the town to express the interest of the community in the life of the church. Perhaps he never really thought of this, but simply regarded the forms of church architecture as common property which could just as well be used to glorify civic wealth and the enjoyment of this world, as the house of God. The clergy obviously raised no objection and did not insist on any asceticism in Flanders.[46F]

The private *house of Jacques Cœur* at *Bourges* [333], built in 1443–53, is a little older than the town hall at Louvain. The life of Jacques Cœur illustrates the close connexion that existed between secular life and religious life at this time. He was a highly successful financial genius. He put King Charles VII's treasury in order, and, as this king's *argentier*, enjoyed regal treatment at the hands of the popes. In 1451 he was unjustly accused of having poisoned Agnes Sorel, the king's mistress, and was sentenced to imprisonment by judges who owed him money. In 1454, he was at last able to escape and flee to Rome, where the pope sent him to

334. Wrocław (Breslau) Town Hall, *c.* 1330–57 and *c.* 1470–1510. Exterior

335. Meissen, Albrechtsburg. Great Hall *c.* 1475



Rhodes with a fleet of ships, and he died of an illness on the island of Chios in 1456.[46G] Popes needed money as much as kings, and the church was always prepared to befriend a man of wealth, whether he was a prince or a burgher. Jacques Cœur, for his part, followed the precepts of the Church, and he is a perfect example of the combination of a *vita activa* with a recognition of piety. He built a chapel in the cathedral at Bourges, and one of his sons became an archbishop. His house, which he was able to enjoy for only a few years, has a chapel over the main entrance, and the two circular towers of the west wing were incorporated into the city walls, the roof storey of one of them, the 'Tour de la Chaussée', served as a treasury. The remaining rooms are arranged round the irregular courtyard to serve the comfort of a family and their servants.[47] The different widths of the parts of the building result in roofs of different heights, which combine with the turrets to produce a group with a perfectly free rhythm. The details, inside and outside, are not arrogant but rather coquettish. It is impossible to say to what extent the irregularities were dictated by the site and how far they were exploited with gusto.[47A] The house contrasts sharply with the strict axial regularity of the town hall at Louvain, and by

comparison with the house of Jacques Cœur even the Doges' Palace in Venice has a character of monumental self-discipline, in spite of the irregular distribution of its windows.

Jacques Cœur's house was built all at one time, but, in other cases, irregularity was caused by later additions. An example in point is the town hall at *Wrocław* (Breslau) [334].[48] There are irregularities even in High Gothic buildings, but irregularity as a principle is related to the general tendencies of the Late Gothic style. The relaxation of strict regularity in the thirteenth century was continued by the Parlers, and, to an ever increasing degree, in the fifteenth century. It was always more natural to secular architecture than to church architecture, and it is almost normal in military architecture – in castles and town walls – though even here there are exceptions, such as Aigues-Mortes and the regularity of the other new towns founded at the time.[49]

The richest example of Late Gothic irregularity is the *Albrechtsburg* at *Meissen* [335] which was designed from 1471 by Master Arnold von Westfalen.[50] Almost every one of its main rooms is a building in its own right, and the whole group seems only to have been drawn into a unity quite by chance. However, it does not represent an addition of isolated parts, but a fragmentation of a whole, which has taken place from within. The castle at Meissen has star-vaults, 'cell-vaults',[51] and net-vaults, in a variety of configurations, and its architect knew and had mastered every means of the Late Gothic style – torsion, concavities, curtain arches, and the penetration of one form with another. Its wealth springs from the architect's imaginativeness in the realm of geometrical possibilities; it is a spiritual wealth, which reaps the harvest sown by the whole Late Gothic style. Here, the consequences of church architecture are applied with the freedom of a virtuoso to a secular building for the use of a prince, but a very careful examination would be required to decide whether or not some of these forms of the 1470s are precursors of forms later used in church architecture.[51A]

This superficial study of secular architecture has uncovered some problems in the history of style which yet remain to be solved. The first question is that of the logical development of specifically secular forms, which took place within each one of the functional spheres of secular architecture – military, civic, and domestic. The second is the question of the borrowing of religious architectural forms to serve as decoration in secular architecture. Both spheres seem to have developed separately, according to their own requirements, and yet they also seem to have influenced each other.

A good example of the borrowing of forms from Gothic church architecture can be seen in the great hall of the *Palais des Comtes* at *Poitiers* whose great hall was built shortly after 1200 [336]. The hall, one of the most impressive spaces in medieval secular architecture, is a large rectangle articulated on its interior with blind arcades and covered by a wooden barrel-vault (which was restored in 1665 and again in 1861). However, when Jean, Duc de Berry, inserted a fireplace in front of its south wall, his architect, Guy de Dammartin, built a row of pointed arches with tabernacles over it, standing on slender piers turned through 45 degrees. The pointed arches are filled with open Flamboyant tracery, but have no glass, and they stand in front of a series of windows in such a way that their centres lie in front of the chimneys between the pairs of windows, forming a syncopated rhythm. This piece, built in the late 1380s, is one of the earliest examples of Flamboyant after the windows in the Chapelles de la Grange at Amiens (around 1375). The strikingly small divisions of the balcony date only from 1862.[52] The decoration of the wall containing the windows with these Late Gothic derivatives of church architecture alters the effect of the whole hall. One is convinced that it is entirely Flamboyant, although its Early Gothic ambience has been completely preserved.

To the effect of the syncopated rhythm of this decorative curtain must be added the fact that turrets rise in the corners, so that, at these points, the row of pointed arches is cut. One should be wary of speaking of irregularity here; it is sufficient to recognize a tendency to irregularity. The tendency is less striking and more disciplined here than it is, for example, in the *palace* at *Meissen*, but a tendency to irregularity is certainly an important feature of the Late Gothic style, and can be seen just as clearly in secular architecture as in church architecture. Whether this factor always governed both spheres of architecture at the same times is a question that remains to be answered. *Castel del Monte*, of which we have already said that it is neither classical nor Gothic, although it includes details of both these styles, is, as a whole, a strictly regular building, but it is difficult to decide whether or not its tendency to regularity derives from the Gothic style of the great cathedrals. Certainly, a degree of regularity is an accompanying factor of every style, but without being the actual determining factor, in spite of its affinity with certain phases. There is a tendency to regularity even in certain Late Gothic castles, such as those at *Beaumaris* and *Harlech* in Wales, which date from 1295 and 1283 respectively, and the castle at *Tarascon*, begun in 1400;[53] and there is a similar tendency to irregularity in the High Gothic period, for instance in *Conway* Castle, built and completed between 1283 and 1287, where the round towers could certainly not be called Gothic.[54]

The most important problem in the study of secular architecture, however, is concerned with its forms as symbols of every branch of secular life, and this question embraces both the two questions raised before. Even where forms from church architecture were used, they were not intended to honour God. In castles and fortifications they are evidence of the autonomy of Man in his energy, his daring, and his ideas of pride and honour,[54A] and in town halls, palaces, and the private houses of the rich they express Man's vanity and his dependence on an audience, be it admiring or envious. However, in so far as the stylistic principles of church architecture blended spatial parts into one another and exploited the properties of Gothic profiles and the Gothic relief in secular architecture, the stylistic effect in both spheres is much the same. It is only essential to remember that, if art is form which aesthetically symbolizes its own meaning, then it is important to know whether

336. Poitiers, Palais des Comtes, early thirteenth century. Interior; fireplace wall, late 1380s

Gothic forms were connected with a religious meaning or a secular one. Whereas the purpose of Gothic church architecture, throughout the Gothic period, was to symbolize Man as a fragment of the kingdom of God, the purpose of Gothic forms in secular architecture was to symbolize Man as a fragment of Society. Clearly, the kernel of these two ideas is the same; but it must not be supposed, *a priori*, that, because these two stems have the same root, they therefore develop at the same tempo.

One can understand how complicated this historical problem is if one considers the wooden structures of the Middle Ages – the half-timbered houses running along whole streets which once determined the appearance of whole towns such as *Hildesheim* (burnt in 1945), the ceilings with moulded beams in interiors, the great timber barrel-vault in the Salle des Procureurs of the *Palais de Justice* at *Rouen* (begun in 1499), the spiral wooden posts in the town hall at *Ulm*, or the hammer-beam roof of *Westminster Hall* in *London* (1394–1401).[55] Ruskin said that the rib-vault could not be regarded as the essential feature of the Gothic style because Gothic architecture exists even where there are no rib-vaults, but he failed to understand the fact that, where we speak of Gothic architecture without ribs, we may be considering, as it were, the children, the grand-children, and the great-grandchildren of buildings with rib-vaults, in whom the legacies of the Gothic style live on – in profiles and mouldings, in gateways, in windows, and so on.

The Gothic style in secular architecture spread over all the countries embraced by the Catholic Church, just as it had done in church architecture, and, in secular architecture too, national traditions created works of different character. English secular buildings are elegant and cool; Spanish ones are passionate and fiery, like the courtyard of the *Palacio del Infantado* at *Guadalajara* near Madrid.[56] Our elastic concept of the Gothic style can embrace the different manifestations of different countries only if we adhere to the abstract principles.

8. GOTHIC SCULPTURE

Many Gothic churches have sculpture in and around them – for example outside on doorways and buttresses, and inside attached to shafts, as in the Sainte-Chapelle and the choir at Cologne, or on the west wall, as at Reims. Sculpture as an adornment of architecture is called decoration. Some decoration, for instance that used for feast days or funerals, is removable, but sculpture is intended to be permanent decoration. Gothic sculpture continued in the tradition of Romanesque sculpture, but it changed in its iconography, as is well known, tending towards a didactic representation of the most important persons and scenes in the Holy Scripture, of angels and saints, of nature in pictures of the months and of the signs of the zodiac, and of the *artes liberales*. The tendency began in the Romanesque period, but, in the Gothic age, it was channelled into comprehensive, calculated, and coherent intellectual programmes which sought to embrace the whole of the Christian religion, and within which the meaning of each piece of sculpture was to have its own intellectual function and to form part of the greater whole.[56A]

A representation or even a suggestion of the universe serves the Christian idea of humility, emphasizing to a thinking visitor the permanent, eternal background to his petty, short-lived existence. A visitor who was also capable of feeling and who recognized that the forms of the sculpture symbolized the universe which was represented would interpret its deeper significance according to the visible forms: he would interpret Gothic sculpture in a Gothic way. Now what is this Gothic form of sculpture?

The decoration of architecture with figures and reliefs demands a harmony between the two artistic spheres involved. When architects built Gothic buildings and allocated a sculptor spaces for his figures, they expected his sculpture to be just as Gothic as their architecture. This demand may lead some modern beholder blindly to believe that figures always have the same style as their surrounding architecture. We can, however, see from the development of Gothic sculpture that, like architecture, it became more and more Gothic and, in the Late Gothic period, achieved the stylistic harmony with architecture which one is tempted to presuppose for the earlier periods. The idea that both arts developed at the same tempo is not borne out by historical facts. Sculptors may already in the early stages have known and understood the demands made of them, but this does not mean that they immediately found the solutions to their problems.

The history of Gothic architecture should convince any unbiased observer that, even in this field, progress was not originally made along the whole front. At *Durham* the ribs were Gothic, but all the rest was still Romanesque. How much has been written about the rib-vaults at *Morienval*! And yet, when one arrives there, one is confronted with a Romanesque façade. Inside the choir of Saint-*Denis*, one sees that the first stage of the Gothic style has been reached, but outside, in so far as it dates from 1140, the choir is less Gothic. The outside of the choir of *Notre-Dame* in *Paris* must still have looked very Romanesque before it was given its present form, yet, inside, it was very progressive.[56B] It was difficult to translate façades into the idiom of the Gothic style, yet, here again, there was a fundamental demand for unity. Riegl connected the theory that an artist can always do what he has the will to do with the concept of the *Kunstwollen*, but Riegl's term has been misconstrued. Originally, the emphasis lay on the first word; he meant that the basic desire of the artist is art, not technique. He expounded his theories in a polemic against Semper.[57] However, an artistic will, or, in a narrower sense, a stylistic will, is not enough. Perhaps it is true that every artist can do what he has the will to do, but he does not always have the will to do what he should, or, in the case of harmonizing sculpture with architecture, what is demanded. The solution of problems that were left unsolved by one artist became the task of his successors. Just as secular architecture developed at a different tempo from church architecture, so the stylistic development of sculpture, too, had its own tempo. There is no force hovering above pairs of men, forcing them to run level with one another, one as an architect, the other as a sculptor; they are not like two horses pulling at the same shafts under the guiding hand of a coachman –

the *Kunstwollen*. Their progress is free. The reason why they adapt themselves to one another lies in their application to the same work – in this case, the same church – and in their inner compulsion to achieve harmony. There can be no doubt that things created together and seen together form a synthesis,[58] but this synthesis does not necessarily form an inherent unity. We are no scholars if we are not willing to analyse every individual case. The *Kunstwollen* is not necessarily a common factor; the architect begins a work with his design, and the sculptor only arrives later with his own *Kunstwollen*, which he adapts to match the architecture as best he can.

One must understand that things which are seen at the same time were often not created at the same time. In the west façade of Saint-Denis, for which Suger called sculptors from other districts, the sculpture probably was executed at the same time as the architecture, but we do not know exactly to what extent the sculptors adapted themselves to the architecture, as we can only tell from drawings what the figures looked like.[59] The design for *Notre-Dame* in *Paris* dates from *c.* 1160, and the nave was completed in *c.* 1220. The sculpture round the doorways is said to date from *c.* 1200. The specifically Gothic, diagonal line of the jambs of the portals was decided on at the same time as the sculpture was being executed.[59A] At *Chartres*, the earliest sculpture of the transept portals was begun some time after 1194, while the figures on the porches were not installed until the late 1230s and early 1240s.[59B] The choir at *Cologne* was designed in 1248, but the figures on the piers in it date from about 1290, and this difference of forty years allowed the style of the sculpture to catch up with that of the architecture.[59C] The figures at Cologne have been much praised for matching the architecture so well, but, had the two arts developed at the same tempo, it would have been preferable to replace the apostles in the cathedral at Cologne by those in the Sainte-Chapelle, which date from about 1241–48, just before the cathedral at Cologne was begun. Even then, it is doubtful whether these figures are as Gothic as the Sainte-Chapelle, and this leads one to conclude that the first question one must ask oneself is: what is meant by Gothic sculpture?[59D]

Sculpture is the portrayal of a model. Where architecture is portrayed in relief, we can say that the piers, the vaults, the pointed arches, and the gables which are portrayed are Gothic; but where human beings, animals, or plants are portrayed in three dimensions, a comparison with specifically architectural members is not valid. Where the models are human, they do not have rib-vaults or other architectural members, but faces, arms, and draperies; and yet a possibility of comparison still exists because of the possible varieties in the formation of the relief.

The word 'relief' has two meanings, as has already been explained (see p. 70). It is used, first, for sculpture which foreshortens the dimension of depth by comparison with its model; when depth is finally decreased to zero we enter the realm of drawing and painting. But the word relief also means the degree of projection, independently of whether or not the relief portrays an object. In this second senses it can be applied to architecture. Romanesque façades have shallow relief, as compared with the highly developed Gothic façades such as Reims or a Late Gothic example like Saint-Maclou in Rouen.

In the same sense, the surface of Romanesque sculpture – whether it is bas-relief or high relief – has a shallow relief (e.g. the draperies of the figures on the west portal of Chartres), by comparison with the deep relief of the High Gothic phase (e.g. the attitudes and the draperies of the figures on the west façade of Reims) or of the Late Gothic phase (e.g. the figures of Veit Stoss).

A piece of Romanesque sculpture is carved into a prismatic or a cylindrical block. During its execution, the original frontal surface remains so strongly emphasized in the forwardmost points of the design that the sculptor cuts into the depth of his material in parallel or concentric strata, so that even the innermost surface is parallel to the outer one. This is the same principle as that governing the lesenes and the friezes of little round arches in Romanesque architecture. This method of working resulted in human figures always maintaining a strictly frontal pose. Late Romanesque sculpture often moved away from strict frontality, but even then the overall effect was governed by the parallelism of the strata of the relief. In draperies, folds were originally hollowed out of the surface like shaded lines: they were concave, but the convexity of the whole still predominated, and the same was true of facial forms.

Gothic sculpture, too, must start with a stone block, but, just as in a crocket capital the outer surface of the stone block embraces the buds, but the concave, inner surface of the chalice has an opposing curve and does not follow the line of the outer surface, so in Gothic draperies the innermost surface is not parallel to, not concentric with the outer surface. The concavities have quite different depths, and the movement of the folds goes outwards, towards us. Gothic figures do not use their joints to pose their skeletons frontally, but to turn them. The diagonal line and the inclination of head and shoulders, the turning of the pelvis, the movement of the legs, and the unhampered outward stretch of the arms give a Gothic figure movement in all three dimensions. In the Late Gothic period, when architecture moved away from pure structure, the emphasis on the actual structure of skeletons gave place to an emphasis on the 'texture' of draperies, which were given a separate life of their own. The double curve, which we know so well, and the curve like a sickle are both lines governing Late Gothic statues.

It was not easy to develop Romanesque traditions into truly Gothic sculpture. There may have been a will to reach a new style, but the new style had to be found. Architecture had a big lead, and had to carry sculpture along with it. This does not mean that the arts are to be thought of as active personalities: architecture itself can do nothing; it is always Man who acts, forms judgements and sets aims. But he can act on things only within his own professional field – the architect in one, and the sculptor in another. Immanent development is objectively conditioned, and Man seeks to achieve stylistic progress within these objective conditions. Style, too, is not a 'thing', and least of all a being with a biological existence. Man is biological. When society is permeated with the new critical idea that the autonomy of the individual is unchristian and that the fundamental

Romanesque principle of totality therefore requires reform, then this idea becomes the driving factor in every sphere, including those of architecture and sculpture. The doctrine that every step must take place at the same time in every field, as though God had only to press a button to make everything Gothic, is an unhistorical one. It is surprising that architecture took the lead, for one would expect that this highly personal change in man would have manifested itself, first of all, in the portrayal of man. The Gothic Crucifixus, no longer standing firmly on his feet, but pendant – that is, 'dependent' – is supposed not to have appeared before 1225.[60] Goldschmidt's definitive study of the subject does not, however, take into account Villard de Honnecourt's drawing of about 1230, which may well have been intended as a guide for both sculptors and painters. In it the intensity of the bend in the legs and the hanging of the head are precursors of the style of the early fourteenth century,[61] for it is not until this time that the Passion of Christ and his death are portrayed with such passionate intensity (for example, the crucifix in the church of St Mary in Capitol at Cologne, made in 1304). Gothic crucifixes of 1225 and of the following generations, for instance the wooden crucifix at Sens (*c.* 1250), are already Gothic in style, but one must remember that they were made at a time when, in the field of architecture, Amiens and Cologne had been designed and partly built, and the Gothic style had already existed for more than a century. When architecture became Gothic, crucifixes still remained Romanesque for a long time, although it must be admitted that closer examination reveals slight changes even at this stage.[62]

It is not the task of this book to make a detailed study of the history of sculpture, but it is important to the history of Gothic architecture to realize that architecture took the lead in the development of the Gothic style. In sculpture, too, there was a Transition, and the voluminous literature on the subject of medieval sculpture shows how controversial the attribution of dates still is. By and large, and although it is no longer the most recent book, Mme Lefrançois-Pillion's work seems to represent the *communis opinio* on the subject of French sculpture.[63] She seems, on superficial reading, to identify the Romanesque with the twelfth century and the Gothic style with the thirteenth, but in fact she gives a truer picture. She treats the west portals at Chartres in her volume on the Romanesque, calling it 'l'avant-printemps de la sculpture gothique', and one must agree with her, for in some of the heads here there is the beginning of a new life. The west portals at Chartres mark the beginning of the Transitional style in sculpture, which, in the realm of architecture, had come to an end at Saint-Denis. The Transition in sculpture is therefore contemporary, not with the Transition, but with the Early Gothic style in architecture.[63A]

When, then, does the Transition in sculpture end? The answer is: with the figures at *Laon* and in *Paris*.[64] No serious attempt has ever been made to differentiate between the Early Gothic and High Gothic styles in sculpture. The relief of the Assumption of the Virgin in the doorway at *Senlis* has great vehemence in the movement of the six angels. The diagonal lines are like a storm of love and devotion, but, seen purely as relief and apart from its story, this work is still completely flat; the folds in the draperies are still like mere lines; the heads are seen in almost perfect profile, and the diagonal lines lie on the outer surface – they do not thrust outwards from the background. The spiritual restlessness of the angels already moves beyond Romanesque principles, but their form is not yet Gothic, and this combination of Romanesque forms with spiritual excitement and restlessness is what is called the Transitional style in sculpture. Mme Lefrançois-Pillion tentatively gives the date of this sculpture as 1180, that is, between the date of the west portals at Chartres (*c.* 1150–60) and that of the 'Gothic portals of Notre-Dame in Paris' (*c.* 1210), and she does not call the sculpture at Senlis Gothic. Today, nobody would make the mistake of confusing stylistic classifications with qualitative judgements. The relief at Senlis is inspiring, whether one calls it Romanesque or Gothic; but, to the historian with an interest in style, it should be obvious that it is still Romanesque.[64A]

It will be sufficient for the purposes of this book to draw attention to the problem and to ask where and when architecture and sculpture reach the same stage of stylistic development; to do this, it is necessary to consider the entire course of their development, right up to the Late Gothic period. From about 1390, the question of similarity ceases to be a problem. The virgin in the *Chartreuse de Champmol* near Dijon (1391–97) moves freely throughout her body; in her all traces of frontality have disappeared; she seems to walk, to swing, and the folds in her draperies arch forward from different depths.[64B] The period of this figure, in the history of architecture, is that of the later years of Peter Parler. However, this example is not intended to prove that architecture and sculpture did not reach the same stage of development until 1390. It is difficult to fix an exact point in time because sculpture does not exhaust itself in the pure form of relief, seen apart from its story, and many of the forms of sculpture cannot be compared with architectural ones. Above all, spiritual states can be shown in all their variety in sculpture, through mime, while architecture can show them only selectively and through generalization. Gothic sculpture can portray smiling angels, but one can hardly say, even metaphorically, that even the most joyful of church interiors smiles.

In a human figure, the thing which we recognize immediately is its proportions. Geometrically these proportions can be measured by means of compasses, but the points at which circles begin and end are hardly ever clear and unequivocal. Yet our mental transformation of the objective proportions into a subjective feeling of life and vitality is absolutely clear, and it is only the finer shades of meaning which cannot be contained in words. In certain generations, the Gothic style created ascetic, hovering figures in which one can see that their thoughts are more occupied with eternity and the world to come than with the joys of this world. If one wishes to characterize the personality of an artist, or a group of works, one can trace a tendency towards thinness, slenderness, even emaciation, but it cannot be said that these ideals of asceticism and mysticism governed all generations of the Gothic age to the same degree. Proportions change very much, just as they do in architecture. To determine whether they change hand in hand with architectural proportions,

and, if so, to what extent, would require a detailed study.

Sculpture also includes portrayals of animals and plants. It has to be left to historians of sculpture to consider how the forms of lions, eagles, oxen, doves, and so on, changed when they became Gothic, and whether we have any right to say that they did. Villard de Honnecourt drew sixty-seven different kinds of animal, which were used as symbols for the evangelists, for the signs of the zodiac, as symbols for the attributes of saints, and as decorative, or sometimes just amusing, additions.

The development of foliage shows a very convincing change from a general idea of a leaf to naturalistic forms, so that at Rheims, Naumburg [119], Southwell, and other places one can actually recognize the botanical species of the plants. Late Gothic sculpture leaves this naturalism, to revel in fantastic, imaginary forms of foliage. Here, one can see dry, brittle forms which give the effect of crumpled paper, and swollen ones with passionate, undulating lines, which exploit the greatest possible contrasts between light and shade. The foliage at Reims really resembles soft, elastic vegetation, but later foliage looks as though it were made of leather or metal; even its material becomes a field of activity for the imagination.

Leaves grow like shafts, or they are turned by the wind – as in the magnificent foliage of Southwell[65] – and, even in these forms, the change from frontality to diagonal and rotating lines is clearly used to exploit to the full the possibilities of all three dimensions. Since plants bend forward and roll inward on themselves, they are a favourite subject of the Gothic style, and especially of the Late Gothic. In the case of crockets, it was possible to make them spread rigidly upwards, and then, after a projection, to add a second upward curve. The double curve and the flaming line seem so ideally suited to this kind of decoration that it is surprising, on looking back, to see how flat and ironed out, how 'sidereal' – that is, how stern and obviously carved from stone – their Romanesque precursors were in style. Naturalness is not always that which is in accordance with the data provided by nature, and the naturalistic foliage at Reims, round the Porte Rouge in Notre-Dame in Paris, and in other places, is a portrayal of 'Gothic nature'.[65A]

9. GOTHIC PAINTING

The theory that style develops at the same tempo in different arts is more plausible in the case of sculpture and painting than in the case of sculpture and architecture. Sculpture and painting are generally considered to be two separate arts, but together they form a single art.[66] In meaning, their theme is one and the same, the portrayal of a model, whether the model be real or a fantasy of a reality. In this practical sense, the imitative arts differ from architecture, and one must not presume, *a priori*, that architecture and painting always have the same style. History rather demonstrates that the opposite is true. Everyone is aware that the fourth Pompeian style was contemporary with the building of the Colosseum. Similarly nobody would claim that, in 1093, when the first rib was built, painting too was beginning to turn towards the Gothic style. One would expect that about 1150 painting was developing towards the Transitional style, as was sculpture in the west portals at Chartres, but no convincing evidence exists that this was so. In the *Histoire de l'art* edited by Michel (a work of many volumes), where the Transition in illumination is reckoned to occur between 1200 and 1250,[67] it is not stated whether the new style should be called Early Gothic or High Gothic.

In Germany, 'the earliest Gothic paintings can be shown to date from about 1240'[68] – that is, from the same time as the nave at Strasbourg. On the other hand, there is Gothic architecture in Germany earlier than this, for instance, the church of St Elizabeth at Marburg (begun in 1235), and there are rib-vaults dating back to about 1100. However, since, on the whole, Gothic architecture was introduced late in Germany, one must really turn to France, and therefore to the theory that the High Gothic style in painting began in illumination about 1260, with the Psalter of St Louis.

The Gothic quality of this psalter lies, above all, in its use of Gothic architecture as background. In almost every illustration, it is the same architectural frame which is shown – two divided pointed arches with a gable and, above them, on a different scale, the clerestory of a church with a pitched roof.[69] It is the opinion of the author of the chapter on that particular period in French painting in Michel's history – Arthur Haseloff – that illumination was dependent on stained glass. Gothic frames appear in stained glass from the 1220s, in the ambulatory chapels and clerestory of Chartres cathedral (*c.* 1210–*c.* 1230s) and in the choir clerestory of Reims cathedral (*c.* 1240).[70]

The belief that things created simultaneously must have the same style is so strong that many people presume that the stained glass at Chartres must be High Gothic, or at least Early Gothic, though even this belief would be evidence of a difference in tempo. The dating of individual windows at Chartres is controversial, but it is generally agreed that most windows illustrating stories date from *c.* 1200 (in the nave aisles) and *c.* 1210 and after *c.* 1230 (in the ambulatory).[70A] The Crucifixion in the oculus in the second bay of the choir is Romanesque with certain reminiscences of the Byzantine, but certainly not Gothic.[71] However, in the window which tells the story of Thomas à Becket, the cathedral in which he suffered his martyrdom is shown as a Gothic church with flying buttresses,[72] and in the so-called medallions there are quatrefoils, formed of pointed arches. In the window in the north-east chapel of the ambulatory which tells the story of St Chéron, there are arcades of semicircular arches and others with segmental arches, and the pointed trefoil arches which hang within the semicircular arches give almost the same effect as pointed arches; but the whole window cannot be called Gothic simply for this reason. All the details are flat and are arranged, as far as possible, in juxtaposition.[73] These trefoil arches inside semicircles seem to be precursors of the cusps in the Sainte-Chapelle, but the difference has already been explained above, on p. 130. The iconography of the windows in the Sainte-Chapelle has been extremely fully treated.[74] An adequate study and all necessary illustrations have been given recently by Grodecki.[75] Here, too, some isolated pieces of Gothic architecture with flying buttresses appear, as in the Thomas à Becket window at Chartres, but this is not sufficient justification to call the whole series of

windows Gothic. It sounds shocking to say that the stained glass in the Sainte-Chapelle in Transitional, like that at Chartres, but anyone who calls it Gothic should first explain what he means by Gothic painting. Painting done in the age of the Gothic style in architecture is not automatically Gothic painting.

Ghiberti, and later Vasari, regarded fidelity to nature as the aim of the painting of their time, but we know that there are degrees of fidelity to nature and that this term cannot help to determine the differences between the work of Ghiberti and that of Vasari, between the works of classical antiquity and those of the Renaissance, or between the Gothic style and the Renaissance. Ghiberti and Vasari saw that the painting of Giotto was truer to nature than that of Cimabue and the Byzantine school, and they therefore believed that Giotto had begun the Renaissance.[76] We cannot blame them for their poverty in stylistic terms, but it is to be hoped that our terms are sufficiently developed to allow us to say why a given painting, whether it be an illumination, stained glass, or a fresco, is Gothic. Until this can be done convincingly, nothing at all can be said about the tempo at which painting became Gothic.

Late Gothic painting developed depth about 1300, in the work of Giotto and Duccio, and, by about 1400, succeeded in portraying depth in a picture through emphasis on the third dimension with remote landscape which is analogous to the emphasis on space in architecture.

Architecture is always three-dimensional, but it can still adhere to two-dimensionality in façades, as it did before in the High Romanesque style. The High Gothic style, on the other hand, lays great emphasis on depth, and the diagonal position of its members combines with the Gothic relief, which springs outwards from the core, to unite the spatial parts, and even to join the interior with the exterior. Stained glass does not form absolute boundaries. Around doorways, the Gothic relief of the jambs makes a connexion between the interior and the exterior, even when the actual doors are closed, and the same is true of windows, although the glass in them separates the interior from the exterior at the same time as it joins the two. This phrase 'joining the two' must not, however, be taken in its strict sense, as though the connexion could only be made by the opening of a movable pane (although this is sometimes the case). The connexion is the product of a movement in depth which flows diagonally, whether the window has stained glass in it or, as at Kutná Hora (Kuttenberg) and Annaberg, none. In the Gothic period, every available means was used to minimize any effect of parallel strata, and, in the final stages, the movement in churches was rotatory and explosive. From about 1400 painting began to develop along the same lines, and the relief of folds in draperies, as pure form, has the same forms as those already developed in the field of sculpture.

In Italy, in the years when Gothic architects and painters were seeking after unlimited three-dimensional effects, Brunelleschi and Masaccio discovered the rational central perspective, which has a spiritual relationship with the rational architecture of the Renaissance.

It is important to an understanding of the history of the Gothic style to realize that the development of architecture was immanent and consistent, and that it did not at first, nor even until it had reached maturity, succeed in altering the style of sculpture and painting to keep pace with its own stylistic changes. It is also important to an understanding of the history of the imitative arts to realize that their development, too, was immanent and consistent. There was no reason why illumination, or the illustrations of books that were not necessarily to be read in church, should adapt themselves to architecture. Yet, while there was every reason for stained glass to be adapted to architecture, it continued in Poitiers, etc., to follow Romanesque and Late Romanesque traditions – if we accept the application of these architectural stylistic terms to painting. There were opportunities to develop the painting of frescoes in Italy, but what we call Gothic in this field (which others call Renaissance) dates from about 1300, when the High Gothic period was almost over.

The immanent development of the imitative arts ultimately achieved a stylistic harmony with the Late Gothic style in architecture, and, from the moment at which the imitative arts caught up with the development of architecture, men were to experience the phenomenon of 'things created simultaneously obeying the same *Kunstwollen*'. Late Gothic painting and sculpture in Late Gothic churches create, as it were, an effect of thrilling reassurance. Many of the countless little parish churches of the Late Gothic period achieve this harmony – for example, the otherwise unimportant church at *Blutenburg* near Munich[76a] – and so also do some of the important works, such as the choir of the church of *St Lorenz* at *Nuremberg*. We are accustomed to seeing a multitude of styles in medieval churches, and we sometimes find that this is only slightly disturbing, if at all. Just as only a few observers, trained by years of study of stained glass, can feel the difference between the architecture and the stained glass in the Sainte-Chapelle, so only very few are capable of feeling this difference in *King's College Chapel, Cambridge*. To the architecture of the second half of the fifteenth century and the fan-vault of 1512, the stained glass was added in 1515–17 and 1526–*c.* 1547, and this glass can in no way be called Gothic.[77] Other similar examples are the Renaissance windows by Valentin Busch in the Gothic choir at *Metz*, and the Renaissance windows in the Gothic church of Sainte-Gudule in *Brussels*.

The achievement of the same stage of stylistic development in architecture and the imitative arts is certainly supported by a kind of spiritual bridge, which rests on the close connexions between the two spheres and on the common desire for harmony. It is the immanence of its development which leads every sphere of human activity to the solution of its own problems, and the fact that different spheres nevertheless converge is partly the result of Man's tendency to reach a unified civilization. It lies within the nature of the differences between different spheres of activity that the periods during which a harmony between the styles of all the arts exists are short. One sphere will always be straining towards new aims, thus disturbing the harmony that has been achieved, and the others will then have to adapt themselves, or rather – lest anyone should suspect that I intend to personify these spheres of activity – Man will have to renew his labours within these spheres. There is no law which dictates that one sphere shall always lead through every step in

the development of a civilization, and it is therefore possible to claim that the Gothic style was created autonomously within the sphere of church architecture. However, this plausible theory does not answer the fundamental question. Civilization embraces many spheres of activity, and it seemed more proper to seek their common root within the sphere of the spirit.

10. THE GOTHIC STYLE AND SCHOLASTICISM

The problems of the Gothic style were set and solved in the masons' lodges, but these lodges did not exist in a vacuum. A bishop or an abbot decided on a certain programme and discussed it with the architect; and, no doubt, members of the chapter who had any knowledge of architecture also voiced their wishes and their criticisms. It can therefore be assumed that the Gothic style always had to be approved by the clients. The final form of the profiles of an individual base will have been considered of secondary importance by many bishops, abbots, and priests, and by many princes and burghers: this, and almost all the other details, they could leave to the architect. It was the business of the architect to divine what was, at worst, tolerable and, at best, desirable. However, the men who ordered the works, in their turn, did not exist in a vacuum either; they were members of a nation and members of the Catholic Church, theologians or teachers of philosophy. Now what has philosophy to do with the first ribs at Durham? We have returned to the question which we asked previously on p. 264, and for which we may now be able to find the answer. No theologian can have introduced the rib. Even if it was a theologian who had the idea of doing so and said to the architect: 'Would it not be better to make your wooden arches out of stone?', the task of executing the idea was still the responsibility of the architect. There is evidence of such co-operation in the medieval expertises which happen to be preserved.[78] Every step in the development of the Gothic style was a logical one, but each had to have the approval of the clergy. Architecture and all the spheres of cultural activity – of which architecture is one – were connected by the personalities who were responsible for them.

The connexions between these spheres – that between politics and the Church, that between the Church and the universities, and so on – demanded the imposition of a common sense of direction. The arts needed an even closer fusion with these other spheres because art is form which symbolizes its own meaning. Here that meaning is not merely the summation of all the other spheres of activity, but their innermost spiritual substance, their common sense of direction. One would therefore like to believe that the development of a civilization must precede its expression in art through form. Hence one looks for some phenomenon in another sphere which could be a precursor, but one is always led back to the co-operation of bishops with architects. One therefore goes on to seek antecedents in the bishops' thought, in their philosophy, their theology, and their metaphysics.

August von Schlegel called architecture 'frozen music', and this simile led to others of a similar character.[79] Perhaps Schlegel's metaphor supplies the key to Semper's casual remark that Gothic architecture is scholasticism in stone.[80] Dehio seized on this comparison,[81] and so, later, and among others, did Worringer. It is only recently, however, that this simile has been taken seriously and its concrete and legitimate meaning examined.

Drost asked: if the Gothic style corresponds to scholasticism, then what philosophy corresponds to the Romanesque?[82] It must be the philosophy of the eleventh century, and an analogy to the Romanesque style must therefore be sought in the works of Anselm of Canterbury (1033–1109). Drost quotes Anselm's sentence, 'I believe, in order to understand',[83] and also his 'ontological' proof of the existence of God; but to Drost all these theological theories are less important than the purely metaphysical theory that general concepts, in the sense of Plato's Ideas, have actual existence. It was not so much Anselm as William of Champeaux (1070–1121) who represented this view, which was then contested by Peter Abelard (1079–1142). Before Abelard, there were few men who were explicitly philosophers, and one turns to the recognition which Plato enjoyed at this time, although only a few of his works were then known. Nevertheless, Anselm's proof of the existence of God is based on a Platonic method of thought and one can therefore agree that Platonism underlies the Romanesque, as Aristotelianism underlies the Gothic style.[83A]

Drost sees the Romanesque and the Gothic styles as fundamentally opposed,[84] and he finds Platonism in the form of Romanesque churches, and at least analogies to the scholasticism of the thirteenth century in the form of Gothic ones. The Romanesque uses regular, stereometric forms, 'cubes, spheres, prisms, cylinders, pyramids and cones', and combines them to form buildings like the church of St Michael at Hildesheim. Considered aesthetically, these combinations are equivalent to Platonic ideas – to the *universalia*. The Romanesque style is like these ideas – general, permanent, restful, eternal, finite, and impersonal: it is a style of being which corresponds to Anselm's concept of God – the concept of a man who had proved the existence of God.

Drost continues with a consideration of the contrast between spatial addition and spatial division, or, more generally, between totality and partiality (though he uses a different terminology), and he finds that the Gothic style expresses a metaphysical contrast to Platonism. The leading concepts in this contrasting philosophy are those of particularism, individuality, subjectivity, and a new consciousness in thinking men, with a new sense of freedom and a new ethos.

The result of this comparison can be summarized in a single sentence. The Romanesque style stands in the same relationship to pre-scholasticism as the Gothic style to scholasticism. It must be added, of course, that in each case form is meant on one side, and meaning on the other, and that the form of Romanesque architecture therefore stands in the same relationship to the meaning of pre-scholasticism as the form of Gothic architecture to the meaning of scholasticism. Since an aesthetic approach changes form into meaning and turns it into a formal symbol, one can say that the Romanesque style symbolizes pre-scholasticism and the Gothic style symbolizes scholasticism, and perhaps this

is what Drost meant to say. In any case, it can be regarded as a correct conclusion, but it embraces only the spheres of philosophy and architecture.

Moreover, the comparison refers to the controversy over the *universalia*, as one of the problems of philosophy. The Platonic theory that general concepts are real (realism) is contested by the Aristotelian theory that only individual manifestations are real and that general concepts are only names (nominalism). The way in which this problem is formulated is specifically philosophical; no architect asks himself whether, for instance, an individual pier only exists through *accidentia* and the concept of the pier is the only reality, and, similarly, no Gothic architect ever philosophized on the reality of the individual pier. Drost raised the parallelism in the development of architecture and philosophy far above the level of Semper's aperçu, and the question as to how this parallelism can be explained therefore becomes even more urgent. There can be no doubt that there may have been cross-connexions between the two spheres, but it is almost impossible to produce concrete evidence of their existence. If philosophy always sets the tone, then it must always have been in the lead, and Plato's philosophical teaching must have been well known before 1000, when the church of St Michael at Hildesheim was begun, though for Plato's philosophy one may substitute that of St Augustine. One must presume that the spiritual attitude of Anselm, who was born in 1033, had already governed the thought of both priests and architects for more than a generation before his birth, if one is to conclude that the architect at Hildesheim created a formal symbol of it in his additive, segregated crossing. The opposite idea – the idea that the church of St Michael or some similar building was the source from which philosophers deduced realism – could never be accepted as convincing.

Similarly, one must ask, in the case of the Gothic style, whether Roscelinus's nominalism was the precursor of the first rib. Even if dates were exactly known (Roscelinus died about 1125), nobody would claim that the rib was a product of nominalism, or vice versa, and even if one regards the role of the rib as relatively unimportant and considers the Gothic style as beginning in the choir of Saint-Denis, one is still faced with an equally unanswerable problem.

However, this consideration does not invalidate Drost's basic theory; rather it should stimulate us to further thought, for he did not touch on the question of the parallelism of development – on the question as to whether or not every step in the development of philosophy preceded every corresponding step in the development of architecture by at least one year. It is unlikely, however, that anyone should expect these two spheres to develop at the same tempo.

A second work which deals with the problems of the Gothic style and scholasticism – that of Panofsky[85] – almost ignores the contrast between the Romanesque and Gothic styles, and presumes that a 'mental habit' underlies the connexions between the Gothic style and scholasticism[86] – a question which Drost did not deal with in any great detail. Panofsky treated the parallelism between the Gothic and the scholastic in far greater depth and detail than has ever been done before. He showed that the division of the development of scholasticism into phases, which was introduced by historians of scholasticism, agrees to a surprising extent with the usual division of the Gothic style into its main periods, and that this synchronism can be extended to show concrete similarities.

Whereas Drost found that the fundamental meaning of pre-scholasticism and scholasticism were expressed in the form of Romanesque architecture and Gothic architecture respectively, Panofsky showed that there is an analogy between the form of scholasticism and the form of the Gothic style. The meaning of philosophical thinking, which, in both periods, hinges on the inter-relationship between belief and knowledge, is not the central theme of his work, and rightly so, in so far as architecture and philosophy differ in their immediate aims. Nevertheless, even Panofsky touches on the firm boundaries of Romanesque architecture and the transparency of Gothic works, and he interprets the Late Gothic style (at Pirna) as 'a space determinate and impenetrable from without but indeterminate and penetrable from within' (p. 43). However, his main emphasis falls on the form of the writings of the scholastics, which, like that of Gothic churches, is based on division – here into books, chapters, sections, and sub-sections. In buildings and books, the common factor is the formal aspect of 'self-analysis' and 'self-explication'. Gothic architecture is neither rational functionalism nor illusionism (for, if this were so, shafts and ribs would be superfluous): it is 'visual logic.'[87] St Thomas Aquinas to some extent equated perception with reason – '*nam et sensus ratio quaedam est*' – from which one can conclude that he saw an analogy between the current systematic scholastic method and Gothic architecture. Panofsky gives convincing proofs that a whole series of scholastic terms can also be fruitfully used to describe Gothic works built between about 1140 and 1270. Certainly the same, or at least a similar, form of thought governed both the scholasticism and the Gothic style of these four or five generations.

Part of the scholastic method was that it advanced by triple steps: *videtur quod – sed contra – respondeo dicendum*. Panofsky shows that, in the development of oculi, of triforia, and of piers and their capitals, the solutions to the problems which arose also followed one another like Thesis, Antithesis, and Synthesis (to use Hegel's terminology); in the case of these examples, the exposition is excellent, but, in scholasticism, the method is always applied to a problem by a single thinker. In the architectural examples quoted, however, the development is always the work of a series of different architects, so that in this sphere the progress through Thesis, Antithesis, and Synthesis is not the specific outcome of a scholastic method; for historical developments in other spheres took place in exactly the same way. If it is true that philosophy and architecture developed at the same tempo, then one is entitled to ask exactly what steps in the development of scholasticism correspond to the steps in the development of oculi, triforia, and so on.

As in the case of Drost's work, it must be said that these criticisms are not meant to discredit the whole work, but should rather stimulate fresh thought on the new and firmer basis which Panofsky has given us.[87A] Semper's aperçu shows itself to be profounder than can have been intended in the hostile sentiment in which it was formulated. Some connexion must have existed between the Gothic style and

scholasticism. Both spheres were governed by that immanence which is inherent in their tasks, though it can be assumed that spiritual bridges existed sometimes even in opposition to the immanence of the Gothic style. The reader should be reminded once more of the mosaic which Suger demanded for his west façade; it suited his metaphysical idea of light perfectly, but was in direct opposition to the structural system of the façade. The same is true also of the mosaic of the cathedral in Prague. In spite of all these arguments, the parallelism between the Gothic style and scholasticism, in so far as it existed at all, has still not been fully explained. One would expect that the immanent processes underlying the development in different spheres should diverge. The ring that forces the diverging lines towards each other until they converge – here, as in the case of architecture and the fine arts – is Man, or Society, which strives after unity, after a harmonious civilization, after a style common to every cultural sphere. Both the divergence of streams of development and their different tempi hinder and sometimes disturb this uniformity, but in some generations it is nevertheless achieved, only to be immediately disturbed and destroyed again to give place to something new.

This identification of the regulating factor with the need of Man for uniformity both as an individual and as a fragment of Society is not the ultimate solution to the problem; yet we can gain much from the idea of 'scholasticism in stone'. The architect who created the first rib went his own way and offered the aesthetic solution to the problem of eliminating irregular groins. The clergy for whom he worked probably said: 'Try this. We'll see how it looks.' The Gothic style could only develop further as long as this understanding between architects and their patrons continued to exist. The fact that the Gothic style did continue to develop shows that the clergy continued to approve of it, and the reason for their approval is explained by Drost's theory and by the wealth of analogies discovered by Panofsky. The clergy felt at home in Gothic churches, not merely because they were the houses of God, but because they were scholastic houses of God.

In them they also found, instead of *universalia*, the Universe, just as they found it in their *Summae*; and it was not only priests and monks, but also laymen, and especially poets, who found their world here. But the question remains: what was the common root?

II. THE ROOT OF THE GOTHIC STYLE

The contrast in ancient times between the primitive huts of serfs and peasants, the modest houses of officials and the burghers on the one hand, and the palaces of kings on the other can hardly be imagined in its full extent. The memory of Nebuchadnezzar's place in Babylon (604–561 B.C.), of the palaces of the Roman emperors, especially of Nero's Domus Aurea, of Justinian's palace in Constantinople (527–65), and of the palace of Haroun al Raschid (766–809) remained alive, and poets used their imagination to supply such details as had faded. The fullest and richest description of a palace combined with a church written in the Gothic period is that of the Castle of the Holy Grail in Albrecht's epic of the Younger Titurel, which was written about 1270, when Reims and Amiens had, in the main, been completed. This building on a central plan does not derive from the description of the New Jerusalem in chapter 21 of the book of the Revelation, but has a decided relationship with the vision in chapter 4, which begins: 'And immediately I was in the spirit.' Here, St John sees the throne set in heaven, and 'one sat on the throne. And he that sat was to the sight like a jasper and a sardine stone' – a metaphor for the highest degree of light and splendour. Around him sit the four and twenty elders; 'et in circuito' are the words used in the Latin translation which Albrecht must have known.[88] In representations such as that in Dürer's Apocalypse, only a semicircle could be drawn, but Albrecht imagines the church of the Holy Grail as a full circle. The seventy-two chapels are apparently intended to mean 3 times 24, though their distribution in the four quadrants results in 4 times 18. 'And before the throne there was a sea of glass like unto a crystal'; this and several other allusions reappear in Albrecht's epic.[88A]

The legend of the Holy Grail is a fusion of many widely divergent sources. The location of the castle of the Holy Grail at Monserrat is connected with the shape of this mountain, which lies west of Barcelona. With the introduction of modern means of communication, it can now easily be reached and is daily the goal of countless tourists who are lost in wonderment at the fantastic rock-formations, which look like a castle built by giants. This miracle of nature, the complicated sources of the legend of the Holy Grail, the Apocalypse and the long series of descriptions of palaces which, even before Albrecht's life-time, had existed only in the minds of poets, but whose portrayal sprang from memories of past glories – all these, and the Gothic style as well, must be considered in conjunction in order to trace Albrecht's Castle of the Holy Grail back to its many sources. The rib-vaults in the church are an allusion to the Gothic style, but the ribs are not as poor as those at Reims and in other churches; they are decorated with pearls and corals. The cells of the vaults contain emeralds and carbuncle-stones, which shine like stars and light the church by night – following the legend that precious stones do not merely reflect light, but actually produce it. Albrecht was thinking of the heaven described in chapter 4 of the book of the Revelation, 'a door was opened in heaven', and he describes the ceiling of the temple of the Holy Grail in terms of the night sky.[89]

Albrecht's Temple of the Holy Grail incorporates many other Gothic *membra*, and its interpreters have tried, some of them without sufficient knowledge, to determine whether it is Romanesque or Gothic. Boisserée tried to reconstruct it, using the cathedral at Cologne with which he was familiar, and which was still under construction in 1270, and the spire at Freiburg im Breisgau, which did not yet exist at the time. Other scholars looked for earlier Gothic models and have quoted, among others, the Liebfrauenkirche at Trier.[89A] Finally, Schwietering put an end to these efforts of literary historians with the verdict that they were all the product of rationalism, and he reminded his readers that Zarncke had already noted years earlier the significance of magical lighting effects and of the echoes of voices – in fact, of

all the 'means actually at the disposal of poetry'. The form that emerges if, for example, one takes literally the idea of encrusting walls with precious stones, can be seen in the chapel of the castle of Karlštejn in Bohemia and in the Wenceslas Chapel in Prague Cathedral, where Charles IV 'translated Albrecht's poetical conception into everyday language without any understanding of its symbolic content'. To this verdict Schwietering added a discussion of light as 'a term in religious mysticism.'[90]

To examine a poetical fantasy so legendary, magical, and indeterminate as the Temple of the Holy Grail in terms of whether, or to what cxtent, it can be translated into reality, and of what style it represents, is to follow a false trail. If the temple had existed, literary historians could start excavating at Monserrat, but it existed only in Albrecht's mind.

Albrecht put a speech to the Knights of the Holy Grail into the mouth of Titurel, which contains his own interpretation. It consists of fifty-nine strophes and presents a whole series of symbolic explanations. The ten balsam lamps are the Ten Commandments; the three doorways are Faith, Hope, and Charity, and so on. Right at the beginning, Titurel says that the temple represents the New Jerusalem – that is, in the same way as the lamps represent the Ten Commandments. The Apocalypse was one of the sources on which Albrecht's imagination drew, and Gothic cathedrals were one of the many others.

Poetry has its own immanent development, just like Gothic architecture. The poetic creation of the Temple of the Holy Grail cannot be traced back to Gothic architecture alone, nor are its 'Romanesque' and 'Gothic' predecessors in poetry the immediate root of the Gothic style. Scholars who are held spellbound by the theory that the root of Gothic architecture is to be found in poetry are forced to treat ribs, pointed arches, and flying buttresses as 'technical means', but they are aesthetic and stylistic means, not merely technical ones. The epic of Titurel is no more architecture than, for example, the choir of Saint-Denis or the cathedral at Noyon are poetry. Every poet, like Suger, is free to invest a building with poetic thoughts, but, as a poet, he is certainly not a scholar. A scholar is expected to be able to differentiate between his own poetic ideas and strict scholarship, to present his own strictly scholarly research on the subject of other authors' fantasies, not to present his own fantasies. Architecture is neither painting, nor yet poetry.

Architectue is autonomous. The development of the Gothic style out of the rib is an historical fact, and the process can be understood, step by step, without a knowledge of scholasticism and poetry. More than this, the common factor in the whole civilization of the 'Gothic Age' can be understood from architecture alone. Because the Gothic style is a 'form symbol' for the institution of the Church, the spiritual and ecclesiastical tendencies of the style can be understood even without a detailed knowledge of the history of contemporary civilization. In actual fact, even an educated traveller, guide-book in hand, usually has little knowledgc of history when he visits a Gothic church – not to mention the general mass of churchgoers, who know no history at all. Must an understanding of the Gothic style as art, then, be denied them, and reserved exclusively for historians? One can take it that his membership of the Christian Church and his faith are a sufficient basis for the average visitor; they are a help to him, although he is equally prepared to worship in a Romanesque church, or a church in any other style, as in a Gothic one. Christian faith is also a help to the educated visitor, but, even if he is an agnostic or an atheist, or belongs to a non-Christian religion, such as Buddhism or Islam, the more he knows about Christianity, the better will he understand the Gothic style. That is one point. The other, which is even more important, is that the more receptive he is to religious principles in general, the better will he understand Gothic architecture. Today, nobody believes in the Egyptian gods or the Greek ones, but one understands figures with animal heads and figures of Apollo and Dionysos better if one knows something about the religions in which they were involved. Here again, one must be capable of imagining what went on in the hearts of the ancient Egyptians and Greeks when they sacrificed to these gods.

Anybody who is receptive to religion in general can see that Gothic churches do not merely look fantastic (though they undoubtedly do): if one is capable of aesthetic feeling, one sees their sanctity. One knows from the experience of one's own childhood how churches are conventionally differentiated from other buildings, but this convention springs from the fact that, long ago, earlier generations discovered this form, which was originally not a convention but the immediate expression of a religious feeling. We understand form as symbol (or art, which is the same thing) because the fundamental meaning of a form shines forth from it. To this understanding we can then add a knowledge of the tendencies of the civilization in which the art in question was created, in so far as art has absorbed them,[91] but nobody can read the theories of the scholastics, phrase by phrase, out of Gothic churches. Every sphere of activity has its own substance, but the spirit of the Gothic style can also help us to understand the spirit of scholasticism.

From all this, it is clear that every sphere has its own immanent process, its own tempo of development, and, in so far as one can use the word Gothic in every sphere, its own root of its own Gothic style.

Once we recognize this fact, we are equipped to answer the question as to what is the root of the Gothic style. The answer that the rib is the root, which is really a correct answer, now suddenly seems insufficient. The explanation that the principle of partiality was introduced into architecture by the creation of a new structural member, and that this partiality found its echo in the metaphysical idea of the men who commissioned architecture, is a much profounder one. Both these chains of development had their own immanence, and the approval of the men who commissioned buildings points in the direction of the immanence of ecclesiastical history and theology. However, the rib does not spring from either of these; each of these spheres, like that of chivalry and others, has its own root. It can be granted that cross-connexions can be proved or assumed to have cxisted, and that society's need for harmony provided the ring which forced diverging lincs together, but what we are looking for is the common root of all these roots. We are seeking the secret forcc which provided every sphere of human activity with the spiritual factor, the spiritual aim

and the spiritual sense of direction by which all immanent processes converged, by which all spheres remained related to one another, and which created a style common to all cultural spheres.

It is an easy task to name the root of all roots: it is Jesus of Nazareth. His life, his teaching, and his death changed a little group of men and women who had known him into teachers of all nations. Their early writings, some of which were collected to form the New Testament, posed a host of problems. Christology, theology, dogma and ethics all sought to clarify the contradictions contained in the New Testament and to construct a consistent edifice of religious thought. Even here, the quarrels between orthodoxy and heresies became involved in the struggle for power, in direct contradiction to the teachings of Jesus. Christianity, which was born out of Jesus, as the Christ, had its own immanence, of which the organization of the Church – first its institutions and later its architecture – were a branch. It is in this context that the Gothic style should be understood: it accompanied one stage in the development of Christianity.

This interpretation is not new. It is mainly based on Dvořák's treatise, the aim of which was to give a revaluation of medieval painting and sculpture, not by approaching the subject from the standards of classical antiquity or of the Renaissance, but by judging it through the *Weltanschauung* of its own age. No work of reference can replace this book, so rich in profound thoughts. Anybody seeking the root of the Gothic style can find a guide in the sentence which contrasts the teachings of Christ with the ideals of classical antiquity. The Christian doctrine, Dvořák says, is 'the doctrine of the absolute value of the human soul, the doctrine of an ethos that is not based on might or right, but on conviction and the community of moral attitude'.[92]

Dvořák did not overlook the fact that the way to Christianity had been laid open by Hellenism and Judaism and that, while it brought about the disintegration of the ideals of classical antiquity, it also drew much from them. Early Christian architecture, too, grew out of classical traditions and preserved memories of them right up to the age of the Gothic style.

Church architecture, sculpture and painting, religious poetry and scholasticism are connected with one another, here and there, by cross-connexions, but they are permanently transfused with, and vitalized by, the same sap, because they have a common root. This secret force naturally also affected secular architecture, which was the expression of the social and political life of the time. The conflicts between the emperors and the popes, the crusades and the orders of chivalry, the conflicts of theologians amongst themselves, and the monastic orders with their continual reforms, all sprang from the same root, even if much that was in them was in direct contradiction to the teachings of Christ. The doctrine of the Sermon on the Mount largely remained an unattainable ideal, and, while the words 'Put up again thy sword into his place: for all they that take the sword shall perish with the sword' have, again and again, proved themselves to be true, yet men still preferred to kill their enemies rather than to love them. During the crusades, men of other beliefs were killed in the name of Christ: that was called 'the world'. It was this 'world' with which the kingdom of God was contrasted, and, however unchristian the behaviour of men may have been, this behaviour occurred against a background of ideas which looked forward to a redemption from sin.

Secular architecture shows man as he was: church architecture shows him as he would have liked to be.

The expression 'Man as he was' is a generalization. Man as he really was, the individual, the descendant of his ancestors, had hereditary talents as well as experience and abilities that he had gained himself. Every man bears within himself a part of the dark past, and creates his own constructive or destructive part of the present. National character is a blend of two factors – physiological heredity and spiritual heredity – and, at every moment, this blend changes a nation physiologically and spiritually. Christianity was born in Palestine; in the first three centuries of the Christian era it spread all round the Mediterranean, into Asia, and right to northern Europe, and the history of Christianity unfolds in all these many nations. Men had perpetually to strive to preserve its threatened unity. The changes in the history of architecture also reflect nationalities; every one of its styles reflects national differences at one stage in its immanent development. The kernel of Christianity remained the life, the teaching, and the death of Jesus, his resurrection, the Last Judgement, and the future, everlasting kingdom of God. The interpretations of the Church surrounded this kernel with dogmas and rites, and with much that was neither relevant, important, nor in doubt to Christians during Jesus's lifetime, and this unfolding of Christianity took place in the countries where missionaries taught – among men with different traditions, different experiences, and different capabilities. What is called national character, which, stated barely, is clear and obvious to everyone, dissolves as soon as it is examined more closely; it is the atmosphere which surrounds the branches of the tree – an extension of our metaphor of the root. This metaphor fails us in our study, for the branches themselves change the atmosphere.

Metaphors cannot take us far in the study of history. We try to make a development clear by lifting it out of the general current and setting it up as a scheme in its own right. In reality we are not dealing with a tree, nor with a current, but with a multitude of individual human beings through whom a spiritual current passes and by whom it is taken up, transformed, and passed on, partly to their own generation and partly to those to come. The Christians of about 1000 tried to apply the teaching of the New Testament, in the form in which it was interpreted by the Church of that time, to their own temporal mundane lives. There may have been Christians who, in the lonely areas upstage, took a more energetic view of this teaching, but the principal actors, in the limelight, continued to fight for power, possessions, and enjoyment: they wanted to be great lords. No human beings of that time can ever have conceived themselves so absolutely as gods as did the rulers of the ancient Orient and even some of the later Roman emperors. The process which educated men to an ethos 'not based on might or right', but on true Christianity, ran its course very slowly. Power politics had not disappeared by the beginning of the Gothic style, but they had led to the victory of the Papacy and the Church. This was the victory of the Christian idea, and,

while this idea was still as unattainable as before, the consciousness of the leading personalities of the time was now tuned to the Christian scale of values. Morbid instincts and evil men still existed – one need only remember the Inquisition – but even the evil-doers of this age surrounded themselves with a nimbus of false sanctity which was intended to fit them into the style of their civilization.

This style is the one that we call Gothic. We have widened the scope of this term, which was coined exclusively for architecture, and we now try to embrace within its framework the styles of painting, of sculpture, or the style of thought of scholasticism, and the whole of Christian piety and civilization of the same period. All these styles are united by a certain trait of character, while they are differentiated from one another by their own, individual substance. Gothic architecture creates ways for religious activities; Gothic sculpture creates human and other forms; Gothic painting connects the portrayal of figures with their background; Gothic scholasticism creates intellectual systems; but all have the Christian scale of values in common, and in the Gothic age there was a stronger will to realize this scale of values than had ever existed before. Its principal conviction is that Man is a fragment of creation, who can find his totality only by taking his place within the kingdom of God, as interpreted by the spiritually creative man of the time.

The rib-vault was not foreseen by Christianity: it was the internal product of the problems set by the groin-vault. The change from the principle of totality of the Romanesque to that of partiality fitted in excellently with the tendency to give Man a different value from before and to consider his life as fragmentary and provisional. The principle of totality was not replaced by that of partiality with an intention of *l'art pour l'art*: rather, the idea of the individual as a totality was felt to be unchristian, while that of his partiality was felt to be Christian. This was the reason why the patrons of churches must have recognized that the rib-vaults perfectly suited their deepest religious roots. We have no documentary evidence for this theory, but we have the evidence of the whole history of Gothic church architecture from 1093 to 1530, and that of the whole history of Gothic civilization, whose tendencies led from St Bernard of Clairvaux to St Francis and St Thomas, to Bonaventura, and, finally, to the Late Gothic philosophy of Nicolaus Cusanus.

The answer to the old problem of the parallelism of the immanent processes lies in the fact that the different spheres of activity, for all their differences, were intended to find their common harmony in the hearts of men; and it was there that they had their common root, which lay in the personality of Jesus. From this root we can understand every one of the many spheres, including architecture, and we can understand why they all became Gothic.

Notes

ABBREVIATIONS

B.M. *Bulletin Monumental* (1834ff.)
C.A *Congrès archéologiques de France* (1834ff.)
P.M. *Petit Monographies des grands édifices de France.* Paris.

FOREWORD

1. This is illustrated with a single example in P. Frankl, 'A French Gothic Cathedral: Amiens', in *Art in America*, XXXV (1947) 295. The basic source for this interpretation of art is the article by Willi Drost, 'Form als Symbol', in *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft*, XXI (1927) 358.
2. Frankl (1960).
3. Geoffrey Webb, *Architecture in Britain: The Middle Ages* (Harmondsworth, 1956).

INTRODUCTION

1. Carl F. Barnes, review of Paul Frankl, *Gothic Architecture*, in *Journal of the Society of Architectural Historians*, 24 (1965), 174–6.
2. Robert Branner, review of Paul Frankl, *Gothic Architecture*, in *Art Bulletin*, 50 (1968), 199.
3. On English Gothic there appeared Peter Brieger, *English Art 1216–1307* (Oxford History of English Art) (Oxford, 1957); on early Gothic in Germany the picture was enriched by Hanno Hahn's monumental study of Eberbach and German Cistercian architecture (see bibliography). Wagner-Rieger's two volumes on Italian Gothic appeared in 1956 and 1957 (see bibliography), and between Jean Bony's seminal article on 'the resistance to Chartres' of 1957/8, and Robert Branner's numerous studies up to 1962, the history of French Gothic architecture in the twelfth and thirteenth centuries was cast in a wholly new light (see bibliography).
4. *Die Glasmalerei des fünfzehnten Jahrhunderts in Bayern und Schwaben* (Studien zur Deutschen Kunstgeschichte, 152, Strasbourg, 1912).
5. *Die Entwicklungsphasen der neueren Baukunst* (Berlin, Leipzig, 1914).
6. James S. Ackerman ed., *Principles of Architectural History. The Four Phases of Architectural Style, 1420–1900*, translated and edited by James F. O'Gorman (Cambridge, Mass. 1968).
7. 'Der Beginn der Gotik und das allgemeine Problem des Stilbeginnes', *Festschrift für Heinrich Wölfflin* (Munich, 1924).
8. Paul Frankl, *Zu Fragen des Stils*, ed. Ernst Ullmann (Leipzig, 1988). The book was prepared for publication by Frankl's assistant and literary executor, Dr Johanna Weitzmann-Fiedler.
9. Gert von der Osten, 'Paul Frankl 1878–1962', *Wallraf-Richartz Jahrbuch*, 24 (1962), 7–14.
10. Thirty-seven articles, books and reviews deal with architecture, sixteen with stained glass, and eighteen articles, books or reviews deal with general problems of art history, style, etc. Another breakdown of the bibliography in terms of subject matter can be found in F. Bucher's review of *The Gothic. Literary Sources and Interpretations*, in *Art Bulletin*, 45 (1963), 378, which does not take into account the 1988 publication of the shortened *Das System*.
11. 'The Secret of the Mediaeval Masons', *Art Bulletin*, 27 (1945), 46–64.
12. 'The Crazy Vaults of Lincoln Cathedral', *Art Bulletin*, 35 (1953), 95–107.
13. 'A French Gothic Cathedral: Amiens', *Art in America*, 35 (1947), 294–9; and 'The Chronology of Chartres Cathedral', *Art Bulletin*, 39 (1957), 33–47, as well as 'The Chronology of the Stained Glass in Chartres Cathedral', *Art Bulletin*, 45 (1963), 301–22.
14. 'Girl on a Couch', in *De Artibus Opuscula XL. Essays in Honor of Erwin Panofsky*, ed. Millard Meiss (New York, 1961), vol. 1 (text), 138–52, vol. 2 (ills), 46–51.
15. Significantly, it was the positivists of the new generation who found this combination alien. Robert Branner, in his review of *Gothic Architecture* in *Art Bulletin*, 50 (1968), 199, called Frankl's work a 'confrontation' between theory and fact, and saw it as a 'painful' 'contradiction'.
16. Attributed to Archilochus. I borrow the quote from Isaiah Berlin's essay on Tolstoy, 'The Hedgehog and the Fox', in *Russian Thinkers*, ed. Henry Hardy and Aileen Kelly (Harmondsworth, 1979), 22–81.
17. *Die Glasmalerei des fünfzehnten Jahrhundert in Bayern und Schwaben* (Studien zur Deutschen Kunstgeschichte, vol. 152, Strasbourg, 1912), and 'A Stained Glass Roundel in Boston, Mass.', *Gazette des Beaux-Arts*, 60 (1962), 521–8; 'Die Italienreise der Glasmaler Hans Acker', *Wallraf-Richartz Jahrbuch*, 24 (1962), 213–26; 'Nachträge zu den Glasmalereien von Peter Hemmel', *Zeitschrift für Kunstwissenschaft*, 16 (1962), 201–22. Only one article appeared later, on the chronology of the stained glass of Chartres, in the *Art Bulletin*, 45 (1963), 301–22.
18. Gert von der Osten, 'Paul Frankl', 7.
19. *The Gothic*, [v].
20. *Gothic Architecture*, 33–4.
21. *The Gothic*, 828; *Gothic Architecture*, 299.
22. Most famously Viollet-le-Duc (1854–68) and Lasteyrie (see bibliography).
23. *Die frühmittelalterliche und romanische Baukunst.*
24. Geoffrey Webb, *Architecture in Britain: The Middle Ages* (Pelican History of Art, Harmondsworth, 1956).
25. Frankl's European outlook has been vindicated for the Pelican History of Art series. C.R. Dodwell's first study in the *Pelican* series, *Painting in Europe 800–1200* (Harmondsworth, 1971), was completely re-written by him to include the British Isles in his second Pelican volume, *The Pictorial Arts of the West 800–1200* (New Haven and London, 1993).
26. Nikolaus Pevsner, *The Englishness of English Art* (London, 1955); Frankl, *Gothic Architecture*, 127. A lively discussion of these nationalist issues, particularly in relation to Pevsner's book, can be found in Jonathan Alexander, 'Medieval art and modern nationalism', *Medieval art: recent perspectives. A memorial tribute to C.R. Dodwell*, ed. Gale Owen-Crocker and Timothy Graham (Manchester and New York, 1998), 206–23.
27. Gert von der Osten, 'Paul Frankl', 8, suggests, however, that Frankl intended to conclude his *Die frühmittelalterliche und romanische Baukunst* with a theoretical section on general problems of Romanesque style, as he was later to do in *Gothic Architecture*, but the project was 'forcibly and crudely cut short'.
28. *Die Entwicklungsphasen*, which was, of course, an analysis of Renaissance and post-Renaissance architecture, included under the heading of 'corporeal form' not only structural activity, but also 'sculptural' qualities such as mass and surface (the orders, columnar series, frames, rhythms, etc.). See *The Principles of Architectural History*, vii–viii.
29. The theory of perception implied by Frankl's 'optical/visible form' is clearly stated in *Die Entwicklungsphasen*, see *Principles of Architectural History*, pp. 142–56. For its origins in late nineteenth-century theories of perception see below, Introduction, note 57.
30. *The Gothic*, 796. Frankl's theory of style and his use of polar opposites is, as he acknowledges, derived principally from Alois Riegl and Heinrich Wölfflin. See *The Gothic*, 772–98. Michael Podro, *The Critical Historians of Art* (New Haven and London, 1982) provides the best introduction to the history of this ultimately Hegelian conception of style.
31. Frankl uses this specific comparison as a typical example of Gothic spatial division in 'Der Beginn der Gotik', 107–25. He also discusses these Romanesque–Gothic polarities fully in *The Gothic*, 776–9.
32. The polarity of 'being versus becoming' derives, as Frankl acknowledged, from Wölfflin's distinction between Renaissance and Baroque architecture in his *Renaissance und Barock* (Munich, 1888), translated by Kathrin Simon as *Renaissance and Baroque* (London, 1964), with an introduction by Peter Murray, 62. See also *The Gothic*, 775f, 780f. Frankl first applied Wölfflin's polarity to Gothic architecture in 'Der Beginn der Gotik', 125.
33. In *Das System*, 1005, Frankl defined Mannerism as a weakened connexion between form and its content. However, Frankl soon realized that the term 'Mannerism' was misleading, since it was generally understood to refer to a specific historical period, between High Renaissance and Baroque, whereas shifts of meaning and purpose within similar forms occured across all styles and periods, and even within periods. In his article 'The "Crazy" vaults', of 1953, he therefore proposed to avoid the term 'Mannerism' in favour of 'akyrism'. See also *The Gothic*, 795–7.
34. *The Gothic*, 796.
35. Frankl rehearsed the Rationalist arguments fully in *The Gothic*, 563–78, 798–819.
36. *Classic Art* (Oxford, 1952, 2nd edn.) trans P. and L. Murray, 207ff, especially 287.
37. See especially 57–159.
38. See Podro, *The Critical Historians*, 36–7, 81ff, 107–11. Note also Karl Schnaase, *Geschichte der bildenden Künste im Mittelalter*, vol. 3 (1871), which was most certainly known to Frankl. Strongly influenced by Hegel's *Aesthetics*, the book discusses precisely these internal dynamics in terms of the conflicting

demands of the exteriors and interiors of early medieval buildings.

39. I am borrowing this distinction from Podro, *The Critical Historians*, 110, in his analysis of Wölfflin's paper on the Roman triumphal arch.

40. *The Principles of Architectural History*, 3.

41. Riegl and Wölfflin's super-personal idea of style is discussed by Podro, *The Critical Historians*, 71–151. For Reigl's *Stilfragen* of 1893 see Ernst Gombrich, *The Sense of Order. A study in the psychology of decorative art* (Oxford, 1979), 180–93; Margaret Olin, *Forms of Representation in Alois Riegel's Theory of Art* (Pennsylvania, 1992), 67–87, and Margaret Iversen, *Alois Riegel Art History and Theory* (Cambridge, Mass., 1993), 4–18. A perceptive analysis of the changing definitions of 'style', and the inflections given it by post-Hegelian art history, can be found in Willibald Sauerländer, 'From Stylus to Style: Reflections on the fate of a notion', *Art History*, 6 (1983), 253–70.

42. *The Principles of Architectural History*, 157–84.

43. Ernst Gombrich, 'In Search of Cultural History', *Ideals and Idols. Essays on values in history and in art* (Oxford, 1979), 24–59.

44. Translated by Randolph J. Klawitzer, as *Idealism and Naturalism in Gothic Art* (Indiana, 1967).

45. Though Frankl is prepared to admit occasional cross-connexions on p. 299: 'Church architecture, sculpture and painting, religious poetry and scholasticism are connected with one another, here and there, by cross-connexions, but they are permanently transfused with, and vitalized by, the same sap, because they have a common root'.

46. *The Gothic*, 779.

47. See the bibliography in the *Wallraf-Richartz-Jahrbuch*, 24 (1962), 11–14. I do not include his article on Amiens in *Art in America*, 35 (1947), 294–9, because this is really a theoretical demonstration using Amiens as a test case. Nor do I include his obviously more theoretical article on the Milan controversy in the *Art Bulletin*, 27 (1945), 46–64.

48. 'Der Beginn der Gotik', 107–22, 117; and 'Meinungen über Herkunft und Wesen der Gotik', in Walter Timmling, *Kunstgeschichte und Kunstwissenschaft* (Kleine Literaturführer, 6) (Leipzig, 1923), 107–25. Under the heading of 'corporeal form' Frankl did not actually use the polarity 'structure versus texture'. He called it *Kraftquelle* versus *Kraftdurchlass* (literally, 'structural sources' – i.e. structures which suggested force and pressure – versus 'streams of force', i.e. structures which 'grow' and 'flow'. The general meaning is, however, the same.

49. Karl Popper, *The Poverty of Historicism* (London, 1957).

50. Ernst Gombrich, *Art and Illusion* (Oxford, 1960), 12–18; and ibid, 'In Search of Cultural History', passim.

51. The old question of individual choice versus super-personal currents in historical evolution is too complex to permit the kind of categorical dismissal of 'historical forces' made by Gombrich. See, for example, Isaiah Berlin, *Historical Inevitability* (London, 1954), 32: 'We may indeed always argue . . . about whether a given occurrence is best explained as the inevitable effect of antecedent events beyond human control, or on the contrary as due to free human choice'. Note also Otto Pächt's criticism of Gombrich's position: 'Alois Riegl', in *Methodisches zur kunsthistorischen Praxis. Ausgewählte Schriften*, ed. Jörg Oberhaidacher (Munich, 1977), 141–52, esp. 149.

52. 'Formalism' is here deliberately put in quotation marks, to suggest Wölfflin's unmatched skill in the analysis of the visual traditions of art; it should not imply that he was impervious to social and psychological influences on the work of art, since these 'extrinsic' factors occupied him throughout his life. See Podro, *Critical Historians*, 98–151; and Meinhold Lurz, *Heinrich Wölfflin. Biographie einer Kunsttheorie* (Heidelberger Kunstgeschichtliche Abhandlungen, 14. Worms, 1981), who also assesses Wölfflin's influence on Frankl's theory of art, 39–40.

53. Frankl's analyses of Cologne Cathedral in *Gothic Architecture*, 161–4, and 178–80, were considered important enough to deserve translation into German in *Kölner Domblatt*, 21/22 (1963), 241–7.

54. Principally in Robert Branner, *St Louis and the Court Style* (London, 1965).

55. 'The "crazy" vaults', passim; and 'Lincoln Cathedral', *Art Bulletin*, 44 (1962), 29–37.

56. A point made by Barnes in his review of *Gothic Architecture*, 176.

57. The idea of 'optical form' as a mental synthesis of images has much in common with the central arguments of Hildebrand's *Das Problem der Form in der bildenden Kunst* (Strassburg, 1893), translated by M. Meyer and R.O. Ogden as *The Problem of Form in Painting and Sculpture* (New York, 1932), where 'archaic', 'primitive' or children's art forms, usually of simple, dominant shapes, are seen as the residue of accumulated memory images. Hildebrand defined these memory images as a combination of sense data derived from vision and memories of touch and movement. To couple this theory of perception with stylistic polarities (as Frankl does) and to set up the polarities as determinants of stylistic evolution (also as Frankl does), was the achievement of Alois Riegl, whose polar opposites of 'haptic' and 'optic' art – art which presupposes mental 'touch', and art which relies on pure vision – were fully developed as critical tools in his *Spätrömisches Kunstindustrie* (Vienna, 1927). See Iversen (1993) and Olin (1992). Heinrich Wölfflin adapted Hildebrand's theories of classical relief in his analysis of High Renaissance sculpture in *Classic Art*, and it was almost certainly from Wölfflin that Frankl developed his theory of Romanesque and Gothic relief. See also Podro, *The Critical Historians*, 66–70. The similarities between Frankl's 'synthetic memory' and Gestalt theories of perception were noted by James Ackerman in his foreward to the translation of *Die Entwicklungsphasen*, *The Principles of Architectural History*, p. viii.

58. Ernst Gall, *Die gotische Baukunst in Frankreich und Deutschland. Teil 1: die Vorstufen in Nordfrankreich von der Mitte des elften bis gegen Ende des zwölften Jahrhunderts* (Leipzig, 1925); Jean Bony, 'Le technique normande du mur épais a l'époque romane', *Bulletin monumental*, 98 (1939) 153–88.

59. *The Gothic*, 763–72.

60. Jean Bony, 'The Resistance to Chartres in Early Thirteenth Century Architecture', *Journal of the British Archaeological Associatioin*, 3rd ser., 20–21 (1957–8) 35–52.

61. *The Gothic*, 35–159.

62. Podro, *The Critical Historians*, 98–151; and Lurz, *Heinrich Wölfflin*, passim.

63. Richard Krautheimer, 'Introduction to an "Iconography of Medieval Architecture"', *Journal of the Warburg and Courtauld Institutes*, 5 (1942) 1–33.

64. Frankl faced this contradiction but did not resolve it by introducing his (or rather, Werner Gross's) idea of the 'Gothic wall' – a thin membrane – as the constituting element of friars' architecture (pp. 174–5).

65. Jean Bony, *French Gothic Architecture of the 12th and 13th Centuries* (Berkeley, 1983) 195ff.

66. Frankl may be following the traditional German definition of *Hochgotik* as the architecture of the whole thirteenth century, but it is curious that he ignores both Lasteyrie's and Focillon's clear distinctions between the styles. See Henri Focillon, *Art d'Occident* (Paris, 1938) translated by Donald King as *The Art of the West*, part 2 (London and New York, 1963) 40–1.

67. Branner, *op.cit.*, *St Louis*.

68. Bony, *op.cit.*, *French Gothic Architecture*.

69. Barnes, Review, 176.

70. Robert Branner, review of *Gothic Architecture* in *The Art Bulletin*, 50 (1968) 199; and Nikolaus Pevsner, letter in *The Art Bulletin*, 51 (1969) 101.

71. Jean Bony, 'Diagonality and Centrality in Early Rib-Vaulted Architecture', *Gesta*, 15 (1976) 15–25.

72. Nikolaus Pevsner, *An Outline of European Architecture* (Harmondsworth, 1943) passim; and Sigfried Giedion, *Space, Time and Architecture* (Harvard, 1941).

73. Richard Krautheimer, *Die Kirchen der Bettelorden in Deutschland* (Cologne, 1925). Indeed, Krautheimer constructed the book in the same manner as the later *Gothic Architecture*, around a first part devoted to the evolution of forms, and a second section concerned with wider issues of cultural context.

74. Krauthcimer (1942)

75. Willis, parts 1, 2 (1972 reprint); Wolff (1968); Hammann-MacLean and Schüssler (1993); James (1979, 1981); van der Meulen and Hohmeyer (1984).

76. Branner (1962 and 1989); Murray (1987) (1989) (1996); Brachmann (1998).

77. For example Sampson (1998) and in Italy, Zervas et al. (1996).

78. One example of a close reliance on photogrammetry is Crosby (1987).

79. Sedlmayr (1950); von Simson (1962); see the perceptive remarks on this development by Sauerländer (1995) 8–9, and my own comments on Sedlmayr's and von Simson's work in Crossley (1988).

80. See, in particular, the stimulating essays on this problem brought together by Raguin, Brush and Draper eds. (1995).

81. Caviness (1990); Binski (1995).

82. Köstler (1995).

83. See the article by M. Caviness, 'Artistic Integration in Gothic Buildings: A Post-Modern Construct?', in Raguin, Brush and Draper (eds.) (1995) 249–61.

84. Tripps (1998).

85. László Gerevich, ed., *Towns in Medieval Hungary* (Colorado, New Jersey, 1990).

85A. Brucher (1990).

86. Teresa Mroczko, Marian Arszyński, eds. (1995). See also Paul Crossley, review in *Kunstchronik*, 7 (1997) 352–68. A stimulating discussion of the 'geography' problem for the Central Europe of the Renaissance and eighteenth century can be found in Thomas DaCosta Kaufmann, *Court, Cloister and City. The Art and Culture of Central Europe 1450–1800* (London, 1995) esp. 13–23.

87. Recht (1974), Branner (1960).

88. Freigang (1992).

89. Binski (1995).

90. Branner (1965); Bony (1979) (1983).

91. Bony (1979); Harvey (1978). For criticism of Branner's and Bony's

notion of a 'court style' see Colvin (1983) and Coldstream (1994) as well as Binski (1995).

92. Nussbaum (1994) and (2000).

93. Bony (1983).

94. Warnke (1976).

95. Schöller (1989).

96. Abou-el-Haj (1988).

97. Williams (1993).

98. Kraus (1979).

99. Especially Kimpel (1977); Kimpel (1981).

100. Bony (1990).

101. Harvey (1984, 2nd edn.) and Colvin (1963).

102. James (1979, 1981). In fairness, James himself has revised the extreme position he advanced in his Chartres book in his study of (1989).

103. See Barnes (1982) and Barnes (1989).

104. Booz (1956); Shelby (1977); Coenen (1990).

105. Shelby (1972).

106. Hecht (1969) (1970) (1971).

107. Robert Branner, 'Drawings from a Thirteenth-Century Architect's Shop: The Reims Palimpsest', *Journal of the Society of Architectural Historians*, 18 (1958) 9–12; and Stephen Murray, 'The Gothic Façade Drawings in the Reims Palimpsest', *Gesta*, 34 (1978) 51–5.

108. Koepf (1970) (1977).

109. Recht, ed. (1989).

110. Pause (1973).

111. Bucher (1979).

112. Middeldorf-Kosegarten (1984) (1996).

113. Morris (1978) (1979) (1990a).

114. Lon R.Shelby, 'Medieval Masons' Tools', II, 'Compass and Square', *Technology and Culture* 6, (1965) 236–48.

115. Odette Chapelet and Paul Benoit, eds., *Pierre et Métal dans le bâtiment au Moyen Age* (Paris, 1985).

116. Welch (1995).

117. Binding (1993).

118. Fitchen (1961).

119. Jacques Heyman 'The Gothic Structure', *Interdisciplinary Science Reviews*, 2 (1977) 151–64, and (1968) (1983); Mark (1982).

120. See, for example, Murray's revealing discussion of the causes of the Beauvais collapse in (1989) 112–20, and Mark's less-than-helpful model analysis of its choir in (1982) 58–77, showing a cross-section taken through the point where the cathedral did *not* collapse!

121. Recht, ed. (1989).

122. Müller (1990).

123. Panofsky (1951).

124. Sedlmayr (1950); Frankl, in *The Gothic*, 753–8, caricatured this book as an 'aberration'. In fact, its theoretical approach has much in common with Frankl's. A brief discussion of Sedlmayr's book in the context of architectural iconography can be found in Crossley (1988).

124a. Panofsky, ed (1979).

125. Von Simson (1956).

126. See the articles on Suger as iconographer in the collected essays edited by Gerson (1986).

127. Neuheuser (1993) Binding (1993A) Binding and Speer (1996).

128. See note 7B, p. 364, and Tripps (1998) 34–42.

129. M. Gosebruch, Review of Sedlmayr, *Die Entstehung der Kathedrale*, in *Göttingische Gelehrte Anzeigen*, 211 (1954) 309ff.

130. Büchsel (1983).

131. Kidson (1987).

132. Grant (1998).

133. Krautheimer (1942).

134. Kunst (1981).

135. Schenkluhn (1985).

136. Kimpel and Suckale (1985).

137. See, Georgia Clarke and Paul Crossley, eds., *Architecture and Language. Constructing Identity in European Architecture c. 1100–1650* (Cambridge, 2000).

138. Draper, particularly (1995) but also (1996).

139. Peter Kurmann and Dethard von Winterfeld (1977).

140. Crossley (1999); see also Suckale (1980) who first connected the idea of decorum to Peter Parler's diverse 'modes'.

141. Fergusson (1984) (1986) (1994); and Fergusson and Harrison (1994) and (1999).

142. Schenkluhn (1985).

143. Bruzelius (1992) (1995).

144. Jeffrey F. Hamburger, *The Visual and the Visionary. Art and Female Spirituality in Late Medieval Germany* (New York, 1998).

145. Notably Hans Belting, *The Image and its Public in the Middle Ages*, trans. M. Bartussis and R. Meyer (New York, 1990) and Rubin (1991).

146. Draper (1979) (1981) (1987) (1996).

147. Kroos (1976) (1979/80) (1989); Tripps (1998).

148. Sturgis (1991).

149. The examples of this overlap could be multiplied *ad infinitum*. I give only one: Michael Michael's intriguing suggestion that the placing of armorials in church choirs was to convey the 'presence', by proxy, of the lay benefactor in the holiest part of the church. See 'The privilege of "proximity": towards a re-definition of the function of armorials', *Journal of Medieval History*, 23 (1997) 55–75.

150. Fajt, ed., (1998).

151. Braunfels (4th edn, 1979).

152. Zervas *et al.* (1996); John Henderson, *Piety and Charity in Late Medieval Florence* (Oxford, 1994).

153. Middeldorf-Kosegarten (1970) (1996).

154. Welch (1995).

155. Chiara Frugoni, *A Distant City. Images of Urban Experience in the Medieval World*, trans. W. McCuaig (Princeton, 1991).

156. Trachtenberg (1988) (1989) (1993) (1997).

157. Mussat (1988).

158. Erlande-Brandenburg (1994).

159. Fajt, ed. (1998).

160. Skibiński (1982) Torbus (1998).

161. Albrecht (1986) (1995).

162. Richard Krautheimer, 'Paul Frankl', *Art Journal* 22 (1962) 167.

163. See, for the whole debate, Annabel Patterson, 'Intention', *Critical Terms for Literary Analysis*, ed. Frank Lentricchia and Thomas McLaughlin (Chicago, 1990) 135–46.

164. See George Steiner, *Real Presences. Is there anything in* what *we say?* (London, 1989).

165. Baxandall, *Patterns of Intention* (New Haven and London, 1985).

166. Wilson (1990) 11–12.

167. Baxandall, *Patterns of Intention*, 135.

168. *The Gothic*, 837.

169. Baxandall, *Patterns of Intention*, especially 1–40, makes the same points about paintings: verbalizing pictures involves, not an unmediated artistic object, but an interpretative description of it – a representation of our thoughts about it.

PART ONE INTRODUCTION

1. Erwin Panofsky, *Abbot Suger* (Princeton, 1946) 144. The Ordinatio of 1140 or 1141 already contains a few notes about the building of Saint-Denis.

1A. For Gervase's text on the fire and rebuilding of the choir of Canterbury see Stubbs, ed., (1879–80) vol. 1, 3–29. For references to the *fornices arcuatae* see p. 27. There is a full translation of those sections directly relating to the architecture by Willis (1972) 36–62. Annas and Binding (1989) argue with reference to a wide range of texts that the *arcus* referred to by Suger in *De Consecratione* chapter 5, when he dramatically describes the uncompleted high vault of the choir (*arcus superiores*) trembling dangerously in the wind, were not ribs, as Panofsky and many others have asserted, but transverse arches. Their argument, much of it based on Gervase's distinction between rib vaults (*fornix magna*) and groin vaults (*fornix plana*), is not, however, supported by Gervase's text. For he specifically contrasts vaults (*fornices*) from the Romanesque church as *planae* (i.e. 'plain', 'undecorated', 'unarticulated') and those from the Gothic as *arcuatae sunt et clavatae* (i.e. 'arched' or 'ribbed' and with 'keystones'). Since Romanesque vaults also have transverse arches, the contrast he draws would have been meaningless if he was referring to the transverse arches of the new work. To use the words 'arches' and 'keystones' side by side also suggests that he was referring to the ribs joined at the centre of the bay by a boss. With Villard de Honnecourt, a generation later, the vocabulary is unequivocal. Vaults are *vosor* or *vosure*, arches are *arc* or *doubliaus*, and ribs are *ogive*. See Hahnloser (1972) 105, 113, 117, 170. Hinker's (1967) study of architectural terminology in the Middle Ages in northern France was not available to me.

1B. Villard is referring to diagonal ribs at Reims cathedral, see Hahnloser (1972) 170–3.

2. G. S. Colin, "Origine arabe du mot français ogive", in *Romania*, LXIII (1937) 377; see also L. Torres Balbás in *Al-Andalus*, VIII (1943) 475.

3. T. Asby, 'The Classical Topography of the Roman Campagna', in *Papers of the British School of Rome*, IV (1907) 97. Here the whole group of ruins is illustrated. See especially the chamber 'ee' in the plan on plate VIII. Cf. also G. T. Rivoira, *Architettura romana* (Milan, 1921) 178.

4. Jules Formigé, 'Notes sur des voûtes romaines nervées à Arles', in *B.M.*, LXXVII (1913) 126, where the plan is misleading. In projection the crypto-ribs do not form two parallel lines, since the arches begin in the form of groins and change smoothly and continuously into ribs. See also Jeanne de Flandreysy

and Etienne Mellier, *Arles et l'abbaye de Montmajour* (Marseille, 1922) figs 72–81.

4A. For late Roman examples of brick ribbing see Boethius and Ward-Perkins (1970) 510–11.

5. It is believed that the so-called Baths of Diana at Arles contained an early example of a tunnel-vault with transverse arches. Several later examples exist in Romanesque buildings.

5A. The tower may be part of the church consecrated in 1049, or it may belong to a later period in the eleventh century, possibly to the 1070s, since its vaults are related to those of Bayeux and its plan to the transeptal tower of Saint-Martin at Tours. The arguments for a date before 1049 are set out in Oursel (1975) 175–83. Durliat's (1994) 184–8, study of the sculpture relating to these early west French vaults dates the ribs to a little after 1049.

5B. The English character of Durham and its first architect is underlined by Bony (1981) 79–82. Thurlby (1994) stresses the debts to Winchester and St Albans in particular. For the possible Islamic influence in the mathematics of its stone cutting see Bony (1990), and for further Islamic parallels (particularly with San Cristo de la Luz in Toledo and the mosque at Cordoba), in the interlacing arcading of its dado and its divergent ribs without transverse arches, see Thurlby (1994) especially 174–5.

5C. The vault in the north-west tower at Bayeux is distinctive in springing from the middle of the sides of the bay, not the corners, and in being applied to a domical section. In both respects it relates to a late eleventh- (?) and early twelfth-century group of French vaults, mainly in the Loire valley, with band ribs in towers: Saint-Paul at Cormery, Saint-Ours in Loches, the crossing tower at Aubiac (Lot-et-Garonne) and the Tour de Charlemagne in Saint-Martin at Tours. For the towers at Bayeux see Liess (1967) 142–3. For the other examples, and for early rib vaults in the Loire valley generally, see Lambert (1933) 235–44. He puts the Tours vaults as the last in the series. Lelong (1975) 113–30, agrees, and dates the Tour de Charlemagne to the very late eleventh century, or the beginning of the twelfth. Durliat (1994) 182–3, notes the similarities between the vaults of Cormery and Bayeux, in that both are band ribs springing from the middle of the walls. He dates Cormery to *c.*1070–80. The whole group may reflect some Islamic influence, probably not directly from the first Muslim rib vaults in the great Mosque at Cordoba (961–5), but perhaps from Cordoba's Mozarabic offshoots in Spain, e.g. San Millan de la Cogolla (Logrono) (consecrated 929 and 984) or San Baudel de Berlanga (11th century). See also the rib vault over a high dome at Quimperlé in Brittany, in Tillet (1982) 240–63.

5D. Durham's position as the first rib-vaulted church in western Europe has now been called into question by the re-dating of two rib-vaulted churches in the Empire and the Low Countries. Von Winterfeld (1988) and (1988a) has convincingly shown that the rib vaults in the transepts of Speyer Cathedral, previously dated to after the fire of 1159, belong to the remodelling of the church after 1081 by Henry IV. And Kidson (1996) has proposed that the similar rib vaults in the now-lost church of St Mary at Utrecht (linked to Speyer by Henry IV's support of the new building) were constructed as part of the original building campaign of late 1080s/early 1090s, and were not, as hitherto thought, inserted after the fire of 1132. Plant (1998) concurs, and finds fresh evidence which suggests that St Mary may have had a direct influence on Durham: in the rare but shared used of octagonal cushion capitals, in the rib vaults, in the use of paired porthole windows in the transepts, and in the precedents for Durham's decorated piers in Utrecht and buildings associated with Utrecht. Plant surmounts the problem of the technical and stylistic differences between the Imperial rib-vaults and those at Durham (the Durham vaults have torus-moulded ribs quite distinct from the rectangular band ribs of Speyer and Utrecht, and their structure is close to Anglo-Norman groin-vaults) by seeing the Durham ribs as another part of the symbolic decoration of the interior, in which one vaulting system is decoratively transposed into another. For the predominantly aesthetic and symbolic character of the first Durham ribs see Thurlby (1994) and especially (1993a). See also below, Chapter 1, Notes 1b, 22d, 22e.

6. The history of research into Lombard architecture is given in the introduction to A. Kingsley Porter, *Lombard Architecture* (New Haven, 1915). The dates which he gives for rib-vaults were dismissed by Frankl, see *Die frühmittel-alterliche und romanische Baukunst* (Wildpark-Potsdam, 1926) 119ff. and 197ff. However, Porter may have been nearer to the truth than his many detractors, including Frankl, thought. The Italian-inspired remodelling of Speyer under Henry IV implies that its rib-vaults were also indebted to some Lombardic model, and Speyer's connexions to St Mary's at Utrecht via Henry IV make Italian influence on the rib vault there just as likely, especially in the context of all the other Italianisms in the church, see Kidson (1996). The difficulty is that few of the Italian parallels discussed by Peroni (1969) – among them S. Michele and S. Giovanni in Borgo in Pavia, or S. Savino in Piacenza – are definitely earlier than the northern examples. S. Michele Maggiore in Pavia, for instance, belongs to 'the end of the 11th century', but we cannot be certain if its original domed rib-vaults pre-dated the earthquake of 1117, or even if they supplanted a scheme for a lower wooden roof. See also Brucher (1987) 60–63, and below, Chapter 2, Notes 62–70, and pp. 99–100.

7. John Bilson, 'The Beginnings of Gothic Architecture, etc.', *Journal of the Royal Institute of British Architects* (1899, 1902); 'Durham Cathedral, The Chronology of its Vaults', in *The Archaeological Journal*, LXXIX (1922) 101. The date of 1235 records indulgences by Bishop Northwold of Ely for those contributing to the projected new work, but the actual rebuilding did not begin until 1242. See Snape (1980) 23–4.

8. This is why large pieces of vault often project in Roman ruins, or lie on the ground in huge blocks.

9. Sigurd Curman and Johnny Roosval, *Sveriges Kyrkor*, II, *Gotland* (Stockholm, 1935) 95 (illustration) 114.

10. The theory that wood was introduced because it became cheaper is connected with the belief that the first ribs were built in Lombardy, where there is supposed to have been a shortage of wood. However, the cross rib-vault may not have come from Lombardy and the forests in this country probably did not disappear until later centuries.

10A. Viollet-le-Duc proposed that the cerce was a device for supporting the stones of successive web courses in the construction of the rib vault. It was hung at its ends from the back of the two ribs and supported the web courses while the mortar dried and the stones set. Since it can extend horizontally, it could be moved up the vault as it spanned wider and wider spaces between the ribs. Frankl's remarks on the cerce are probably based on Viollet-le-Duc's confident exposition of its function in (1858–68) vol. 4, 105–8. Fitchen (1961) 99–122 questioned whether the cerce was employed as a centering device, and argued that it was no more than an adjustable template from which to cut the planks that held the cells.

11. Auguste Choisy, *L'art de bâtir chez les Romains* (Paris, 1873) 73–5.

12. The first man to recognize this was probably James Essex (1723–84) whose notes are preserved in the British Museum in London. The first man to publish this observation in print was George Saunders in 'Observations on the Origin of Gothic Architecture' (a lecture read in 1811) in *Archaeologia*, XVII (1814) 15.

13. The Romanesque crypt of Canterbury Cathedral contains many groin-vaults with double-curved and irregular groins.

14. G. Ungewitter and K. Mohrmann, *Lehrbuch der gotischen Konstruktionen*, II (Leipzig, 1890) 10. With reference to what follows, cf. Mohrmann's whole chapter, 8–18, and his plate III.

14A. But it is has certain similarities with devices for vault projection used by late Gothic German architects, and preserved in fifteenth- and sixteenth-century sketchbooks and manuals. To establish the correct curvature and length of each rib, an arc was drawn corresponding to the cross section of the vault and its ribs. At the base of the arc, corresponding to the springing point of the vault, a horizontal baseline was drawn, and vertical lines, the distance between them corresponding to the length of each rib segment on the ground plan, were drawn upwards to intersect the arc. Bucher (1972a) discussed this system in the late fifteenth-century Dresden Sketchbook, while Müller analysed its after-life in the sixteenth-century drawings of Jacob Facht von Andernach (1974) and the Nuremberg architect Wolf Jacob Stromer (1977). See also Müller (1989) 244, 245, and (1990) passim. Whereas here the horizontal was below the arc, and the verticals rose to it, in Mohrmann's system the horizontal elements (the ropes) are above the arc (the tunnel) and the verticals descend to it. By whatever method, straight – that is non-curvilinear – groins were frequently built, for example in many vaults of the so-called First Romanesque, and the groin-vaults of late eleventh-century Gloucester. See Wilson (1985) 61.

15. This kind of elliptical wall arch can be seen in the choir of the church of the Trinité at Caen.

15A. Frankl accepts Ungewitter-Mohrmann's conclusions, but Fitchen (1961) 50–62, pointed to some of their shortcomings, especially regarding decentering and re-location of planking, and suggested his own scheme for groin-vault centering, see fig. 20. Thurlby (1993a) 68, has suggested that the 'ploughshare' webs of the high vaults in Durham could not have been constructed solely on wooden planks, but must have used a more malleable material, such as wattle. Ungewitter-Mohrmann's constructional 'progression' assumed the straightening of the groin arcs as a prerequisite for rib vaults, a progression considered axiomatic by Bilson (1899) 293–4. In some cases, however, the reverse may be true: the straight, or apparently straight, groins used in rib-vaults regularized the arcs of later groin-vaults. See the case of late eleventh-century Gloucester, Wilson (1985) 65.

15B. But much less cumbersome wooden lagging and centering was required with rib vaults. Economy certainly played a part in this change. See Mark (1982) 122, and Fitchen (1961) 86–122.

15C. Lagging for vault cells can still be seen in the vault of the room adjoining the north-east transept of Lincoln cathedral, of the mid-1190s, see Bond (1913) vol. 1, 287, and Wilson (1990) 27, plate 17. The use of wattle in addition to planks in the centering of the Lincoln vault is a clue to the use of that more

malleable support for 'ploughshare' vault cells, see above, Note 15a.

15D. Frankl's assertion is too categorical. It ignores both the structural and constructional advantages of ribs in the building of vaults, and also the symbolic functions of ribs, see below Note 17b.

16. Victor Mortet, 'L'expertise de la cathédrale de Chartres en 1316', *C.A.*, LXVII (1901) 323; Frankl (1960) 57ff.

16A. There is no conclusive evidence for the cause of the instability, though Frankl is wrong in suggesting that they may have fallen down, since all the documents mention only the threat of collapse, and of fissures and cracks. See Snape (1980) 21–2, 24. James (1983) 139, argued for distortion within the vault rather than movement through the walls or buttressing, for which he found no evidence, but Thurlby (1993) 46–7 plausibly suggests that the damage may have been caused by the settlement of the Romanesque towers above the aisle apses which flanked the main apse forebay, towers which were eventually demolished. Clearly, however, Durham was not the only early Anglo-Norman high choir vault subject to failure, see Gloucester (early twelfth century) and St Albans (1257). Thurlby (1993a) 69, has shown that in at least one aisle bay of the choir at Durham the rib vaults were planned to have a lower trajectory than at present. This may mean that the vaults were not achieved without constructional difficulties. He even suggests that the initial plan may have been to vault the aisles with groin vaults, though the evidence for this is circumstantial.

17. Saunders, *loc. cit.* (Note 12, above.)

17A. Frankl's view is confirmed by the vault cells at Durham, which are as thick as a conventional groin vault in the choir and transepts and eastern bays of the nave, and only become thinner, by about a third, in the western bays of the nave, between 1128 and 1133. See Bilson (1922). The thorny problem of whether or not ribs actually supported the vault has provoked much discussion. Frankl (1960) 663–6, 763–72, 798–826, himself reviewed the controversy up to 1960, but he came to no clear conclusion. More scientific answers to questions concerning the behaviour of masonry vaults have now been offered by modern techniques of structural analysis, but there are still disagreements. Heyman (1968) 171–88, and (1983) 182–3, considers that ribs provide support for cells, particularly at the sharp creases of the groins. Alexander, Mark and Abel (1977) and Mark (1982) 102–17, 122, argue that the structural forces in cells diffuse, cone-like, towards the springers of the vault and do not concentrate particularly on the groins. This means that the groin-vault is as inherently stable as the rib-vault. The ribs facilitate the construction of the cells, but once those cells are in place ribs play no further structural role. Müller (1990) 184–205, reviews the literature on the controversy. Had the rib been regarded as structurally superior to the groin-vault it would not have been used so partially in Romanesque churches – e.g. appearing in the main apse of Saint-Georges at Saint-Martin-de-Boscherville (Seine-Maritime), but not extending to the groin vaults of the adjoining straight bays. Thurlby (1993a) 70, has pointed to a number of twelfth-century monastic houses in England where rib vaults are used selectively in the areas deemed more important, while lesser spaces would be groined. This suggests that the rib also had a symbolic importance, see below Note 17B.

17B. By concentrating primarily on the formal and constructional advantages of the rib Frankl leaves out its symbolic uses. Thurlby (1993a) (1994) stresses the importance for Durham of the openwork ribs of the baldachine over the high altar and shrine of St Peter in Old St Peter's in Rome, especially since the ribs were supported on spiral columns which provided the direct or indirect inspiration for the spiral piers at Durham. The symbolic, specifically Petrine, implications of the spiral piers, especially around shrines and altars had already been pointed out by Fernie (1977). By transferring these motifs from altar and shrine to the whole choir of a great church, Bishop William of Calais provided a suitable setting for the feretory of St Cuthbert, and rivalled the more subtle references to Old St Peter's at Winchester Cathedral. The notion of ribs as enlarged sacred canopies over a shrine or an altar may explain why many of the earliest examples are confined to apses – S. Abbondio in Como, the late eleventh-century choir of Gloucester Cathedral (?), Ewenny Priory in Glamorgan, Saint-Georges at Saint-Martin-de-Boscherville – and are only extended later to cover the straight bays of the choir and the rest of the church. See Wilson (1985) 60–66. See also Hoey (1997) who stresses the symbolic implications of rib vaults over parochial choirs. Durham itself did not intend, at the outset, to vault the south transept or the nave, see Bony (1954) and Thurlby (1993).

18. Illustrations of these vaults and many others can be found in Aubert, (1934) extrait, 19, 41, 45, etc.

CHAPTER 1

1. Bilson, *loc. cit.* (Note 7 to Introduction). Bilson's chronology of the vaults, and of the whole cathedral, still stands, though Bony has introduced a number of refinements. Within Bilson's 'First Great Campaign of Construction', which lasted from August 1093 to September 1104, and which extended up to the easternmost major piers of the nave, Bony (1990) isolated a first major stage (1093–*c.*1095) consisting of the outer walls of the choir and the eastern walls of the transepts, and the choir free-standing piers, all up to but not including the height of the aisle vaults. Bony (1954) also disentangled the changes in vaulting intention in the transepts; he pointed to the strongly Anglo-Saxon character of the cathedral (1981) and analyzed its precocious system of stonework planning (1990). James's (1983) attempt to break down the construction of the whole cathedral into about thirty campaigns, each lasting about a year, must be treated with caution, especially his conclusion that at the translation of St Cuthbert's shrine to the new choir in 1104 the eastern arm had no gallery, clerestorey or high vault. Nor does his argument that the choir high vault was sexpartite stand up to Thurlby's recent close analysis of the masonry around its thirteenth-century replacement. The choir vault, it seems, consisted of two four-part vaults per bay, each separated by a transverse arch (as the later Noyon Cathedral nave). See Thurlbay (1993) 45–6. Gardner (1982) disposed once and for all of the rationalist belief that the quadrant and diaphragm arches in the galleries acted as primitive flying buttresses. They were built mainly as supports for the original gallery roofs. Recent research on the stylistic, technical and constructional history of Durham by Fernie, Thurlby and others can be found in Jackson ed., (1993) and Rollason, Harvey and Prestwich, eds., (1994). See also, for a summing up of the issues, Reilly (1997) who underlines the mood of 'Anglo-Saxon revivalism' behind Bishop William of St Calais's new building.

1A. For the apse-echelon choir plan revealed at Saint-Etienne at Caen in the late 1960s excavations see Carlson (1971) and (1972), and Baylé, in Baylé dir., (1997) 56–61. It derived from the echelon arrangement at Bernay, and reappeared, under the influence of Saint-Etienne, at the monks' parish church of Saint-Nicholas at Caen (1080–90) and then at La Trinité at Caen (*c.*1080–90), Lessay (*c.*1098), Cérisy-la-Forêt (*c.*1090) and Saint-Georges at Saint-Martin-de-Boscherville (1120s). The starting date for Saint-Etienne is not clear, but Baylé, in Baylé dir., (1997) vol. 2, 56–61, considers that it was not underway until after the Norman Conquest in 1066, though the usual starting date it given as *c.*1063. Three dedications mark the progress of the work: 1073 (completion of the choir), 1077 (completion of crossing, transept and two eastern bays of nave) and 1081 (completion of nave), though the west façade was not begun in 1090, after a short break in the work. For eleventh-century Norman architecture see Liess (1967) and the contributions in the well-illustrated Baylé, dir., (1997) vols 1 and 2. For Saint-Nicholas at Caen see Baylé, in Baylé dir., (1997) vol. 2, 62–4.

1B. Frankl is right about the absence of rib-vaults in Caen before 1093, but scholarship has since been busy uncovering pre-1093 ribs further afield. An early group can be found in choir apses: S. Abbondio in Como (usually dated 1063–95), the south transept at Tewkesbury Abbey (1090s), the chapel of the transept crypt at Christchurch Priory, Hampshire (1090s) and, according to Wilson (1985) 60–5, in the original main choir apse of Gloucester (after 1089). Frankl tries to isolate such vaults from the history of early rib-vaulting by calling them 'transverse arches' (see Introduction, p. 41). In conception they may indeed be read as the continuation of transverse arches from groin-vaulted straight bays to the curving surface of the apse. But their position suggests that they were also conceived symbolically, as enlarged canopies or *ciboria* over a shrine or altar; and in this they belong to the conception of the diagonal rib in the strict sense, as a heavenly canopy demarcating the most sacred spaces, including whole choirs, transepts etc. As Wilson (1985) 64–5 suggests, rib vaulting may have originated in the apse of some eleventh-century great church and extended westwards to choirs and eventually naves. See also Introduction, Note 17B. Other early examples of rib vaults not mentioned by Frankl are in the ambulatory of Aversa Cathedral in southern Italy – see di Onofrio (1993) – and at Quimperlé in Brittany (both dated to the 1080s) – see Tillet (1982) 240–63. It is the concerted use of the rib, over a whole group of spaces, which makes Durham important. In this sense the critical parallels (or sources?) are St Mary's at Utrecht and the transepts of Speyer cathedral (1080s/90s) and the uncertainly dated Lombard vaults which may have been their sources of inspiration. See above, Introduction, Note 5d.

1C. The best analysis of La Trinité is by Baylé (1979) and a shorter summary by the same author in Baylé, dir., (1997) vol. 2, 50–55. She dates the choir's groin vault to the remodelling and extension of the original *c.*1060–80 church in *c.*1090, though its actual execution, on the evidence of capital carving, she postpones to the 1120s, when the choir apse had been finished. The same architect built the choir groin vault and then moved onto the rib vault over the crossing – see (1979) 62–4. See below, Chapter 1, Note 7a.

2. Ernst Gall, 'Neue Beiträge zur Geschichte vom Werden der Gotik', in *Monatshefte für Kunstwissenschaft*, IV (1911) 309. Froidevaux and Lelégard (1958) and Froidevaux (1966) suggested that the burial of the founder's son in the choir in 1098, and other eleventh-century references to the church, referred, not to the present building, but to the previous church of 1056–64, and that the present building could only have been begun *c.*1105. It was planned to have groin vaults, however the rib vaults were not additions to an

already-completed building but were afterthoughts realized during the construction of the upper parts of the choir and transepts. This post-1100 dating was accepted by Héliot (1959) and Bony (1976) 18. Recent opinion has accepted that the ribs are integral to the present church, but has re-instated the 1098 date for the vaults of the choir. The choir was begun *c.*1090, and the first campaign included the transept and the eastern bay of the nave, with the burial in the present choir in 1098. After a break in the work, construction on the nave was resumed, but finished only in 1140. The ribs are therefore exactly contemporary with, but probably conceived independently of, Durham. See Baylé (1979) 61, note 11, and Baylé, in Baylé, dir., (1997) vol. 1, 57–8, and vol. 2, 97–100. Doubts about the early date are still, however, expressed by Grant (1994a) 118, 126–7, who points to their isolated position (if dated to *c.*1100). Their rectangular bay shape, relates them, she argues, to the later vaults at Evreux (after 1120) and Saint-Georges at Saint-Martin-de-Boscherville (after 1114). However, her premise that the earliest Norman and Anglo-Norman rib vaults developed first over squarish bays and only later graduated to the less stable rectangular, was written too early to take account of Thurlby's (1993) convincing reconstruction of the choir high vaults at Durham not as sexpartite, but as rectangular and quadripartite. See above, Chapter 1, Note 1, and below, Chapter 1, Note 23a.

3. Charles H. Moore, 'The Aisle Vaults of Winchester Transept', in *The Architectural Journal*, XXIII (1916) 313. The best recent treatments of Romanesque Winchester hardly discuss these vaults, see Gem (1983) and Crook (1993).

4. G. Lanfry, 'Salle capitulaire romane de l'abbaye de Jumièges', in *B.M.*, XCIII (1934) 323. This should, of course, read 'Salle capitulaire gothique'. Lanfry placed the chapter house in the first years of the abbacy of Urso (1101–27) who was the first to be buried there. Bony (1976) 18 and note 11, and (1983) 10–11, and note 7, and others put the building much later, to the 1120s. Baylé, in Baylé, dir., (1997) vol. 1, 74, however, dates the main structure of the chapter house to around 1100, and sees the vaults as later additions. She relates them to those in the choir of Saint-Paul at Rouen (also inserted into an earlier structure).

5. Ernst Gall, 'Die Abteikirche St Lucien bei Beauvais', in *Wiener Jahrbuch für Kunstgeschichte*, IV (XVII) (1926) 59. Recent research accepts Gall's conclusion that the church was vaulted throughout, but not in the way he suggested. Henriet (1983) concluded that the side aisles were not groin- but rib-vaulted (excavations revealed rib fragments with torus profiles similar to those at Saint-Etienne, Beauvais and Morienval). He was not certain if the high vaults were ribs. Gardner (1980) and (1986) believed that there were ribbed high vaults. The issue is important, for if the choir was complete by 1109, as all recent authorities suggest, and if it had rib vaults, especially over the central aisle, then it must count among the earliest rib-vaulted buildings in northern France. The rib fragments, however, look as if they belong to the 1120s/30s. Fons (1975) was not available to me.

5A. For Peterborough see Reilly (1997a) 13–86, who re-dates the choir to the period of Abbot Ernulf (1107–14) and discusses its debts to Anselm's choir in Canterbury and Durham. For Southwell see Pevsner and Metcalf (1985b) 301–23.

6. Jules Fossey, *Monographie de la cathédrale d'Evreux* (Evreux, 1898). The reconstruction appears opposite p. 23 and in illustrations 14 and 27. Not all vaulting shafts at Evreux were set frontally, as Frankl states. Nineteenth-century excavations showed that the straight bays of the twelfth-century choir had diagonally planned responds, see Bony (1976) 20. Grant (1987) 53ff, and (1994a) 118, 126, believes that the post-1119 church was rib-vaulted, Salet (1980) 306–7, suggested that the ribs might have been confined to the choir. The reconstruction of the cathedral, burned in 1119, began probably in the mid-1120s.

7. *C.A.*, LXXV (1909) 1, 12, says of these ellipses that they were 'plus ou moins voulu(s)'. This would mean that the architect set out from semicircles on the walls. It is not known how elliptical centering was constructed at this time.

7A. Surviving mid-eleventh-century masonry in the lower parts of the straight bays of the choir, in the lower parts of the transepts, and in the nave up to and including the first arch order of the piers, has allowed Baylé (1979) 11–18, 38–9, 45–9, 59–67, to establish the following sequence of construction: 1) **The late eleventh-century church** was begun *c.*1059/60; choir complete by 1066; nave finished by second dedication of 1077; Queen Matilda buried in the choir in 1083; westwork complete by *c.*1090. This church was a thin-walled construction with a high wooden roof and groin vaults in the aisles.
2) **A wholesale remodelling of this church** began in the 1080s and 1090s, no doubt inspired by the increase in the scale and ambition of Norman building either side of the channel after the Conquest. This included: a) *c.*1090, the insertion of the crypt (dated by its capitals) and b) *c.*1100–1110: the beginning of the remodelling of the apse, the straight bays of the choir, and the reconstruction of the façade between the towers.
3) *c.*1125–30: **completion of the apse** and upper parts of the choir. Vaulting begins, first with choir groin vault, then rib vaults of crossing, and transepts and nave. To support the new vaults the walls of the transepts and nave were also remodelled with the present overlay of shafts and dosserets, and with blind arcades and a clerestorey passage.

See also Baylé, in Baylé, dir., (1997) vol. 1, 61, vol. 2, 50–5.

8. Auguste Charles Pugin and John Le Keux (ed. John Britton), *Historical and descriptive Essays etc.* (London, 1841) plate III.

9. This is why the hypothesis that I put forward in *Festschrift Heinrich Wölfflin* (Munich, 1924) 107, was wrong. The present transverse arches do indeed look like diaphragm arches, but there is no way of knowing if the nave of Matilda's church had them. For Baylé (1979) 55, 64–7, their original presence 'cannot be totally excluded'. For other 'false sexpartite vaults' in Normandy, all followers of La Trinité, see Baylé, in Baylé, dir., (1997) vol. 1, 61–3. They include Saint-Samson at Ouistreham and the priory of Saint-Gabriel. Interestingly, Grant (1994a) 128, suggests that the latter, and the more conventional Caen-derived six-part vaults at Saint-Martin de Creully, may be connected with a possible initiative of Henry I's son, Robert of Gloucester, in the re-vamping of La Trinité and these smaller churches, an initiative designed to invest in Caen as the Angevin capital of Normandy.

9A. Despite the difficulties of reconstructing the upper parts of the 1060s nave (remodelled in the 1120s and almost totally rebuilt in the mid-nineteenth century) Baylé (1979) 46–9, 62–4, considered that the skeleton of the old elevation was kept and thickened in the twelfth-century rebuilding. She thinks the old elevation probably had half-columns on dosserets rising to the clerestorey, and may have looked something like Mont-Saint-Michel, Lessay, or Saint-Nicholas at Caen. Baylé, in Baylé, dir., (1997) vol. 2, 51, suggests that the second storey would have resembled Bernay's, with double openings onto the interior and relieving arches behind them (still visible under the aisle roofs on the nave's back wall).

10. For details, cf. the two books by Ernst Gall quoted in the bibliography. See now Carlson (1968) 142–3, who dates the very accurate rebuilding of the high vaults to 1616–18.

10A. Carlson (1968) 113–14, and (1976) 11ff, dated the vaults of the nave of Saint-Etienne to *c.*1128–35. Baylé (1979) 67ff, on a stylistic analysis of the vault capitals of La Trinité, considered that the Saint-Etienne vaults preceded those of La Trinité, and in (1987) dated the former to 1110–15. Grant (1994a) 127, however, arrived at an 1120s date for Saint-Etienne by comparison with a securely dated building, the castle of Falaise, rebuilt from 1123. She considered the Trinité vaults to be by a different workshop than those of Saint-Etienne. The later dating of La Trinité is confirmed by Kahn's (1991) 117–23, convincing argument that a La Trinité workshop was active at Canterbury in the 1150s, but this means that Kahn dates the La Trinité work to only shortly before that at Canterbury (i.e the late 1140s?). Baylé, in Baylé, dir., vol. 1 (1997) 72, 73, 77–8, points up the possible importance of the destroyed Romanesque cathedral of Bayeux, begun *c.*1120, as a second centre, parallel with Caen, for the diffusion of expertise in rib vaulting.

10B. Whichever date we give the Saint-Etienne vaults, La Trinité's are probably the later, see above, Note 10a. Frankl's suggestion that the pseudo-sexpartite system of La Trinité resulted from a conceptual combination of the diaphragm arches of its original nave (rebuilt in the 1130s) with the early twelfth-century rib system is an ingenious one, but it must remain hypothetical as long as we know so little about the original covering of Matilda's church. See above, Chapter 1, Note 9. Diaphragm arches were, however, a feature of Norman Romanesque, see the naves at Jumièges and Saint-Vigor at Bayeux.

11. Ernst Gall, in *Monatshefte für Kunstwissenschaft*, IV (1911) 309. Baylé (1979) 62–4, dates the rib vault of the crossing tower to the same period as those of the transept and nave, and not significantly later.

11A. A (just) earlier example of pointed arches in conjunction with rib vaults is the nave at Durham, vaulted 1128–1133.

12. John Bilson, 'The Beginnings of Gothic Architecture', in *Journal of the Royal Institute of British Architects*, VI (1899) illustration on p. 294. Wilson (1985) 62 and note 60, points out that these arches are not wall arches, as Bilson (and Frankl) called them, but rear-arches. Moreover the arch in question may be pointed only as the chance result of crude execution, as the rounded top of the corresponding arch on the other side of the same bay suggests. Wilson proposes Burgundian First Romanesque as a source of these unconventional types of arch. The arches date sometime between the foundation of the choir in 1089 and its dedication in 1100.

13. G. Mongeri, 'Bramante e il Duomo', *Archivo storico Lombardo* (1878) 542.

14. The Pseudo-Raphael theory and the survival of the theory of the origin of the Gothic style in the forests are discussed in Frankl (1960) 271ff, and in Julius Vogel, *Bramante und Raffael* (Leipzig, 1910) 108.

15. See above, Note 12 to Introduction.

16. In *C.A.*, XCII (1929) 497, Marcel Aubert assumes this date to be correct. Raymond Rey, in *L'art gothique du Midi etc.* (Paris, 1934) gives the date as 1115–20, and says that the work was begun under Roger's predecessor and finished in 1120.

The porch was begun *c.*1110–15. The suggestion of Vidal *et al.* (1979) 44–9, that the core of the porch was begun and its vaults completed under Abbots Hunaud of Gavaret (1072–85) and Ansquitil (1085–1115) makes the vaults almost implausibly early. Its exterior stone cladding and crenellations were built during the abbacy of Roger (1115–31). See Durliat (1966). Another early example of rib vaults made up entirely of pointed arches is the nave at Durham begun in 1128 and completed by 1133.

16A. Precise dates for the Gloucester vaults are uncertain. Bony (1976) note 8, assumes that they post-date the fire of 1122. Pevsner and Metcalf (1985b) 141, simply call the north aisle vault 'Norman'. Wilson (1985) 73 and note 112, concluded that the work of Abbot Serlo (up to *c.*1100) did not intend vaulted nave aisles, and that after a protracted pause in the nave construction (caused perhaps by the fire of 1102?) a revision of the design was made, entailing the use of rib vaults throughout the nave.

16B. But note the keystones in the contemporary crypt of Saint-Gilles-du-Gard, see below, Chapter 1, Notes 21, 22a.

17. Lefèvre-Pontalis, *L'architecture religieuse dans l'ancien diocèse de Soissons etc.* (Paris, 1894) 192. This is a correct reconstruction from the plan originally published in *B.M.*, LXXII (1908) 477ff.

18. The whole upper part of the apse dates from the fourteenth century, and the vaults in the transepts and the nave were built in 1652.

18A. The ambulatory might really be called a 'pseudo-ambulatory', the closest parallels being the ground floor passage in the apse of La Trinité at Caen (*c.*1120–30) and the destroyed choir apse of Notre-Dame at Soissons, begun *c.*1130. See Barnes (1976) Bony (1983) 19–20, and Sandron (1998) 157.

19. Some of the photographs which have been published are not clear, and references given here are incomplete, since these details indicate only one experiment among many within the general development.

20. Although the ambulatory and choir aisles at Saint-Lucien at Beauvais *may* have had rib vaults, see above, Chapter 1, Note 5. Bony (1983) 20, 26, 29, gives Morienval a later date than earlier scholarship – in the 1130s and 1140s – after the first campaign at Saint-Etienne at Beauvais. Gardner (1986a) 9, put it *c.*1125–30. His article provides a useful survey of 'proto-Gothic' in the Ile-de-France and Picardy in the second quarter of the twelfth century. Two other contemporary, but destroyed, churches in the Paris region may have had rib-vaulted ambulatories: Saint-Magloire in Paris (finished by 1138) and Saint-Etienne at Dreux (begun early 1130s), see Gardner (1984).

21. Walter Horn, *Die Fassade von St Gilles* (Hamburg, 1937). Richard Hamann, *Die Abteikirche von St Gilles etc.* (Berlin, 1955), however, thinks that these events do not prove an interruption of the building (p. 74 and passim). Schapiro (1935) concurred with Hamann on this. However, Stoddard (1973) 135, considered that the turbulent history of the abbey from 1116 to 1125 or to 1132 meant either a delay in starting the new work on the crypt, or that the work progressed very slowly.

22. Hamann, *op. cit.*, 42.

22A. Stoddard (1973) 127–59, summing up the conclusions of Horn and Hamann, arrived at the following sequence for the crypt: begun sometime after 1096. Superstructure (including all groin and rib vaults) begun at west end after 1116, and worked eastwards; the west wall complete by 1129 (see Schapiro (1935)) but work proceeded slowly, finishing in the 1130s or early 1140s. The crypt was certainly finished by 1142, because the practice of inscribing on the west wall ceased in that year, implying that the present triple portal design of the west façade was established by then, see Ferguson O'Meara (1980).

22B. But note Borg (1972) 122–6, who argued that when work finished on the crypt the upper church was begun from west to east, and that given the uniqueness in Provence of the choir's ground plan, it could hardly have been undertaken before *c.*1150.

22C. But Hamann (1955) 58–9, considered that rib vaults were intended in the choir aisles and chapels from the start.

22D. The Speyer rib vaults are minutely described and analyzed by Kubach and Haas (1972) 357–8, 371–2, 512, 779–82. They advance the post-1159 date. Von Winterfeld (1988) and (1988a) puts them to the Henry IV period on two grounds. Firstly, the ribs are an integral part of the wall arches and upper parts of the transepts, and could not have been inserted after 1159 without damage to the surrounding masonry (damage which does not exist). And secondly, masons's marks on the ribs tally with marks in the Afra chapel, a building which must have been finished by Henry IV's temporary interment there in 1106. Note also the contemporary band ribs in St Mary at Utrecht, a building associated with Henry IV, and re-dated by Kidson (1996) to the 1090s. See Chapter 1, Note 5d.

22E. Although Italian-looking, the similar Lombard ribs are notoriously difficult to date. See above, Introduction, Notes 5d, 6. Kidson (1996) 134, suggests the ribs of S. Nazaro in Milan, which he dates to 1075–93, as a candidate. But McKinnell (1985) 238–47 attributes them to a campaign active in 1112, and perhaps extending into the second half of the twelfth century.

22F. In 1979–81 dendrochronological analysis of medieval fragments of wooden scaffolding poles has permitted the following chronology:

1) east choir begun *c.*1120/25, vaulting finished *c.*1140
2) north wall of nave, up to but not including clerestorey, complete by 1161/2
3) consecration in 1181
4) completion of west choir by 1192.

See von Winterfeld (1988a) and Schütz and Müller (1989) 203–8.

23. Rudolph Kautzsch, 'Die ältesten deutschen Rippengewölbe', in *Paul Clemen Festschrift* (Düsseldorf, 1926) 304. The Alsatian churches are discussed in greater detail by the same author in *Der romanische Kirchenbau im Elsass* (Freiburg im Breisgau, 1944). No definitive study of the form of these rib-vaults has been made, but a great deal can be deduced from the excellent illustrations in Kautzsch's book. Feld (1961) 242ff, dated most of these vaults to the middle of the twelfth century or later: SS Peter and Paul, Hirsau *c.*1125–30, Frauenkirche in Magdeburg *c.*1150, Murbach *c.*1160, St Johann in the third quarter of the twelfth century. But the recent re-dating of the Speyer and Worms vaults to half a century earlier has altered the whole picture of High Romanesque architecture in Germany. In any case, the vaults of the Hirsau church have always been anchored in the 1120s. The Petersberg in Erfurt vaults must be between 1127 and 1147 – see Schütz and Müller (1985) 226–8 and Badstübner (1985) 131. Those in Magdeburg are part of a western block begun after 1129 and completed after the middle of the twelfth century – see Dehio (1974) 280–2. St Johann is now dated *c.*1140–50 – see Schütz and Müller (1985) 226–8. The Murbach vaults are put at 1122–34, though the original intention here may have been a barrel-vaulted choir, see Schütz and Müller (1985) 262–3. Thus many of Kautzsch's 'early' dates have now been vindicated.

23A. Bilson's (1922) chronology of the Durham vaults is still widely accepted: choir aisles before 1100; choir high vaults by 1104; north transept by 1115; south transept *c.*1125–8; high vaults of nave 1128–33. Bony (1954) argued that only the choir was originally intended to be vaulted: the transepts (north begun 1093–1104, the south a little later) and the east double bay of the nave were intended to have their central aisles covered by wooden roofs. Thurlby (1993) has shown that the north transept was intended to be vaulted from the start; only the south transept envisaged a wooden roof, which was changed to the present vault. By 1104 the nave had been built up to the easternmost double bay, and a single bay of the gallery on both sides. The rest was completed under Bishop Ranulf 'Flambard', and the vaults were built between 1128 and 1133. James's (1983) suggestion that only the apse vault of the choir had been completed by 1104 is not convincing, and his reconstruction of the original choir high vault as sexpartite has been convincingly rejected by Thurlby (1993) 45–7. For Durham see above, Introduction, Notes 5a, 5c, 17a, 17b, and Chapter 1, Note 1.

23B. From the late 1950s Pacquet (1963) recovered the straight-ended plan of the original choir of Saint-Etienne. Hearn (1971) 193–5, identified it as a copy of the choir plan of Romsey Abbey in England (begun *c.*1120) and therefore dated its beginning to 1125. Like the transepts and nave, it was almost certainly rib-vaulted. Still the fullest account of the building history and its stylistic affiliations is provided by Henwood-Reverdot (1982) 84–132, who isolates four campaigns.

1) **begun in** *c.*1120 (on the assumption that its rib vaults in the choir derived from the rib-vaulted transept of Saint-Lucien at Beauvais, of *c.*1115). Choir probably finished by 1132.
2) *c.*1130 transepts (originally to be unvaulted) and first bay of nave.
3) ***c.*1130–40** next three bays of nave and upper parts of transepts, including the vaulting and the construction of the north rose window *c.*1150.
4) **early thirteenth century**, last two bays of nave and façade. High vaults of nave.

See also Bideault and Lautier (1987) 96–104, who follow roughly the same sequence. They date the nave high vaults to *c.*1220–35. McGee (1986) correctly doubts the circumstantial stylistic evidence for the 1120/25 date for the beginning of the choir, but his attempt to date the choir, transepts and first bay of the nave in a single campaign from 1075/80 to *c.*1100, based on equally circumstantial historical evidence and on impressionistic stylistic comparison, has found no followers. In effect, it would mean dating the north transept rose about forty years before its real model, the western rose of Saint-Denis!

23C. These keeled mouldings count among the earliest in Europe. Other early examples are to be found in England (Durham Chapter House ribs, *c.*1135; Fountains Abbey, East Guest House piers and ribs, *c.*1155) and in northern France (ribs of the Saint-Denis narthex, *c.*1135; Bertaucourt-les-Dames, west end of nave, *c.*1135–40/50; Saint-Martin-des-Champs, Paris, ambulatory, *c.*1140–5). See Fergusson (1984) 51, note 78; and Hearn (1971) 195.

24. It was destroyed in 1945, but is now being rebuilt.

25. The start of the Saint-Germer choir has been put by Pessin (1978) and Carlson (1986) in the mid- to late 1150s. But Henriet (1985) has made out a convincing case for a beginning *c.*1135. He dates the eastern portions of the building (choir, transept and two eastern bays of the nave) *c.*1135-*c.*1165. After a brief hiatus during the abbacy of Hildegaire II (1167–72), a second campaign saw the completion of the six remaining nave bays and the western block. The

latter (destroyed in the Hundred Years War) was complete just before 1206. Henriet's authoritative analysis is broadly followed by Bideault and Lautier (1987) 293–302. There are early examples of contiguous radiating chapels at La Trinité at Fécamp (1106) and Avranches cathedral (1121), but it was Saint-Germer that seems to have popularized this type of chevet for Early Gothic Parisian churches: Saint-Magloire (complete by 1138) and Saint-Denis (1140–4), with an outlier at Notre-Dame Avénières near Le Mans (begun *c.*1140). It was also adopted at Saint-Maclou in Pontoise, Saint-Germain-des-Prés in Paris, and Senlis and Noyon Cathedrals. See also Gardner (1984) 88–91, notes 24–6, and Bony (1983) 49–53.

25A. For the debt to Normandy see Lohrmann (1973) and Henriet (1985) 113ff. Wilson (1990) 29, points to Cluniac Burgundian influence in the shelf supporting the clerestorey passage.

25B. For the appearance of the pointed arch in western Europe in the late eleventh century see Bony (1983) 17–19.

25C. The history of the building of Cluny III is a battleground of conflicting opinion. The lifelong researches of K. J. Conant are gathered together in Conant (1968). His conclusions were challenged by Salet (1968) in a careful examination of the existing south-west transept. For a judicious summary of the arguments see Lehmann (1976), who gives the relevant bibliography to that date. An even fuller account of the controversy and the literature (but not including the narthex) is given by Armi (1983) especially 22–3 and Appendix 4.

26. Conant (1974, 2nd edn) 219, dated the two eastern vaults to 'possibly as early as 1132', and the rest in the narthex bay to about 1220. In Conant (1968) 111, he called attention to a statute of 1146 mentioning 'new work', which might refer to the narthex construction. On pp. 152–3, he suggested a date of '*c.*1145–55?' for the completion of the two eastern bays, and *c.*1177ff for the western bays. In both works he saw parallels with early rib-vaulted buildings in the Ile-de-France (Saint-Martin-des-Champs, Paris). Salet (1968) 288–9, admitted that the narthex was begun under Peter the Venerable in 1132/5, but underlined that it was not finished until the reign of Abbot Roland de Hainaut (1220–8), and argued that its vaults could not date before the very end of the twelfth century. Branner (1960) 30, 130, and Schlink (1970) 89ff, and 96–7 suggested *c.*1170 for the ribs of the two eastern bays, and argued that they represent a change of plan from an intended barrel vault. Kennedy (1996) 39–48, however, convincingly refutes the idea of a change of plan, and argues that the two eastern bays of the narthex, including the vaults, followed soon after the completion of the west portal, that is, *c.*1130–40. She also points to close stylistic and historical connexions with Ile-de-France early rib-vaulted buildings, e.g. Saint-Germer-de-Fly and Saint-Martin-des-Champs in Paris.

26A. See above, Chapter 1, Notes 22D, 22E, 22F.

27. These and other works, such as Cambronne-les-Clermont, Bellefontaine, etc., are discussed in Aubert, *Croisées d'ogives*. On the fascinating churches at Bernières-sur-Mer, Creuilly, Ouistreham, etc., see Gall (1915) 38ff. What is called Early Gothic in that work, however, is called Transitional in the present book. For the nave at Bury see Bideault and Lautier (1987) 110–17. For Poissy, started probably *c.*1140–5, see Salet (1951). For the choir of Saint-Maclou at Pontoise, also a follower of Saint-Denis, see Lefèvre-Pontalis (1919) 76–99.

28. Frankl (1960) 531. See Dallaway (1806), whose work was not known to Frankl, but is mentioned in Watkin (1980) 56–8, and by Clark (1986) 105. All problems relating to Saint-Denis must now be seen in the light of Crosby's (1987) monograph.

28A. However, Gardner (1984a) has shown that the western block is the work of not one, but two architects. All the upper chapels above their lowest stone courses, and the upper parts of the ground floor of the eastern bay, were designed by a second architect, who was identical to the designer of the choir. Crosby (1987) 161, also noted stylistic differences between the lower and upper floors. His book provides the most detailed description of the western block and a reconstruction of its original appearance before the eighteenth- and nineteenth-century alterations, see (1987) 121–213. Grant (1998) 253–4, considers the break in the western block is not as clear-cut as Gardner thought, that many of the features of the second, choir, master also appear in the ground floor of the western block, and that 'it is at least arguable that all the remaining fabric of the work at Saint-Denis is the work of a single architect'. This argument presupposes, however, a single architect's ability radically to change his mode of design. In an extraordinary book, van der Meulen and Speer (1993) 173ff, state (without any further archeological or visual justification) that the present west end is essentially a Carolingian work, its portals are subsequent additions, which in no way bond in with the surrounding stonework, and its central portal is made up of *spolia* from the Carolingian period. The absurdity of this proposition needs no comment, but see below, Chapter 2, Note 5F.

29. On Suger's writings, see Erwin Panofsky, *Abbot Suger on the Abbey Church of St Denis and its Art Treasures* (Princeton, 1979) For the upper chapels see 44–5, 96–9. Frankl (1960) chapter 1, 1; and Marcel Aubert, *Suger* (Paris, 1950). Suger's artistic aims, and his motives for rebuilding Saint-Denis, have provoked a wealth of interpretation. Apart from Panofsky (1979) passim, and von Simson (1956 and 1962) 61–141, a new generation of scholars have elevated Suger himself as the critical link between his new Gothic church and (a) Capetian kingship – Spiegel (1986) and Lewis (1986); (b) personal expiation – Maines (1986); (c) monastic reform – Rudolph (1990) and (d) neo-Platonic allegory, particularly the mystical theology of the Pseudo-Dionysius – Zinn (1986), Binding and Speer eds., (1993) and (1996) and Neuheuser (1993). See below, Part Two, Note 7b. The theological and liturgical picture of Suger presented by this largely art historical research is at odds with the more worldly and pragmatic image of Suger reconstructed by Grant (1998).

30. Not all the ribs have the same profile; also part of the vault has been restored. Apart from Crosby's (1987) photogrammetric analysis of the western block, pp. 121–79, the most recent discussion of the west façade can be found in Gardner (1984a) passim, and Clark (1986) 105–7. They all hold that the whole façade above the portal zone was the creation of the second architect. The rib profile Frankl is referring to is found in the high vault of the central east bay of the narthex, see Crosby (1987) 149, figure 57d.

30A. Gardner (1984a) 586, considers the first architect to have begun construction of the façade in *c.*1134, and the second to have appeared *c.*1135/6. Crosby (1987) 123–4, suggests that preparation for building could have been started in the early 1130s, but a beginning might have been delayed until about 1135. In his Testament of 1137, Suger tells us that he has built a new *domus hospitum* (in the western claustral range), a new refectory, a new dormitory, and begun the western block. See Grant (1998) 241–5. The eastern ambulatory bay of Saint-Martin-des-Champs in Paris, begun *c.*1135, has pointed rib vaults.

30B. For a reconstruction of Saint-Lucien's façade and its probable influence see Gardner (1986) 93–100. The origins and classification of the Saint-Denis façade have been much discussed. A convenient summing up of the evidence, and an argument for a strong Anglo-Norman influence in the formation of the north French Gothic west façade can be found in McAleer (1984) and at greater length in McAleer (1963). For a geometrical analysis of the Saint-Denis façade see Crosby (1987) 175–9. For its symbolic character see: Crosby (1987) 179, and notes 20, 21, p. 487; von Simson (1962) 108–11; Kimpel and Suckale (1985) 80–4. Its connexions to Carolingian and Ottonian westworks were underlined by Crosby (1965) 67.

31. Illustrated in Ernst Gall, *Die gotische Baukunst etc.* (Leipzig, 1925) fig. 14 on p. 48, and the stage before the restoration by Debret in the first half of the nineteenth century, *ibid.*, plate 28. See now Crosby (1970) and (1987) 179–213, and the meticulous studies by Blum (1986) 199–227, and (1992).

31A. For the eighteenth- and nineteenth-century restorations to the façade see Clark (1986) 105–6, and Crosby (1987) 167–70. The crenellations, which, contrary to Frankl, are part of the original project, were symbolically suitable for the façade as an image of the *Porta Coeli*, and might even have been seen as having a potentially real defensive role, see Gardner (1984b) 97–123. Crosby (1987) 172, fig. 72, and 175, fig. 74, was wrong to reconstruct the buttress tops as rectangular in section when all pre-restoration views show they were, as at present, rounded, see Wyss, dir., (1996) 51–65.

31B. For the alterations to the rose at Saint-Denis and its putative twelfth-century appearance, see Crosby (1987) 170–4. During the restorations that began in 1837 under Debret the Evangelist symbols were added in the spandrels, and probably are not reflections of any medieval arrangement, whereas the head and leaf ornament of the rose's mouldings are probably recarvings of the originals. See the excellent dossier of drawings and texts relating to Saint-Denis assembled by Wyss (1996) especially 50–70. The relationship between the Saint-Etienne façade and that of Saint-Lucien at Beauvais is discussed by Gardner (1986) 94–5. Hearn (1971) 195, and Henwood-Reverdot (1982) 123–32, date the Saint-Etienne rose to *c.*1150, a little later than Saint-Denis's. The iconography of the Beauvais rose, as a wheel of fortune, is discussed in context by Beyer (1962) and Mersmann (1982) 68–72. Hardy (1983) and Beretz (1989) were not available to me.

32. The blind arcades on each of the four buttresses probably date from the nineteenth century. Crosby (1987) 170, confirms that they were added by Debret in 1838.

33. Of the figures, six heads have been preserved, two in the Walters Art Gallery, Baltimore, one in the Fogg Art Museum, Harvard University, Cambridge, Mass., and three in the Musée National du Moyen Age in Paris. For the latter see Pressouyre (1976) 151–60, and for the column figures in general see Crosby (1987) 192–201, and Williamson (1995) pp. 11–12.

33A. Earlier literature on the sculpture is given in Sauerländer (1972) 379–83. A short, well-informed introduction to the problems can be found in Williamson (1995) 11–14. Influential iconographical interpretations of the statue-columns in terms of *regnum* and *sacerdotium* were put forward by Katzenellenbogen (1964) 27–34, and followed by Hearn (1981) 192–7. The fullest analysis is by Gerson (1970), part of which appeared in (1986) 183–98. See also a penetrating analysis of the themes of royalty in the façade and the sculpture by Hoffmann (1985), and a Pseudo-Dionysian interpretation of the left portal by Blum (1986) 199–227, who also reconstructs the famous mosaic

tympanum of this portal (now lost) as a Coronation of the Virgin. An outline of research up to the late 1980s on the iconography of the portals is given in Crosby (1987) 179–213. For the genesis and meaning of the column figure see Sauerländer (1994a).

33B. For the left portal of the west façade and its mosaic see Blum (1986) 209–18.

34. Camille Enlart, *Monuments religieux etc. dans la région picarde* (Paris, 1895); and in greater detail in *C.A.*, XCIX (1937) 459; Gall, *op. cit.* (1925) plate 27. Aubert (1934) 58.

35. Vallery-Radot, in *C.A.*, LXXXIX (1927) 499; Bilson (1917) 1–35, dated the octopartite vault in the crossing (now hidden by a vault added below it in 1648) as '*c.*1140'. No further investigation has, as far as I know, altered Bilson's date. Its closest parallel, as Bilson noted, is the eight-part vault in the treasury at Canterbury Cathedral, constructed under Prior Wibert after 1153, and dated by, among others, Kahn (1991) 108–23, to *c.*1155–60. Kahn notes a 'family similarity' between the Canterbury vaults and their profiles, and those of La Trinité at Caen, and she convincingly argues for the presence of sculptors from La Trinité working for Prior Wibert at Canterbury. This tallies with the influence of La Trinité at Montivilliers in the 1140s, see Chapter 1, Note 36 below.

36. Such diaphragms also exist at Bernières-sur-Mer (illustrated in Gall (1915) plate 35). Gall dates this building as earlier than the vaults of the nave at Durham, i.e. before 1128. Gall's pre-1128 date for Bernières is almost certainly too early. Baylé, in Baylé, dir., (1997) vol. 1, 61–3, associates the small group of false sexpartite vaults in Normandy – Saint-Samson at Ouistreham, Bernières and the priory church of Saint-Gabriel – with the influence of the vaults of La Trinité at Caen, which she puts in the 1130s. She also (74–6) confirms Frankl's connexions between the Montivilliers vaults and La Trinité in the exact similarities of their rib profiles (especially in the Caen transepts, where also the division of the end bays into five-part vaults parallels the north transept end bay at Montivilliers). See above, Chapter 1, Note 9.

37. Enlart, *op. cit.*, 132; M. Aubert in *C.A.*, XCIX (1937) 209. Aubert's dates of *c.*1150–70 for these choir vaults are probably too late. The year 1152, when an important donation was made to the church, may be a *terminus ante quem* for the vaults, which do not, despite Aubert's observations, seem to be of different dates in different bays, nor to have been inserted as afterthoughts into the completed choir. They go with the rest of the choir and the eastern crossing piers, which Gardner (1986a) 11, has related stylistically to the choir of Saint-Julien at Marolles-en-Brie, *c.*1125–35 and the nave of Saint-Lucien at Bury (*c.*1130–5).

38. Aubert (1934) 42. The function of the transverse arches in the towers is to strengthen the structure against the vibration when the bells are rung. For these vaults see above, Introduction, Note 5C.

38A. For Angoulême and Saint-Front at Périgueux see Conant (1974, 2nd edn.) 286–8, 289–90.

38B. The tower was constructed in a single campaign from 1130 to 1180, see Connolly (1980).

38C. According to Mussat (1963) 95–107, and (1981), the choir was rebuilt from 1137 to *c.*1140, the transepts in *c.*1145 and the nave between *c.*1145/50 and 1158.

38D. Frankl is here using Georg Dehio's concepts of 'active' and 'passive' transition, first put forward in Dehio and von Bezold (1901) 257ff. Bony and Panofsky expressed reservations about the term 'transitional' in Bony (1963). The nationalistic and philosophical implications of the term are discussed by Sauerländer (1987). See also below, Part Two, Note 63a.

39. *C.A.*, LXXXII (1919) 33. See now Henriet (1978), and for its affiliations with Sens cathedral see Severens (1975).

CHAPTER 2

1. The choir of Saint-Denis, the first articulate manifestation of the Gothic style, has attracted a wealth of commentary since 1962. Still the best analysis of its formal qualities and its sources of inspiration are provided by Bony (1983) 39–40, 61–4, 90–5, and Bony (1986) 131–42, where the Roman and Early Christian sources are given proper weight. Kimpel and Suckale (1985) 76–92, placed the whole enterprise in a more historical, patron-led environment, discussing it in the context of Suger's organizational powers, his political horizons, and his economic reform of the abbey. Gardner (1984a) identified the presence of the choir master in the upper floor of the west end, see above, Chapter 1, Note 30. Clark (1986) gives a sane assessment of the issues and contributes many new insights, especially on the sequence of work on the choir. Clark (1995) was the first seriously to draw attention to the Merovingian *spolia* in Suger's new choir, and to their political implications. Crosby's (1987) monograph reconstructs the elevation of the choir, and publishes invaluable photogrammetric drawings, but otherwise says little new about the style, sequence of building, or 'meaning' of the east end. Van der Meulen and Speer's (1988) bizarre study on the history of the choir, from the Merovingians to Suger, is almost worthless in its general conclusions, though it draws together points of specific interest. Some of their more outlandish propositions are considered below, Chapter 2, Note 5F, and see Chapter 1, Note 28A, above. James's (1993) attempt to uncover at least four different architects behind the design of the crypt and choir ignores the aesthetic unity of the whole design. His suggestion that the chapels were originally planned to have unribbed semi-domes rising to barrel vaults and supported on thick compound piers is inconsistent with the two architects' work at the west end, with Suger's desire to make his windows visible, and with contemporary Ile-de-France practice.

1A. Modern investigation has proved that there was in fact a slight deviation; cf. *B.M.*, LXIX (1905) 452. The vexed question of the geometry used so skilfully by Suger's architect is made more complex by the irregularities of the ambulatory, most notably the increasingly greater depth of the three easternmost chapels, which are struck from an arc whose centre is over 2 metres to the east of the principal centre for the arcs of the ambulatory columns and the other chapels. The first serious analysis of this system of different circles came from Crosby (1966) who offered a symbolic explanation, in the form of Ptolemy's *Almagest*. Kidson (1987) rejected wholesale the cosmic and symbolic dimensions of Crosby's geometry and proposed a thirteen-sided polygon as the 'ground-figure' for the chevet, arrived at by the use of triangulation, based ultimately on Heron of Alexandria's methods for calculating the sides of polygons. Van der Meulen and Speer (1988) 77–106, offered a minute analysis of the dimensional irregularities of the east end, at crypt and choir level, and explained some of them as stemming from the need to place the longitudinal axis of the new chevet in a compromise position exactly half way between the southward axis of the Carolingian (to them Merovingian) apse and the northward axis of Abbot Hilduin's (to them also Merovingian) extension to its east. The difficulty with all these analyses, especially van der Meulen's, is that they rely on inaccurate and outdated plans (in his case resulting in a misleadingly inaccurate calculation of the radial axes of the chevet buttresses in relation to the axes of the ambulatory pillars, see figs III, IV, V). But the new photogrammetric drawings of the crypt and the choir, published by Clark (1986) figs 12, 13, and Crosby (1987) plates 1, 2, album nos 1, 2, showed so much irregularity that neither was prepared to offer a geometrical analysis: see Clark (1986) 111, and Crosby (1987) 241. James (1993) tries to explain some of the geometrical oddities (notably the different axes of the chapel buttresses on the south side to those on the north) as the result of a change of architects, not of compromises with existing structures. The whole question needs investigation.

2. On Suger's indirect remarks, see Note 29 to Chapter 1.

2A. For some preliminary remarks on the liturgy of Saint-Denis, but with no mention of relics displayed in chapels, see Rasmussen (1986). Walters (1984) was not available to me.

3. An excellent account of the thirteenth-century remodelling is given by Bruzelius (1985).

4. An attempt of mine at a reconstruction has been published in Panofsky's book. A corrected version of this reconstruction may be expected in Crosby's work now in preparation.

Both Clark (1986) 114–15, and Crosby (1987) 280–5, and fig. 119, reconstruct the choir as a three-storey elevation reminiscent of the choir of Saint-Germain-des-Prés, with an arcade supported on columns, an unlit and unvaulted gallery of two subdivided openings per bay, and a small clerestorey. Bony (1983) 95 and fig. 87, and Wilson (1990) 39–41, fig. 28, accept this reconstruction, though Wilson adds (I think correctly) flying buttresses. For the less convincing suggestions that it had fully vaulted tribunes, see Polk (1983) 34f, or that it had a four-storey elevation like Saint-Germer, see Kimpel and Suckale (1985) 98, and 481, note 6.

5. This source is most illuminating on technical questions; cf. Frankl (1960) Chapter 1.

5A. Bony (1983) 93–5, and 479, note 16, and Crosby (1987) 261, convincingly reconstruct four-part vaults over the high choir, but its deeper western bay may have had a six-part vault.

5B. Gardner (1984a) has argued that the second architect and his shop, responsible for the upper parts of the west block, was also the architect of the choir, see above, Chapter 1, Note 28A. For James's (1993) implausible proliferation of architects for the crypt and choir (no less than five!) see above, Chapter 2, Note 1.

5C. Recent research has doubted that the thirteenth-century remodelling was caused by structural failure in Suger's choir, see Bruzelius (1985) 82–3, and Crosby (1987) 260. Kimpel and Suckale (1985) 87–8 and Suckale (1990) still put the case for instability, but are not convincing. No signs of threatening distress can be seen in the existing parts of the Suger choir. And the reason for reinforcing the supports of the crypt after 1231 was not, as Suckale (1990) 75, argued, to support Suger's over-long bays, but to reinforce the much greater loads of the new, higher elevation. The fact that the apsidal pillars of the crypt were not reinforced at the same time does not prove (as Suckale suggests) that the greater weight of his new elevation did not figure in the new architect's calculations; on the contrary, it is evidence of a medieval understanding that

straight bays, especially wide ones, are less stable than closely spaced apsidal arcades – hence the survival of the hemicycle bays and the collapse of the straight bay pillars in the choir of Beauvais.

5D. Branner (1965) 39–55, attributed the new choir not to Pierre de Montreuil, as Frankl and others had assumed, but to an unknown 'Saint-Denis master'. Pierre de Montreuil first appears at Saint-Denis as late as 1247, almost certainly as the leading architect. Branner's attribution has been almost unanimously accepted – see Bruzelius (1985) passim, but for no convincing reason Bouttier (1987) attributed the new work to Jean de Chelles. However, the transept façades of Saint-Denis look very different from Jean de Chelles's north transept at Notre-Dame in Paris.

5E. The symbolic associations of Suger's interest in light, and its supposed connexions with Denis the Pseudo-Areopagite, were first fully launched on the art historical world by Panofsky (1946, 1979, 2nd edn), and then elaborated by Sedlmayr (1950) and von Simson (1956 and 1962) into a consistent theory – that Dionysian light 'metaphysics' and Augustinian order were the fundamental theological impulses in the creation of French Gothic architecture. Their position has been refined by recent studies on the symbolic properties of stained glass. Grodecki (1958) and Grodecki and Brisac (1985) 17–27, examined the aesthetic interrelationships between architecture and glass. Gage (1982) emphasized the luminous darkness of Suger's glass, and related it to the 'negative theology' of the Pseudo-Denis. Büchsel (1983) connected Suger's symbolist mentality, and his descriptive vocabulary, to wider patterns of medieval exegesis. Zinn (1986) located the sources for his anagogic aesthetics not solely in the Pseudo-Denis, but in the neo-Platonism of the Parisian Victorines. Kidson (1987) doubted if Suger was in any serious sense a follower of the Pseudo-Denis. Grant (1998) 23–5, 270–1, thinks Suger had only a superficial understanding of Dionysian mysticism, and doubts the Dionysian inspiration often advanced for Suger's inscriptions on the west front. The whole issue is sensibly and comprehensively weighed up by Markschies (1995). For the important insights into Suger's patronage provided by the new critical edition of *De Consecratione*, edited by Binding and Speer (1996), see below, Part Two, Note 7B, where other relevant literature is also discussed.

5F. Few would now agree with Frankl that Gothic developed from the vault downwards. 'Proto-Gothic' articulation of the interior elevation into an arch–shaft system, creating a skeleton-like wall, coincides with unvaulted interiors, e.g. in late Anglo-Norman architecture. See Bony (1983) 22ff, and Wilson (1990) 16.

The 'Romanesque' character of the exterior of the Saint-Denis crypt and choir chapels may partly explain the extraordinary thesis of van der Meulen and Speer (1988) 63–77, 95–106, 201–40, 256–98: that Suger's crypt and choir are, in their essentials, a reconstruction of what Guibert of Nogent called a *turris* built at Saint-Denis by William the Conqueror sometime before 1087, and which collapsed soon after its completion. This 'tower', they argue, was really a choir, and consisted of the present seven radiating chapels and an ambulatory at crypt and choir level. Suger simply repaired the *turris* by keeping its old outer walls, enlarging its windows, and inserting rib vaults over the ambulatory and chapels. Suger, they contend, constructed new columns in the straight bays of the choir and apse, and supported them on pillars in the crypt (all these columns and supports are identified by most authorities as belonging to the post 1231 remodelling). The famously elegant free-standing columns in the ambulatory and their capitals are not twelfth-century pieces but classical *spolia*. The whole argument, pursued with relentless special pleading, is unconvincing. It ignores Crosby's (1987) 96–100, identification of eleventh-century masonry under the present north transept, which is more plausibly that of the tower. It has to spend twenty pages (212–29) trying to persuade the reader that the word 'tower' is just as suitable as the term 'choir' or 'sanctuary' to describe an eastern apse; but it also has to contend that the *turris* was not seen, in the strict sense, as part of the *ecclesia* since Guibert's description of the collapse says that 'no part of the church was damaged' (*nullam ecclesiae partem dum rueret laesit*)! How can the *turris* be at once the choir and yet not part of the church? Their argument does not explain why a structure as liturgically important as the choir had to wait fifty years for its reconstruction, nor does it begin to convince us that the smooth ashlar of the existing walls of the Suger choir are examples of eleventh-century masonry. If the pillars of the apse and choir straight bays are indeed Suger's then they have the earliest crocket capitals in Europe by some twenty or thirty years. The capitals of the ambulatory columns are clearly twelfth-century and not antique, though they imitate antique and Italianate precedents. The whole exercise, despite the seriousness of its scholarship, is fundamentally flawed.

6. E. Chartraire, *La cathédrale de Sens* (*P.M.*) (Paris, 1934) 12. Henriet's study of Sens (1982) especially 83–8, 146–8 and 167, note 194, dates the beginning of construction to 1140, but argues that preparations had been going on for some time, perhaps from before 1137. His conclusions provide a useful summary and criticism of earlier research on Sens, particularly that of Severens (1970) and (1975), though he is less convincing in his refusal to see the choir as the result of two distinct campaigns, the first Romanesque, the second Gothic. For the Parisian sources of Sens, especially its ground plan, see Gardner (1984) 91ff.

6A. Until recently, it was commonly held that the choir of Sens was the result of two campaigns:

1) **an early, pre-1140 work**, comprising the north and south nave chapels and the ambulatory. These sections were seen as Burgundian in inspiration, and were intended to have groin vaults in the side aisles and possibly a barrel vault over the main space.

2) **A post-1140**, Saint-Denis-influenced Gothic campaign which substituted ribs for the old groin vaults and built the present hemicycle and choir elevation.

This view was advanced in detail by Severens (1970) and followed by Bony (1983) 66–8. But Henriet (1982) especially 108–20, has argued that the whole choir is the product of a single design by one architect. This is not accepted by Wilson (1990) 46.

6B. See Branner (1960) 181; Severens (1970) passim. For contrary opinions see Henriet (1982) 112–14, and Kimpel and Suckale (1985) 481, note 10. I cannot follow Henriet in his view that rib vaults were always intended.

6C. See above, Chapter 1, Note 39.

7. The original form of the windows is suggested in a drawing in Viollet-le-Duc, *Dictionnaire*, IX, 286 and fig. 9. There is a more complete drawing in Dehio, *K.B.*, plate 379, 1. For a reconstruction of the original clerestorey, and the dating of its thirteenth-century replacement, see Henriet (1982) 98–102, 128–40, fig. 6.

7A. For remarks on the proportions of Sens see von Simson (1962) 143–4, and Severens (1975) 200.

7B. See Clark (1987) 26, who suggests that the four-storey elevation, and particularly the trefoil-headed arcading of the third storey, was only decided on when work had reached gallery level (for him *c.*1170–85) and was not part of the original design. If he is right then Noyon's elevation derives from the earlier choir at Laon.

7C. The date of *c.*1150 for the beginning of the Noyon choir is now disputed. Until recently, the traditional chronology had been established by Seymour's classic monograph (1968, 2nd edn). Seymour located the earliest work in the chevet chapels, *c.*1145–50, after the completion, and under the influence, of the choir of Saint-Denis. These chapels were ready by *c.*1160. Construction moved from east to west. The ambulatory, choir tower bays, exterior tribune walls and the lower walls of the transepts and their elevation system he dated *c.*1160–70. The upper choir, the north and south transepts, the bishop's chapel (consecrated in 1183) and the eastern bay of the nave he dated to *c.*1170–85. Seymour's sequence and chronology was followed by Bony (1983) 106–7, 125. But Polk (1982) 61–102, on largely stylistic grounds, contrasted the 'primitive' forms of the ambulatory and chapels at Noyon with the more 'advanced' forms at Saint-Denis, and concluded that the Gothic choir was begun soon after the fire of 1131, and largely complete by the translation of St Eligius's relics in 1157. This early dating was followed by Kimpel and Suckale (1985) 121–3, 526, who proposed a west-to-east construction and pointed to similarities with the choir of Saint-Germer, begun soon after 1132 (see above, Chapter 1, Note 25). But the capital carving of the earliest phase at Noyon, in the ambulatory, is very similar to that in the twelfth-century choir and eastern aisles of the north transept at Laon cathedral, dated to 1155/60–*c.*1170 by Clark and King (1983) 52–3, and Seymour (1968) 53, figs 104–7. This suggests that Seymour's date of *c.*1145–60 for the first campaign is correct. Bideault and Lautier (1987) 246–70, support the west-to-east sequence for the choir, but date the start of the work to *c.*1148, under Bishop Baudoin II (1148–67). Remains of a curving sandstone wall on the exterior of the chevet may represent the foundations of Bishop Simon de Vermandois's abortive choir, begun soon after 1131. If so, it was to have had a chevet with non-projecting radiating chapels, like the later Thérouanne or Archbishop Samson's choir at Reims Cathedral. Bideault and Lautier's 'first campaign' lasts from *c.*1148–*c.*1165, and includes the whole choir. Seymour's dating of the transepts is confirmed by Prache (1978) 73–7, who sees connexions between them (and the first bay of the nave) and the Gothic work at Saint-Remi at Reims (*c.*1165/70–1185). See also Prache (1978a) 93–4. Bideault and Lautier (1987) 258ff., suggest that the transepts were laid out in their 'second campaign' (*c.*1165–85) and completed in their 'third campaign' (*c.*1180–90). For a discussion of the main points of contention up to the late 1980s see Prache (1987).

8. Adolf von Hildebrand, *Das Problem der Form*, translated into English by Max Friedrich Meyer and Robert Morris Ogden (New York, 1907), where this passage is translated: 'from the vertical front-plane into the background'.

9. Gall (1915) 21ff. Also Jean Bony, 'Technique normande du mur épais à l'époque romane', in *B.M.*, XCVIII (1939) 153. For the apse at La Trinité, Caen, see Baylé (1979) 59–62, where it is dated *c.*1120, and Baylé, in Baylé dir., (1997) vol. 2, 53, where it is put as '1100–10'. Also stressed is the influence of Anglo-Norman wall passages on the creation of this 'diaphanous' Early Gothic. The best general account is in Bony (1983) 166–72, and 469–70, notes 20–2, where he corrects and supplements his 1939 article. Particular studies of this problem are by Branner (1963) 92–104 (concentrating on the Anglo-Norman influences)

and (1963a) 258–68 (with a good discussion of the Italian Romanesque series of wall passages), and a long series of articles on wall passages by Héliot, of which the most relevant is (1970).

9A. For the Italian series see Bony (1983) 470, note 22, and Branner (1963a). The Rhenish examples are discussed by Héliot (1968) and (1971).

9B. The debts owed by Early Gothic to Norman Romanesque have long been acknowledged, see the formative study by Gall (1955) and also Anfray (1939). But more recent scholarship has tended to underline the eclecticism of early Gothic, which drew on Anglo-Norman, Burgundian, Angevin and Italian architecture, as well as precedents in Flanders. For the Anglo-Norman inspiration see particularly Branner (1963) and Héliot (1958) and (1967). See also Bony (1976) and (1983) and (1983a), where the various strands of inspiration are lucidly unravelled. An excellent summary of the problems, with particular emphasis on the Burgundian contribution, is given by Wilson (1990) 24ff.

9C. Bideault and Lautier (1987) 258, suggest that the chevet gallery flyers, although reconstructions, reflect the original flyers. James (1992) 278–9, while acknowledging that most of the stonework of the flyers and gallery wall has been replaced, thinks that there may well have been flyers here. Seymour (1968) 70, thought that the nave buttresses were added, together with the four-part vaults, after the fire of 1293. But Clark (1977) 30–3, and Deyres (1975) convincingly dated the present vaults to the late twelfth- or early thirteenth-century, and Prache (1978) to *c.*1175–85. She considered the flyers to be contemporary with their vaults.

10. See above, Note 9C. Deyres (1975) 283, dated the four-part vaults to 1200–5, at the end of the campaign on the construction of the nave. Clark (1977) passim, noted that a six-part vault was projected in the easternmost nave bay, but in *c.*1180–5, when construction had reached the clerestorey sill on the south side of that bay, it was decided to go over to four-part vaults. Prache (1978) 73–5, dates this eastern nave vault, together with those of the crossing and transepts, to *c.*1175–85.

11. Marcel Aubert, *Monographie de la cathédrale de Senlis* (Senlis, 1910). There is also a short summary by Aubert in *B.M.* (1912). The history of the cathedral has now been clarified by Vermand (1987) and of its west façade by James (1987). The meticulous study of the sculpture by Brouillette (1981) which in all essentials agrees with Vermand, has also helped to plot the progress of the work. Construction began with the radiating chapels in 1151/2 under Bishop Thibaut, by a Beauvaisis workshop influenced particularly by Saint-Denis, but also indebted to Sens, Noyon and Saint-Germer. Construction was speedy, for the same style of capitals and bases in the nave as in the choir shows that the nave arcade was built simultaneously with, or only a little after, the work on the eastern parts. The choir was complete by at least 1167–8 (when Louis VII gave a sanctuary lamp) and probably by about 1160/63. The nave proceeded in the 1160s first with the outer north wall and the lower parts of the west façade, the north side always slightly ahead of the south. The west portal is dated by Brouillette 1165–70. Nave tribunes are up in the 1170s, the high vaults by *c.*1180. The 'Romanesque' character of the exterior noted by Frankl (especially the gallery windows, which are reminiscent of those at Notre-Dame de la Basse Oeuvre at Beauvais) may be deliberate, for Vermand has argued that its simplicities consciously evoked the Gallo-Roman and Romanesque buildings which still surrounded it in the twelfth century. James (1992) 277, thought it likely that its twelfth-century clerestorey (destroyed in the 1504 fire) originally had flyers. See also Kimpel and Suckale (1985) 125, 539–40, and Bideault and Lautier (1987) 348–67.

11A. There are no recorded dates for the beginning of the choir. Clark (1979) 349, dates it, on comparison of its capitals with those of Saint-Denis, to soon after 1144. Lefèvre-Pontalis (1919a) 343–4, and Seymour (1968) 115, noted the strong similarities with the chevet plan of Noyon. Henriet (1982) 156–7 dated the beginning to *c.*1145 and went so far as to ascribe the choir to the architect of the choir of Sens. Kimpel and Suckale (1985) 124, doubted the attribution, and dated the choir to sometime after Noyon's, and hardly before 1150. Clark (1979) 349, and (1985) 40, suggested that it was completed some few years before its consecration in 1163, perhaps as early as 1155. Many of these outstanding questions are no doubt resolved in Plagnieux's (1991) thesis, but I have not been able to consult it. Certainly he suggests (1992) 209, that Henriet's attribution to the architect of Sens is 'not without convincing argument'.

11B. See above, Chapter 2, Note 11A.

12. The columns themselves cannot have been part of the eleventh-century church, which had an apse with no ambulatory adjoining the bay between the towers: see Lefèvre-Pontalis (1919) 324.

12A. For a detailed, and still the best, analysis of the church see de Maillé (1939). An interesting discussion of Saint-Quiriace, Voulton, and the patronage of the Counts of Champagne is to be found in Kimpel and Suckale (1985) 109–12. Prache (1988) also discusses Henry the Liberal's patronage, particularly in his three principal collegiate churches of Saint-Quiriace, Saint-Maclou at Bar-sur-Aube, and Saint-Etienne at Troyes. All share Sennois qualities, and may all be the work of the mysterious *Andreas cementarius* appearing in the accounts from 1171 to as late as 1222. Saint-Quiriace's relations with Sens and other Sens-inspired churches are noted by Severens (1975) 204ff. Sandron (1998) 170, remarks on the precociously tall clerestorey of the choir (despite the blind sections of wall beneath the windows) – a rejection of Sens and a strange anticipation of the 1:1 balance between arcade and clerestorey found in High Gothic Soissons and Chartres.

13. *C.A.*, LXIX (1903) illustration after page 280 and the following plate, and also the plate opposite p. 286. See also Salet (1943–4). The church was begun in *c.*1160–70.

14. For a full examination of the historical context, chronology, and campaigns of construction of Laon Cathedral see Clark and King (1983) and Clark (1987). They identify five main campaigns of construction:
1) **1155/60–*c.*1170/5**. Eastern aisles and elevation of transepts up to base of clerestorey and entire twelfth-century choir.
2) ***c.*1170–75**, and perhaps by the same architect as campaign (1). The lower sections of the end wall and west aisle of the north transept, lower parts of western crossing piers and two piers of the south transept west aisle.
3) ***c.*1170/5–*c.*1180/5**, by the so-called third architect, the most creative of the Laon masters. Lantern tower, completion of transepts, including the transept chapels and the lower parts of the four transept towers. Transeptal towers and their chapels had not been intended in the plans of campaigns (1) and (2). Five easternmost bays of the nave, including the high vaults of the easternmost bay.
4) ***c.*1180/5–*c.*1195/1200**. The nave was finished, the west façade and its two towers erected.
5) **Soon after 1205**. Choir extended, lantern tower vaulted. See especially Clark and King (1983) 23–51. However, James (1989) 85–7, doubts the 1205 date as the start on the choir extension. The quarry at Chermizy was indeed acquired by the Chapter in that year, and Chermizy stone first appears in the new choir, but the quarry could have been accessible to the Chapter before then, and nothing in the choir stylistically suggests a date after 1205. Sandron (1998) 168 and note 730, concurs with this. He refers to an unpublished (?) paper given in 1990 by Sauerländer on the document relating to the gift of the quarry. Sauerländer reads it as a mere confirmation, suggesting that the Chapter could have been using the quarry much earlier. Sandron dates the choir stylistically to the last decade of the twelfth century.

14A. See Zink (1975) especially 154–67.

14B. The Bishop's Chapel cannot be dated earlier than the beginning of the cathedral, as Adenauer (1934) and Hacker-Sück (1962) 224–5, proposed, simply on the evidence of its 'archaic' and 'backward' style. It was founded by Bishop Gautier of Mortagne sometime during his episcopacy (1155–74) and Clark and King (1983) 68, note 3, plausibly suggest a date for it sometime after 1161 (establishment of chaplaincies there). For photos and descriptions of the chapel see Broche (1902) 499–510, and Hacker-Sück (1962) 224–6.

14C. In the absence of proper excavations, the original east end of Laon will always be a matter of conjecture. Three of its westernmost bays still survive (or one and a half bays if you count the six-part vaulted western bay as a single unit). Beyond them was a five-sided apse with the choir aisles returned behind it. The apse columns were re-used in the choir extension. Adenauer (1934) 18ff. Frankl in the original 1962 edition of this book, and Kimpel and Suckale (1985) 194, and 487, note 37, reconstructed a polygonal ambulatory. But the majority opinion – including Bony (1983) 142 and figs. 130, 139, Clark and King (1983) 31 and fig. on 27, and Clark (1987) 17–21 – favours a curved east end. Certainly the Bishop's Chapel cannot be seen as a source for any putative polygonal hemicycle, and although the transept eastern chapels are polygonal, they date only to the 1170s, at a period when polygonal apses were just beginning to appear in northern France (Cambrai transepts, Hautevesne, Marizay Saint-Mard). See Schlink (1970) 114, and Branner (1965a) 71–2. When the Laon choir was designed, *c.*1155–60, polygonal apses would have been rarities. In addition, the hemicycle capitals re-used in the thirteenth-century choir have curving abaci, suggesting a semi-circular east end – see Clark and King (1983) figs 5, 6, and Clark (1987) 17–18. Arras Cathedral, begun *c.*1170 under Laon influence, had a curved, not polygonal, hemicycle. Like Arras, the ambulatory at Laon probably had five-part vaults and double windows to each bay.

14D. '*Vielbildigkeit*'. On the concepts and terms '*Einbildigkeit*' and '*Vielbildigkeit*', see Paul Frankl, *Entwicklungsphasen der neueren Baukunst* (Leipzig, 1914) 130–6, and *Das System der Kunstwissenschaft* (Brünn and Leipzig, 1938) 698.

15. J. Warichez, in *La cathédrale de Tournai* (Brussels, 1935) 9, gives 1110 as the date of the beginning of the work. The towers were still unfinished in 1230, but were built faithfully to the original design. Tournai is important in the early history of Gothic architecture in the Ile-de-France on at least four counts: for its early four-storey elevation (without vaults in the nave), for its trefoil east-end plan with rounded transepts (and their Italian and Lower Rhenish derivations), for its double towers over each transept end, and for its 'thick wall' system of passages, with exterior clerestorey passages in the nave and transept and triforium passages in the transepts. The history of the early twelfth-century work is still not fully clear. Gaillard (1962) 63–7, and Héliot (1969) especially 19, 22,

68ff, date the nave between 1125 and 1140/1, and the transepts *c.*1150–71. Scaff (1971) dates the exterior walls of the nave aisles to before 1141, and the two lower stories of the nave 1140–71. For an assessment of these disagreements see Schwartzbaum (1977) 29–42, 222–7, who maintained that the nave was in building before 1141 and the whole building (including the transepts) was consecrated in 1171. His conclusions are followed by Carlson (1986) 63. Bony (1983) 487, note 22, essentially follows Seymour's chronology, and dates the beginning of the nave to 1135/early 1140s, and the start on the transepts to 1150/60. Branner (1963) 94, accepts Héliot's chronology, but underplays the influence of Tournai on Laon. The wall passages in the nave clerestorey are clearly of north Italian inspiration, but the origins of their continuation in the transepts are not so certain. Branner (1963a) defended the idea of continuing exchanges with Italy, Héliot (1969) 73–4 was more sceptical. For the many changes of plan, and architect, in the transepts, see Héliot (1969) 47, 51–2. In an unpublished paper delivered to the conference *Gotik und Spätgotik* in October 1996, at the Martin-Luther University, Halle-Wittenberg, Dr J. Westerman, who is preparing a book on Tournai Cathedral, pointed to the considerable stylistic differences between the towers and suggested that they reflect, not a single project, but a series of plan-changes, with the choir-side towers built first and the nave-side towers inserted over inadequate supports in the late twelfth and early thirteenth centuries. In a paper given at the Fidem conference in Barcelona in June 1999 Dr Westerman modified his views on the later insertion of the nave-side towers and argued that all four towers were conceived as transeptal pairs. He established the following chronology: nave begun 1100/10 and finished 1120/35; transepts begun 1120/35 and roofed 1142/60, with the upper parts of the towers later; original choir begun 1125/40 and consecrated in 1171. I am grateful to Dr Westerman for discussing these problems with me.

15A. The two west towers belong to Clark's fourth campaign of *c.*1180/5–*c.*1195/1200. The vault over the lantern was turned probably at the same time as the three western vaults of the new choir, that is, sometime after 1205 (?). The towers of the north and south transepts date from the second and third quarters of the thirteenth century respectively. See Clark and King (1983) 44–7, 49–51.

15B. For the first campaign, dated *c.*1155/60–*c.*1170/5 see Clark and King (1983) 19–36.

16. See above, Chapter 2, Notes 9C, 10.

16A. This method of detached shafting in Early Gothic architecture is discussed by Bony (1983) 158–66, and in more detail, in an English context, in Bony (1965).

16B. Fernie (1984) and (1987) has pointed to the liturgical rather than stylistic functions of these unique sets of nave pillars. Like the 'odd' pillars similarly placed in the eastern bays of the naves of certain Anglo-Norman churches (Romsey, Norwich), they probably marked the western limits of the monks'/canons' liturgical choir and the sanctuary of the nave altar.

16C. For Laon's debt to Anglo-Norman precedent see Branner (1963) especially 97–104. On the other hand, Wilson (1990) 55–6, stresses the Champenois connexions.

17. On the exterior, see below, p. 90.

17A. The antithetical character of Laon and Notre-Dame in Paris is underlined by Bony (1983) 131–55. But they share similarities in their capital carving, especially in their choirs, see Mair (1982) 60–2.

17B. Clark and King (1983) 29–36, date the beginning of the first campaign at Laon to 1155/60. The traditional starting date for Notre-Dame, the laying of the foundation stone by Pope Alexander III in 1163, has aroused suspicion, see Salet (1982) especially 99, Clark (1985) especially 41, and Clark and Mark (1984) especially 50, note 7. However, Kimpel and Suckale (1985) 151, hold to 1163 as a nominal starting date, and Bruzelius (1987) especially 553ff, in the most authoritative analysis since Aubert's monograph, puts the beginning *c.*1160. Bruzelius's sequence of construction is as follows:

1) *c.*1160–70 (first architect): plan (probably initially with no transepts), lower storey of choir, beginning of choir tribunes with single wide openings like Senlis. Intention to have a lower building than at present, with no flyers. Beginning of a west façade, perhaps to stand two bays further east than the present façade and composed of the existing St Anne portal and probably a central Last Judgment or Majestas portal. See also Clark and Ludden (1986) and Horste (1987) especially 191–4.

2) *c.*1170–90 (second architect): 1177 choir complete except for vaults and consecrated in 1182, though not necessarily vaulted by then. This architect raised the height of the choir and gave it the present, distinctive characteristics of a four-storey elevation – tribune screens, oculi above the tribune openings and higher vaults supported originally by exposed flyers. *c.*1170 began the eastern bay of the nave, with construction on south side slightly ahead of north. Completed all arcades and full height of elevation on north side in first three nave bays. High vaults of choir and transepts. Beginning of north-west tower and northern sections of west façade. This architect used thinner walls than his predecessor, flat pilasters in the transept elevation, more *en delit* shafts, and triple openings in the nave galleries, as opposed to the double in the choir. He also used exposed flyers.

3) *c.*1190–*c.*1220 (third architect): upper parts (including tribune) of nave on south side in first three bays (by *c.*1200). Distinguished by oculi in the tribune openings and distinctive profiles for abaci of tribune and vault shaft capitals. Lower parts of westernmost bay of nave (from *c.*1186?) and high vaulting of first three nave bays (after 1196). Thickens west façade and completes its southern sections at portal level (*c.*1208). Building south tower chamber and part of organ gallery in front of rose.

4) *c.*1220–*c.*1225/30 (fourth architect): completion of west nave bay. Brought construction to top of rose. North tower chamber. Vaults of west nave bay (with introduction of *tas-de-charge*).

5) *c.*1225/30–mid/late 1240s (fifth architect): remodelling of clerestorey. New flyers. First chapels on north side of nave. For the west façade and its gallery and towers see also below, Chapter 3, Note 42A.

Bruzelius's conclusions have not been universally accepted. Hardy (1991) is sceptical of Bruzelius's change of plan at the beginning of campaign 2 under the second architect, since (she argues) much of the stonework evidence for this change is nineteenth-century masonry. She considers that the initial design for the choir envisaged, from the start, a four-storey elevation, with oculi between tribunes and clerestorey. See pp. 181–8, 197, note 58. Her analysis of the fragments of the original oculi also modifies Bruzelius's sequence and chronology for the construction of the nave. The north elevation of the nave, which was begun first, preserves traces of the kind of earlier oculus decoration (*c.*1160–70) which she reconstructs for the choir, but the rest of the nave oculi conform to a different type, their decoration belonging stylistically to the west façade of *c.*1200. This confirms Bruzelius's conclusion that work on the south side of the nave lagged behind the north, but it suggests that the construction of the later oculi in the nave ran chronologically very close to the remodelling of the clerestorey in the 1220s. See pp. 174–88, and below, Chapter 2, Note 17F. Erlande-Brandenburg (1998), in a sumptuously illustrated book, broadly arrived at the same sequence and chronology as Bruzelius, but with some notable differences. The choir was not heightened by the second architect, but was planned as a four-storey structure from the first, without flyers. The tenure of the third architect he dates *c.*1200–10/20, and gives less work to than Bruzelius. It is, for Erlande-Brandenburg, the fourth architect, not the third, who introduced the 'Chartrain' piers in the western nave bays and does the south tower chamber at rose level. See pp. 51–102.

17C. And as at Saint-Germain-des-Prés, where the round columns, continuous triple shafts, certain capitals, and the original gallery openings, closely resemble the choir of Notre-Dame. See above, Chapter 2, Note 11A. Clark (1979) fig. 20, reconstructs Saint-Germain's original choir before its seventeenth-century restorations. See also Plagnieux (1991).

17D. For the dates of the beginning of Laon see above, Chapter 2, Notes 14, 14B. Kimpel and Suckale (1985) 152 and Bruzelius (1987) 543, suggested that the original choir at Notre-Dame had projecting chapels, similar to those in the later Bourges.

17E. See Grodecki and Brisac (1985) 35–8, 249–50.

17F. All the existing oculi at Notre-Dame are Viollet-le-Duc's and Lassus's reconstructions. Hardy (1991) has questioned their authenticity and recovered the position, size and interior articulation of these roses from the original fragments. The choir oculi, which she dates 1160–70, were placed lower in the elevation than those of the nave, just above the apexes of the tribune openings. They were filled with vertically-arranged crosses, similar in their chevron and diamond-point to the decoration of contemporary portals. The nave oculi, which occupied their present position immediately under the clerestorey, consisted of cross arms with curving sides and decorated with bead ornament similar to the west portals of *c.*1200. See above, Chapter 2, Note 17B.

18. Aubert (1920) plate IX. The whole chapter on 'Eclerage' and what precedes it from p. 86 give an introduction to the reconstruction of the original state and the changes which followed, up to the nineteenth century. For literature on Viollet-le-Duc's restorations at Notre-Dame see Clark and Mark (1984) 51, note 9, and Erlande-Brandenburg (1980). The restoration of the oculi and the original buttressing is discussed at length by Hardy (1991), who doubts (p. 188, and note 57) if there were ever roses lighting the exterior walls of the choir galleries. Erlande-Brandenburg (1998) is of the same opinion, and reconstructs the galleries with regular pointed arches, see fig. on p. 80.

18A. The early thirteenth-century flyers are discussed by Clark and Mark (1984) passim, Grodecki (1976) and Hardy (1991) 180–4. See below, Chapter 2, Note 38. For the nave chapels, begun *c.*1225/30 onwards see Branner (1965) 23, 68–70, and Kimpel and Suckale (1985) 343–5, and Suckale (1989) 182–4, where the westernmost chapels on the north side, (*c.*1230–40) are attributed to Pierre de Montreuil.

18B. Viollet-le-Duc discovered fragments of a large transept rose from the south side, which he dated *c.*1180, see Bruzelius (1987) 544, note 24, and Erlande-Brandenburg (1998) 89.

18C. For the transepts see Branner (1965) 76–80, 101–4; Kimpel (1971) passim, Kimpel and Suckale (1985) 401–21, and Suckale (1989).

19. Viollet-le-Duc, *Dictionnaire*, IX, 512. M. Aubert, *Notre-Dame de Paris,*

Architecture et Sculpture (Paris, 1928) contains the best illustrations of the rest of the church.

20. L. Demaison in *C.A.*, LXXVIII (1912) 1, 57.

20A. The best account of the history and design sources of the Gothic additions to Saint-Remi is by Prache (1978A) especially 46–102. Pierre de Celle's work consists of a remodelling of the two western nave bays and west façade (1165/70–*c.*1175) and the construction of the choir (begun *c.*1170, complete *c.*1182/5). Like Frankl, Prache underlines the Parisian sources of the choir ground plan – the ambulatory vault deriving from Saint-Martin (*c.*1145–50) and Saint-Croix at Etampes, the double columns in front of the chapel entrances pre-figured in the axial chapel of the choir of Saint-Geneviève in Paris. But she also uncovers connexions to, and parallels with, north eastern France, especially the transepts of Noyon and the choirs of Laon and Arras Cathedrals. A colourful account of the choir's furnishings, decoration and iconographic programme is given in Caviness's (1990) history and analysis of the stained glass, especially 21–64. Clark (1999) reconstructs screens of twin lancets in front of the windows of the choir chapels (including the Lady Chapel) similar to the second-storey windows in the central bay of the west façade. The clerestorey in the eastern bay of the nave shows traces of a linkage system intended to echo the upper two stories of the new choir.

20B. This 'linkage' is prefigured in the two slightly earlier western bays of the nave, and is very similar to the exactly contemporary (*c.*1160/70 onwards) triforium and clerestorey in the choir of Arras Cathedral, for which see Bony (1983) 373 and 488, note 27. Exchanges with Arras are discussed by Prache (1978) 94–5, who suggests that both Arras and Saint-Remi may be independently influenced by a similar linkage system in the earlier choir of Reims cathedral, built by Archbishop Samson, whose clerestorey may have had similar triplet windows in each bay.

21. Jean Bony, *Notre-Dame de Mantes* (Paris, n.d. (*c.*1947)); and, by the same author, but in greater detail, in *C.A.*, CIV (1946), 163–220.

The date of *c.*1170 given by Bony (1946) and (1983) 485, note 12, and many others, for the start of the work has been revised by Kimpel and Suckale (1985) 170–5, and 485, notes 37–9. They see this royal collegiate church as a statement of Capetian authority in a sensitive border territory between the Ile-de-France and Angevin Normandy, and argue that it was begun in *c.*1160 and most of the church laid out at arcade level on the model of Senlis. The forms deriving straight from the nave of Notre-Dame in Paris appear only from *c.*1170, from the level of the gallery upwards: gallery storey finished 1175–80, vaulting complete by 1180–90, upper stories of west façade 1200–20 on the model of Laon. See also Bailly (1980). Adams (1976) was not available to me.

22. In the article by André Rhein in *C.A.*, LXXXII (1920) 213.

22A. Bony (1946) 196ff, dates the tunnel vaults to *c.*1190. The galleries were originally surmounted by cross-placed saddle roofs which, unlike the present continuous sloping roof, allowed the clerestorey windows to extend lower down the elevation and play a more prominent role than at Notre-Dame.

23. The chapels date from some time after 1267. There were transverse roofs, probably with gables facing outwards, over the transverse tunnel-vaults in the gallery. The flying buttresses were built about 1180–90, at the same time as the high vaults, and were slightly altered soon after the middle of the thirteenth century. Bony (1946) 196–7, doubted the intention at the start of building to have flyers, and suggested that their presence was a change of plan, conceived at gallery level (*c.*1180). However, James (1992) 279, considered them to be integral with the initial lay out.

24. This church was severely damaged in 1943. The fullest documentation for the church is given in Muller (1901). A detailed survey of its fabric can be found in Fossard (1934). Most authorities date the start of the work in the 1170s – see Kimpel and Suckale (1985) 44, 537, and Bideault and Lautier (1987) 318–31 (*c.*1160–70). Keymes (1988) has established that the following sequence:

1) radiating chapels and outer rim of the ambulatory and of the two easternmost straight bays (based closely on the plan of Senlis) were begun in the 1160s.

2) After an interruption, a second campaign, beginning in *c.*1176, saw the completion of the apse columns and the elevation of the apse and the two easternmost straight bays (resembling in some of its details the Canterbury choir, and in general form Notre-Dame in Paris). The final campaign, beginning around 1220, completed the rest of the nave and the west end. Sandron (1998) 213, notes its debts to High Gothic Soissons (clerestorey, four-part vaults), and perhaps to Chartres and the western bays of Notre-Dame in Paris (*pilier cantonné*).

24A. Lanfranc's Canterbury was a version of Saint-Etienne in Caen, see Gem (1982).

24B. for Ernulf and Conrad's (also called Anselm's) choir see Fernie (1982) and Woodman (1981) 45–76. Its architectural and sculptural decoration is handsomely analyzed by Kahn (1991) 35–93, though her (and all others') suggestion that the sources for its figural decoration lie in Canterbury manuscripts is seriously questioned by Gameson (1992).

24C. Contrary to Frankl's view, post-war scholarship on English architecture in the period between Durham and Canterbury has shown just how active the English were in the reception of French ideas. Webb (1965) is still useful (though outdated on a number of points) while Kidson (1965) is still the most lucidly readable account. Bony's (1949) analysis is exemplary. A good resumé of research up to the mid-1980s was provided by Draper (1986). Since then a wealth of new insights have been offered by Wilson (1990) 72–90. The best work of synthesis on English Gothic architecture as a whole is by Kowa (1990) who presents a clear resumé of detailed research to that date. Hoey (1986) (1987) (1994), in pursuing the problem of vault and pier relations across the whole field of Early English Gothic, touches on many of the key issues of the style.

24D. William of Sens was responsible for the liturgical choir, much of the eastern transepts, the double bay of the presbytery and the tapering double bay beyond it. William the Englishman did all the work east of that: the Trinity Chapel and its crypt, and the Corona. The last work of William of Sens has been located in the clerestorey of the narrowing bay behind the high altar, and at the pair of closely spaced columns that stand on the crypt walls of the Romanesque apse and frame the entrance to the present Trinity Chapel – columns XI in Willis's plan, see Willis (1972, reprint) 137. Beyond that point, what kind of eastern termination to his choir William of Sens planned, and how much of William the Englishman's work follows his ideas, has been the subject of much debate. The issue is what kind of shrine space William of Sens intended, because the point of change between the two Williams is precisely the western limit of the Trinity Chapel in the Romanesque cathedral, the chapel where Becket was buried, and where – in its Gothic successor – his shrine was intended to be displayed. Kidson (1969) was the first to underline the very close similarities of the present east end with the choir at Saint-Denis. Woodman (1981) 115–30 unconvincingly suggested that William of Sens's plan involved a rectangular east end with a straight-ended ambulatory returned behind it. Draper (1983), in a closely argued analysis of the choir, suggested that William of Sens may have had two plans for the east end. The first, similar to the choir at Saint-Denis, placed the sanctuary, the space behind the high altar and the side aisles all on the same level – that of the eastern crossing. The second plan, which closely followed the first, envisaged an arrangement closer to the older Saint-Sernin at Toulouse, or the later Westminster Abbey. It involved a greater emphasis on the shrine area by keeping the side aisles at the original level, but raising the floor level in the central aisle, behind the high altar, and separating it from the side aisles by a wall and screen (the remains of which can be seen in the colonnettes attached to the piers in the tapering bays). This raised floor was designed to continue into the raised floor of William's solution for the Trinity Chapel, which Draper reconstructed as an apsidal structure along the lines of William the Englishman's present Trinity Chapel, but smaller, consisting of one straight bay (extending beyond the foundations of the Romanesque apse) terminated by its own three-sided apse, and surrounded at a lower level by chapel-less aisles and a curving ambulatory. Kidson (1993) reconstructed the whole of William of Sens's east end as a centrally planned martyr's memorial chapel for the shrine of Becket (something along the lines of the later rotunda for St Olaf at Trondheim in Norway), consisting of seven sides of a rarely used geometric figure: a nine-sided polygon (enneagon). He identified the geometry of the present apse of the Trinity Chapel as five sides of an enneagon, and the Corona as seven sides of that figure. Although these polygons were actually built by William the Englishman, Kidson argued that their rare geometry could only have been inherited from William of Sens, since the apse of Sens cathedral is also developed from an enneagon. William of Sens's Trinity Chapel rotunda must, therefore, have been based on this figure; the Englishman simply suppressed its two western sides, but retained the five eastern for the apse of his Trinity Chapel, and also re-used the figure for his Corona. Hearn (1994) argued for three successive designs from William of Sens:

1) 1175, a choir with a continuous arcade (as in Anselm's choir), with no expression of the eastern crossing, and with the retention of all the Romanesque walls, including the apse.

2) 1176, arcades as at present; demolition of the Romanesque apse and its replacement by a huge octagonal rotunda for Becket's shrine, the westernmost pillars of which were to be placed more closely together than the pair now at XI.

3) 1178, placing of pillar pair XI in present position, abandoning of rotunda in favour of a Trinity Chapel of one six-part-vaulted straight bay and a three-sided polygonal apse with ambulatory.

Draper's (1997) new scale measurements of the crypt and upper church levels have located the exact junction at both levels between the two Williams' work. He also judiciously assessed all the earlier literature, including Kidson (1993) and Hearn (1994). He followed Kidson in suggesting that William of Sens intended a rotunda-like chapel for Becket probably on the figure of an enneagon and closely resembling the plan of the Corona. He also proposed that William of Sens's design for the Trinity Chapel anticipated much of William the Englishman's present solution: it had a surrounding ambulatory, double

columns and the continuation of the full-height elevation of the sanctuary into the chapel. It also established the nine-sided polygonal geometry which William the Englishman used for his Corona and his Trinity Chapel apse. He suggested that the guiding spirit behind the various projects for the Trinity Chapel, all of them designed to enhance dramatically the setting for the relics, may have been the Prior, Alan of Tewkesbury (1179–86). A trenchant summing up of the various views is given by Hoey (1995).

25. This date for the choir, about 1170, is drawn from Jean Bony, 'French Influences etc.', in *Journal of the Warburg and Courtauld Institutes*, XII (1949) 8, note 4. Recent scholarship has dated the beginning of the new choir at York to the 1150s, that is, the reign of Archbishop Roger of Pont l'Evêque (1154–81). See Gee (1977) especially 121ff; Wilson (1986A) especially 91–106. For the use of detached shafts in English early Gothic see, apart from Wilson (1986A) passim, Bony (1965).

26. Bony (1949) 1. Jürgen Michler's researches into original colour in medieval buildings – see especially (1977) – have shown that interiors in the late twelfth and thirteenth centuries were extensively painted, often with red false-masonry joints (in closely spaced double lines between white) laid over an all-over ochre background, with the more 'structural' elements – capitals, abaci, arch mouldings – emphasized in darker colours or, in the case of responds or ribs or certain arch orders, picked out in very light tones (see Saint-Ferréol in Essômes, Saint-Eliphe in Rampillon, Saint-Quiriace in Provins, and Saint-Père and the cathedral in Chartres). Fonquernie (1985) has recovered some original polychromy in the transepts of Notre-Dame in Paris, including dark blue and red for the mouldings. All this served to emphasize the skeletal structure of the Gothic arch–shaft system in contrast to the 'in-filling' wall between. The use of dark marble never gained wide acceptance in French Gothic, but it did appear in Tournai and Valenciennes Cathedrals (the latter probably the source for William of Sens' use of marble in Canterbury, and in a number of marginal French buildings, see Bony (1983) 159–62.

26A. See Colchester and Harvey (1974), Harvey (1982) 52–5 and Sampson (1998), 11–23. Draper (1995) assesses the particular qualities of the Wells design against the contemporary work of its nearby rival at Glastonbury, and sees the clarity and Gothic 'modernity' of the former as a manner of building consciously chosen by the cathedral chapter to emphasize its episcopal status.

27. On Gervase's text, cf. Frankl (1960) 24ff. Hitherto, all discussion of Gervase's account, including Frankl's, has been confined to correlating his information on the building of the choir with the physical evidence from the fabric itself, and to examining Gervase's awareness of the novelty of the new Gothic style imported by William of Sens, and his attempts to find a vocabulary to describe it. However, recent interest has centred round Gervase's motives for writing the account in the first place, and the institutional factions and interests at Canterbury in the 1170s and 80s which it served. Kidson's (1993) dramatic reconstruction of events surrounding the fire led him to conclude that Gervase's history was a cover-up for arson, and an attempt to conceal William of Sens's earlier involvement with Becket before his death in a projected college of secular canons at Hackington. Hearn (1994) emphasized the role of King Henry II in the fundamental change from rotunda (his stage 2) to a Trinity Chapel more on the present lines (his stage 3); see above, Chapter 2, Note 24D. Draper (1997) tactfully adjudicated on the various speculations, and underlined the role of the clergy at Canterbury (particularly Prior Alan of Tewkesbury) in building decisions relevant directly to the cult and liturgy.

28. The highly complicated history of the building is analysed in Vallery-Radot, *L'église de la Trinité de Fécamp* (*P.M.*) (Paris, 1928). The plan published there gives a readily comprehensible survey of the chronology of the main parts of the church. See Grant (1987) 66–9, and Baylé, in Baylé, dir., (1997) vol. 2 152–5. The straight bays of the choir were begun immediately after the fire in 1168 by Abbot Henri de Sully, preserving one bay, and the two north radiating chapels, of the Romanesque church, and maintaining its general proportions in the new work – that is, having large Norman-type galleries and interior clerestorey passages. The nave was complete by 1219, and the lantern tower over the crossing, with its typically Norman octopartite vault, by *c.*1225. The rebuilding of the apse and ambulatory concluded this campaign. For all its 'Norman' conservatism, Grant (1994A) 125, points out that the church of Henri de Sully shows evidence of the intention to build a double ambulatory in the choir, modelled on Saint-Denis.

29. Erlande-Brandenburg (1974) argued that the nave was begun some time before the death of Bishop Arnulf of Lisieux in 1182, certainly at the west end, whose portal pre-dates the similar central portal at Mantes. He postulated at this stage the intention to build a nave with six-part vaults, vaulted galleries and no flyers (since he believed the first Gothic flyers appeared in the nave of Notre-Dame in Paris in *c.*1178). *c.*1180–5 it was decided to create unvaulted galleries, and four-part vaults supported by the present flyers. Work proceeded slowly eastwards, the choir complete only in 1218, the lantern tower (originally a lower vaulted crossing was intended) in 1218–50. The best published accounts so far are by Clark (1972) (1977A) and, in shorter form, Clark in Baylé, dir., (1997) vol. 2, 168–72. In (1972) Clark established the priority of the Mantes portals over those of Lisieux, and placed them in relation to the later lateral portals at Rouen cathedral (1190s). In (1977A) he dated the start of the new nave to *c.*1160, working from west to east. He disentangled the sources for the nave: a Norman method of 'thin wall' construction with unvaulted galleries coming probably from Upper Normandy and the Vexin (Evreux cathedral); an arch-shaft system derived from the first floor chamber of the Tour Saint-Romain at Rouen cathedral, and the form of the gallery openings (especially the central double colonnettes) having precedents in the Beauvaisis. He argued for a break in construction *c.*1175–85, largely on the grounds that the flyers in the nave could not pre-date those of Notre-Dame. When work resumed *c.*1185 the flyers were built, the central west portal carved, both under the influence of the collegiate church at Mantes, and the nave vaulted by 1190. Grant (1987) 76ff, acknowledged the scuptural debts to Mantes, but – *contra* Clark (1977A) – re-emphasized the debts to Laon and the Aisne valley in the nave elevation. She also saw no reason for an interruption in the nave building, largely because she acknowledged the existence of flyers in northern France before Notre-Dame. Consequently she dated the whole work on the nave to a single campaign from *c.*1165 to *c.*1180. In his 1997 assessment Clark admitted that the central bay of the narthex, the nave and the transept were completed – and the chevet well advanced – by the retirement in 1181 of Bishop Arnulf, the driving spirit behind the building.

29A. 'The principal of vertical movement' did not, as Frankl suggests, grow from the rib downwards. On the contrary, the vertical division of the interior into bays by tall shafts preceded the introduction of the rib vault. See Bony (1983) 79–87, and Horn (1958).

30. *Ibid.*, 268ff. The history of the late twelfth-century remodelling has been admirably elucidated by Prache (1977) 279–97. Also for comparisons with Saint-Remi at Reims see Prache (1978A) 108–9. Recently Corsepius (1997) especially 87–121, has devoted a full monograph to the church. She isolates three phases, or 'plans' of construction:

1) **Plan I.** ***c.*1130–40**, of which only the lower stories of the two eastern towers survive. They may have formed the eastern terminations of an aisled and transeptless nave, and framed between them a semicircular apse.

2) **Plan II.** ***c.*1140- after 1157** (when vaults in an unspecified part of the church collapsed). A choir with ambulatory, two western towers, and, between them, an unvaulted transeptal basilica, with a clerestorey on the same level as the oculi of the transept end walls, and with diaphragm arches (!) over all three aisles. Surviving from this phase is the arcade storey of the nave, as well as the two western towers, the latter post-dating the 1157 collapse. (This reconstruction has no parallels in Champenois late Romanesque).

3) **Plan III.** ***c.*1180/3 or 1187–1220**. Remodelling of the gallery and clerestorey of the nave and the clerestorey of the transepts in a Remois Early Gothic style derived from Saint-Remi at Reims. Addition of vault shafts to the weak piers of the main arcade. Construction (probably from 1187) of the new choir. Only in 1217 was the latter ready for use. Roof of south porch dendrochronologically dated to *c.*1220.

31. The date, between 1185 and 1215, given in Francis Salet, *La Madeleine de Vézelay* (Melun, 1948) 81, should be amended to before 1180, since the choir at Avila, which is dependent on the church at Vézelay, was completed before 1181; L. Torres Balbás, *Arquitectura gótica* (*Ars Hispaniae*, VII) (Madrid, 1952) 38. More recent commentary on the choir of Vézelay emphasizes its links with the first generation of Ile-de-France Gothic (Saint-Denis, Saint-Germain-des-Prés, Sens), but also, in the changes in its vault bay design, with Arras cathedral. See Branner (1960) 30–4, 192–4, and Bony (1983) 484, note 7, 519, note 52. Both scholars follow Salet's date of *c.*1185–90 for the beginning of the choir, as do Stratford and Saulnier (1984) 135–6. But Kimpel and Suckale (1985) 145, and 483, note 31, and 546, argue for a beginning on the radiating chapels and ambulatory as early as *c.*1165, when Vézelay secured exemption from the jurisdiction of Autun and freedom from the Counts of Nevers. The slow execution of the whole choir, with many changes of design, meant that the sanctuary columns and elevation were begun only *c.*1180. Kennedy (1996) 223–79, reaffirmed the links with Saint-Denis and Saint-Germain-des-Prés. She sees the fire of 1165, the support of Louis VII after 1166 and the appointment of William of Mello, sometime Abbot of Pontoise, in 1161, as catalysts in the adoption of Ile-de-France forms. She dates the choir construction to the 1170s.

32. François Deshoulières, *La cathédrale de Meaux* (*P.M.*) (Paris, 1925). The cathedral's stages of construction have been clarified by Kurmann (1971).

1) ***c.*1175–1215/20** choir built in two main stages.

a) The first architect (active *c.*1170/80–*c.*1190). Ground plan and intended four-storey elevation modelled closely on Notre-Dame in Paris and Saint-Remi in Reims. Reached height of springing of lower vaults.

b) Second architect (active *c.*1195/1200–*c.*1215/20). Gallery and triforium storey built according to the general plan of the first architect, but tall clerestorey with doublet plate tracery and flyers derived from the High Gothic choir of Soissons Cathedral. East crossing piers and begining of east walls of transepts. Intention to build a lantern tower over crossing.

2) *c.*1215/20–1235. The second architect (or a pupil) completed the transept and built the first two bays of the nave on the same pattern as the choir.
3) *c.*1235–54, the floors of the galleries of the nave were demolished, their vaults became those of the much taller aisles, creating false tribunes.
4) **From 1253 onwards** the choir was fundamentally rebuilt in the Rayonnant style by the architect Gautier de Varinfroy, using false tribunes. He replaced the three Early Gothic chapels with new ones, the height of his new, taller, side aisles, raised the apsidal pillars, and rebuilt the elevations with advanced Rayonnant tracery.
5) *c.*1300 transept façades constructed in the manner of Notre-Dame Paris south transept, and the transept fronts of Rouen Cathedral.
6) **Early fourteenth century** (from 1317 onwards) two extra chapels added to ambulatory between Gautier de Varinfroy's chapels.
7) **From** *c.*1450/60 rebuilding of the two eastern bays of the nave, and construction of its three western bays in the Flamboyant style. For the connexions of the second architect with the choir of Soissons Cathedral (where he probably trained) see Sandron (1998) 211–12. Kurmann (1992) returned to Meaux, but his new observations concerned more the sculpture than the architecture, whose chronologies and sequences he saw no reason to change. He admits, however, that Gautier de Varinfroy rebuilt the late twelfth-century choir flyers; he did not leave them in place and reconstruct the aisles under and around them. He attributes the Parisian form of the transepts and their portals to the acquisition of Meaux by the crown through the marriage of Philip the Fair and Jeanne of Navarre in 1284.

33. There are many illustrations in Salet, *op. cit.*

34. An example can be seen in the flat, clinging acanthus leaves on the piers in the nave at Le Mans and in the arched leaves on the piers in the apse at Noyon, both of which date from about 1150. Illustrations can be found in Ernst Gall, *Die gotische Baukunst etc.*, I (Leipzig, 1925) plates 41 and 48.

35. Illustrated in G.H. Cook, *Portrait of Canterbury Cathedral*, plates 41–4. On the subject of capitals and bases see Viollet-le-Duc, *Dictionnaire*, II (chapiteau, base); see also F. Bond, *Introduction*, 487–558.

35A. Some of the earliest crocket capitals appear *c.*1160–70 in the ambulatory at Noyon ('incipient form') and *c.*1180 in the tribunes and vault shafts of the choir (Seymour (1968) 60, 170–1. They also appear at Laon in an 'incipient' or 'transitional' form during Clark's phase 3 of the construction (*c.*1170/5–*c.*1180–5) and in a fully developed form throughout phase 4 (*c.*1180/5–*c.*1195–1200). See Clark and King (1983) 40, 46. At Saint-Remi at Reims they are used in the choir from the level of the triforium upwards (*c.*1180), see Prache (1978A) 72–3, and in the south transept at Soissons Cathedral (begun in 1176), see Lefèvre-Pontalis (1911) 313–58; and, again in 'incipient' form on the shaft capitals of the north-west crossing pier of the eastern crossing at Canterbury cathedral, dated exactly 1177–8, see Mair (1982) 59–60. They appear in the upper parts of the choir of Notre-Dame, Paris, by 1180.

36. The walls do not carry the vaults: even where there are sloping cells, the thrust which they exercise on the walls is slight. The idea that ribs carry the load on to the supports at the four (or three or five, etc.) corners is correct, but this was equally true in groin-vaults.

37. The only church in which unobtrusive supporting walls can be seen is that of Saint-Martin-des-Champs in Paris (*c.*1130–42): *C.A.*, LXXXII (1919) I, plate opposite p. 124. Saint-Martin-des-Champs is not the only example of protruding buttress walls, placed above the transverse arches of the galleries. They were once visible on the exterior of the nave of the destroyed Cambrai Cathedral, their upper parts appearing above the gallery roofs. See drawing by A. van der Meulen. Similar walls appear above the gallery roofs of the south transept at Arras Cathedral (see late eighteenth-century drawing in Archives du Pas-de-Calais.) Both are illustrated in Bony (1983) figs 128, 129, who provides a clear explanation of the structural workings of the Early Gothic tribune churches on pp. 124–31.

37A. The exact form of the flyers of the nave of Notre-Dame before their rebuilding in the thirteenth century has been the subject of different reconstructions. Viollet-le-Duc (1858–68) vol. 2 (1859) 289, fig. 2, and Aubert (1920) 104, thought they were arranged in double batteries. Apart from buttress walls supporting the lower parts of the galleries under the outer aisle roofs, the outer batteries consisted of a lower flyer to support the gallery vaults and an upper to stabilize the upper parts of the intermediate upright. The inner battery, they argued, consisted of a lower flyer placed under the gallery roofs to support the high vault and an upper to take the main roof weight. Clark and Mark (1984) passim, and p. 50, fig. 6, and p. 59, fig. 16, reconstruct only one flyer in the external battery, and therefore lower the intermediary upright. Some evidence from the original external buttress uprights of the choir, suggests however, that Viollet-le-Duc and Aubert may not have been far wrong about double outer batteries. Although the choir flyers are the early fourteenth-century work of Jean Ravy, and the uprights were thoroughly restored in the nineteenth century, pre-restoration photographs, and the pre-restoration 1843 model of the choir, now in the Palais de Chaillot, show flyers emerging from rough and presumably earlier uprights which probably belong to the Early Gothic choir. See Bruzelius (1987) 551, and 554, fig. 19. These outer uprights are considerably higher than those reconstructed for the slightly later nave buttresses by Clark, and suggest that the latter were originally high enough to take two batteries, the top one either abutting an intermediary upright or, as Prache (1976) 32, suggested, 'flew' straight to the clerestorey wall, without any intermediary upright. This would make the system a prefiguration of that used in the choir of Saint-Remi at Reims, with a single, tall external buttress, and two flyers peeling off it at different heights, the lower to support the gallery, the upper the clerestorey. This reconstruction has (at least for the original choir) been supported by Murray (1998), who suggests that the present chapel-dividing walls of the nave, and the buttress uprights that rise above them, are essentially twelfth-century work; that the lower flyers of the choir are twelfth-century; that the stepped arrangement of the choir buttress uprights shown in pre-restoration photographs and the model represents the original twelfth-century *culées*; that the choir flyers must have strickingly resembled the present system, with no intermediate uprights and with the top flyers leaping over both aisles (in a manner prefiguring Coutances Cathedral). The nave may have had the same system; certainly there is no evidence there for intermediate uprights.

38. Lefèvre-Pontalis's and Aubert's claim that Notre-Dame's original nave buttresses were the first external flyers has been accepted by a long line of scholars, right up to Bony (1983) 179–86. But there have been dissenting voices. Fitchen (1961) 289–95 suggested that Suger's choir at Saint-Denis may have had flyers; and Prache (1976) 37–8, considered that the flyers around the choir of Saint-Germain-des-Prés in Paris, usually considered afterthoughts inserted *c.*1180–5, might belong to the present chevet of the 1150s. Grodecki (1976) 47, floated the idea that there may have been exposed flyers from the start in the choir of Notre-Dame. This was confirmed by Bruzelius (1987) 551ff, and fig. 15, who reconstructed two batteries of choir flyers, with intermediary uprights resting on the aisle columns, the lower flyer supporting the gallery, the upper the clerestorey. But Hardy (1991) 182–3, and Erlande-Brandenburg (1998) 74, are sceptical of Bruzelius's reconstructions, and cautious about any speculation on the existence of choir flyers in Paris. In fact, Erlande-Brandenburg's reconstruction of the twelfth-century choir shows a rather old-fashioned structure, with no flyers. The most forceful arguments for pre-Notre-Dame flyers came from Henriet, who claimed that early Gothic buildings of the 1150s and 1160s with three-storey elevations and without vaulted galleries used flyers as necessary lateral abutments. He 'discovered' the original buttresses and flyers of *c.*1150 at Saint-Martin at Etampes, reconstructed the choir clerestorey of Sens with rudimentary flyers of *c.*1150, and argued for flyers as part of the original 1150s construction of the choir of Saint-Germain-des-Prés, see Henriet (1978) and (1982) 129–40. Clark consistently denied the existence of such early flyers, and maintained that those in the twelfth-century nave of Notre-Dame in Paris were the earliest, see (1979) 363–5; (1984) (with Mark) passim; and (1987) 70, note 1. Wilson (1990) 41ff, 59ff, argued for their presence in the choirs of Saint-Denis, Vézelay, and the original choir at Laon. Confirmation that Saint-Germain-des-Prés had flyers *c.*1155 is provided by its offshoot, the choir of Domont, where there were rudimentary flyers well before the 1180s, see Plagnieux (1992). Finally, James (1992) confirms that before 1170 there is incontrovertible archeological evidence for flyers in the choirs of Sens Cathedral, Saint-Germain-des-Prés, Voulton, Saint-Lomer at Blois and the nave at Saint-Remi at Reims, and that there is good evidence for flyers of the same date in the choirs of Laon, Mantes and Noyon. For a detailed analysis of the history and restorations of the nave buttresses at Notre-Dame, Paris, see Clark and Mark (1984) 47–65, and, Murray (1998) who reviews all the previous literature from Viollet-le-Duc to Bruzelius (see also above, Chapter 2, Note 37A).

38A. Photoelastic model analysis by Robert Mark and others has calculated the forces acting on the flyer, see Mark (1982), with reference to his earlier publication. See also Mark, Alexander, Abel (1977) 241–51, and Heyman (1968) 181.

39. F. Bond, *Introduction*, I, 407.

40. Dehio, *K.B.*, II, 144.

41. Marcel Aubert, 'Le portail royal et la façade occidentale de la cathédrale de Chartres', in *B.M.*, C (1941) 177. See Sauerländer (1972) 383–4. Williamson (1995) 14ff. Fels (1955) 149–51 doubted if the portals were originally ever placed east of the west towers and subsequently moved forward to their present position. James (1986) 101–8 argued that the anomalies in the design are due, not to subsequent displacement, but to *ad hoc* construction methods on site. The conventional dates for the west façade of Chartres have been questioned (unconvincingly) by van der Meulen (1975) 21–3, who suggested that the documentary references to '*ad opus turris*' or '*ad aedificationem turris*' between 1134 and 1138, and 1139 and 1142 are not to the two west towers but to a rebuilding of the chevet. Again, as he argued for the choir of Saint-Denis (1988) see above, Chapter 2, Note 5F, we are asked to believe that references to a 'tower' are really to a 'choir'.

42. The term tabernacle is used in this book for the architectural members

which look like a *taberna*, i.e. a small house, and have four supports, a vault, and a little spire. The term canopy is used for little hanging vaults or corbels protecting statues. For pinnacles see Kobler (1987) 617–65.

43. Lefèvre-Pontalis, 'Les origines des gables', in *B.M.*, LXXI (1907) 92. Unfortunately this article gives no dates for most of the works quoted in it. The author gives the portal at Rhuis (Oise), which is supposed to have been built as early as the eleventh century, as the earliest case of a circular arch obtruding into a gable. He places the next earliest Gothic gables in the first half of the twelfth century.

43A. The Chartres south steeple seems to combine two traditions: 1) towers with spires rising from octagons (e.g. Saint-Eusèbe at Auxerre, Vermonton (Yonne), and the Tour Saint-Aubin at Angers (begun 1130)), 2) Limousin Romanesque towers with gables rising on the four straight sides (e.g. Brantôme or Saint-Léonard (Haute-Vienne)), see Jalabert (1968) 22–6, 35–6.

44. For the chronology and phases of construction of Senlis see above, Chapter 2, Note 11.

44A. The starting date for the west façade of Sens is usually given as some time after the town fire of 1184 (see Sauerländer (1972) 416); but the evidence as to whether the fire actually reached the cathedral is contradictory, see Henriet (1982) 90. The remaining twelfth-century sculpture of the west façade is usually dated to the 1180s onwards – Sauerländer (1972) 418–19, Williamson (1995) 31–3. By 1176 the main body of the cathedral was substantially complete (Henriet (1982) 88–9), therefore the façade was probably under construction in the 1180s. In 1210 an altar was dedicated to Saint-Michael in a chapel in the north tower. In 1221 an altar was dedicated to Saint-Vincent in the first storey of the south tower. In 1268 the south tower collapsed, with consequent reconstruction of parts of the façade and its sculpture.

44B. Documents referring to the demolition of houses near the future west façade in 1178 and 1180 suggest that the design for the façade might have been prepared around this time or soon after. For these sources, and for the chronology of the '4th campaign' at Laon, including the west façade and towers, see Clark and King (1983) vol. 24, 44–7; and Clark (1987) 53–60.

44C. These pinnacles may be the first to be used in a Gothic church outside the context of towers, see Kobler (1987) 617–65. A perceptive discussion on the problem of 'micro- and macro-architecture', and the growing tendency in the thirteenth century to apply monumental architectural forms to miniature formats can be found in Kurmann (1996a).

44D. Some of the characteristics of the lower storey of the Laon west front which Frankl describes as 'Gothic' are, as Branner (1963) pointed out, prefigured in the Romanesque gatehouse of Bury Saint-Edmunds, dated *c.*1120–48 (e.g. the gables over the entrance). Bony (1963a) also stressed the Anglo-Norman connexions between north-eastern France and Bury, in this case the transeptal west façade of the abbey church itself at Bury and similar façades concealing wide west transepts at Saint-Germer, Noyon, Braine and le Mont-Notre-Dame. For the wider question of Anglo-Norman influence on French façade (or 'west end') design see Héliot (1963) 257–78. Claussen (1975) 41–52, who dates the western porches to '*c.*1190', reconstructs their originally lighter, more open format (before the nineteenth-century reinforcements) as three deep arches resting on free-standing pillars. He traces this format, which he calls 'the triumphal arch type' of portal back to Antiquity and to antique-influenced Romanesque portals in the south of France (Arles, Moissac, Beaulieu). He identifies a particularly close precedent in the porch of the priory church of Saint-Macé of *c.*1130 (Maine-et-Loire), and suggests that it, and Laon, share a common (lost) source – see also pp. 27–41, and 156–7.

44E. Viollet-le-Duc's restoration did not restore the correct tracery to the oculi. Hardy (1991) has reconstructed the choir oculi as filled with cross-shaped bars, decorated with chevron. The nave oculi were curvilinear versions of the choir's. See above, Chapter 2, Note 17F.

45. E.g. the tower at Vendôme (*c.*1150), which stands clear of the façade behind it. It is illustrated in Ernst Gall, *Die gotische Baukunst etc.*, 82. Cf. also the clearly delineated structure of the tower at Etampes, illustrated in the same book, 83.

46. *Ibid.*, plate 28. See Crosby (1987) 161–70.

46A. A description of the façade and towers and a short assessment of its design sources is given in Clark (1987) 53–60, who properly stresses the interrelationship between the façade and the original galleried structure of the nave bay behind it. Still authoritative on the aesthetic problems posed by the conflicting demands of the west façade in Gothic architecture is Kunze (1912), who deals with Laon on 19–25. For Villard de Honnecourt's famous drawings of one of the west towers at Laon, and their geometrical construction, see Hahnloser (1972) 49–55, 352–3; and Bucher (1979) 76–9, and 181; and Fernie (1990) 229–34. A rehearsal of the various issues raised by the Laon towers – their design sources, Villard's drawing and its similarities to the stained glass representation of the cathedral of 'Soissons' in the choir clerestorey of Reims, and the depiction of an architect among the archivolt sculptures of the liberal arts on the left window of the rose storey – can be found in Sandron (1999).

46B. The fullest discussion of transeptal towers in medieval architecture is provided by Héliot (1965). The conventional pre-1171 dating for the transepts at Tournai would establish them as precedents, and almost certainly as principle sources, for those at Laon, but see above, Chapter 2, Note 15, for the problematic history and dating of the towers. Besides discussing Tournai, Clark (1987) 41, links the Laon towers to the contemporary transept towers at Arras.

47. Cf. for more exact dating Louis Grodecki, 'A Stained Glass Atelier of the Thirteenth Century', *Journal of the Warburg and Courtauld Institutes*, II (1948) 107. Frankl may be right in suggesting that the choir of the cathedral was begun before 1162. In a detailed and exemplary study, Blomme (1994) has established a convincing dating and sequence of construction. The mention of 1162 in the sixteenth-century source refers to Henry and Eleanor's foundation of the town walls, not the cathedral, which was begun 'in that same period' (*en mesme temps*). Blomme suggests that the choir was begun as early as *c.*1150. The inscription with '1167' on the ribs of the east bay of the middle aisle implies that the choir was too advanced for it to have been begun just five years earlier. The original conception of the cathedral, which informed much of the first four campaigns of construction, up to *c.*1215, was for a hall church with individual cross-placed saddle roofs running north–south over each bay, and a transept emphasized by transeptal towers and a lantern tower over the crossing. This concept was modified in the fourth campaign (*c.*1195–*c.*1215) by suppressing the transept towers, and changing the vault design (in the transept and western bay of the choir) from the lower four-part vaults with square heavy rib profiles in the two eastern choir bays, to higher, eight-part vaults with thin, torus-moulded ribs. But the real changes coincided with the appearance of a new architect at the beginning of the fifth campaign (*c.*1235–55). He suppressed the crossing tower, made the central aisle of the nave higher than the side aisles, and rebuilt the choir roof as a single saddle running east–west at the same height in nave and choir. This entailed heightening the east gable of the choir. With a few modifications, this altered conception prevailed up to the completion of the west bays of the nave (campaigns six, seven, eight) in the last half of the thirteenth century. The façade, up to just above the rose storey, was complete by the end of the century. Lozinski (1994) attempts, unsuccessfully, to find parallels between the simplicities of the choir exterior and Henry II's military architecture.

48. Dehio, *K.B.*, I, 358ff.

48A. Prüll, or Kartaus-Prüll, belongs to a group of six Bavarian hall churches of the late twelfth century. See Thümmler (1962), and Schütz and Müller (1989) 520–1. They include the nuns' church of Bergen bei Neuburg an der Donau (from 1156), the Cistercian church of Walderbach (second half of twelfth century) and the chapel of Burg Donaustauf near Regensburg (after 1150). See also Kubach and Köhler-Schommer (1997) 135.

48B. Frankl's conception of the ideal Gothic hall church as a unified and 'directionless' space reflects a long tradition of German art-historical thinking. Such spatial analyses of the hall have been critically questioned, particularly since many halls are strongly directional and segregated in their spatial organization, see Kunst (1971) and below, Chapter 3, Note 139A.

48C. Useful general introductions to the aims and early history of the Cistercians are to be found in Southern (1983) 250–72; Lawrence (1984) 146–66; Leclerq (1980); Lekai (1977). For Stephen Harding see Lekai (1977) 17, 27; Knowles (1963) 199–200, and, more generally on the Cistercians, 208–66. A helpful introduction to St Bernard and his contemporaries can be found in Berlioz (1990).

48D. A useful conspectus of the extent and position of the Cistercian monasteries is provided by van der Meer (1965), though his statistics have been reviewed by Vongrey and Hervay (1967) 115–52, quoted in Lawrence (1984) 165, note 15. Another useful corpus of Cistercian architecture is Dimier (1949). An authoritative and well-illustrated introduction to the general characteristics of the Cistercian church can be found in Kinder (1990).

48E. Modern studies have moved away from the view that the Cistercian attitude to art was exclusively negative and iconoclastic. See in particular Talbot (1986) 56–64; Melczer and Soldwedel (1982) 31–44, Rudolph (1990) 12–18.

48F. The Cistercian prohibition of stone crossing towers, passed in a statute of 1157, seems to have been flouted in the large stone towers built soon afterwards in England, at Buildwas, Kirkstall, Fountains, Roche and Dore. See Fergusson (1970) 211–21. He argues that the debate of 1157 was prompted by the Cistercian abandonment of the so-called 'Bernardine' church (see below, Chapter 2, Note 51B) – which used no regular crossing (its nave vaults ran without interruption right up to the sanctuary arch) – and its replacement by churches with conventional crossings. He also argues that the General Chapter permitted these towers because they were low and simple. In France, however, there were few such crossing towers, and the prohibition seems to have been taken more literally.

48G. The history of Cistercian architecture in its first thirty years is, and probably will remain, obscure. The best account is Schaefer (1982).

49. Aubert (1947) vol. 1, 191–3; and Schaefer (1982) 2–3.

50. For Cîteaux see Hahn (1957) 238ff; Aubert (1947) vol. 1, 169, and 190–3, who suggested that the first choir had a 'Bernardine' plan, and that the nave was built between 1125/30 and 1140/50. The original appearance of the elevation of the first stone church is unclear. Fergusson (1984) 38, suggested that it may have shared, with its daughter houses at Clermont and Boquen (in France) and Amelungsborn and Altenberg I (in Germany), a regular crossing, and a simple, unarticulated nave with a timber roof and a clerestorey. This is also the nave system of most of the Irish Cistercian monasteries, see Stalley (1987) 80–3. But almost all the Irish houses are affiliated to Clairvaux, as is Rievaulx, whose first stone church shared this lack of vertical bay articulation. In their recent magisterial study of Rievaulx, Fergusson and Harrison (1999) now suggest that this simplicity was not the echo of a Burgundian archetype – and certainly not a trace element of the original Cîteaux – but ought to be read as the assertion of a new monastic ideal, as much Roman as Burgundian (see the Cistercian church of Tre Fontane in Rome). Wilson (1990) 24, plate 14, suggests that Cîteaux may have had groin vaults, and been the inspiration of those in the transept at Pontigny. For a catalogue of the pre-destruction drawings of the church see Gras (1982); for the excavations of 1959–64 see Lebau (1982).

51. Schaefer (1982) 4–8, who argues that this oratory – the *monasterium vetus* in Dom Milley's plan of 1708 – was wooden; Kinder (1991) 207–8 thinks it was stone.

51A. The date of the relocation of the monastery in 1135, a date given by Arnold of Bonneval in his *Vita Prima* of St Bernard, is usually accepted as the start of Clairvaux II. But it has been questioned by Untermann (1984) 618–24, who argues that the relocation and the building of Clairvaux II took place perhaps as early as the 1120s. This view is convincingly rejected by Kennedy (1996) 135, 136–7, 141–2, who reestablishes a date in the 1130s, but, in the light of the contradictory evidence in the *Vita Prima*, suggests either 1132/3 or 1136/7 as the *terminus post quem* for the rebuilding, and *c.*1145 as a *terminus ante*, when its 'new choir' is mentioned in the *Fragmenti Gaufridi* (written in about 1145). However, she does not associate this church with that shown in Dom Milley's plan and bird's eye view of 1708, see below, Note 55.

51B. Pictorial and documentary evidence for the original appearance of Clairvaux II is discussed by Kinder (1991). See also Aubert (1947) 1, 124–5, 182–3, and Hahn (1957) 119–22, who both considered Clairvaux II to be the model for Fontenay, that is, a church with barrel vaults and a flat east end. In the early 1950s Karl Heinz Esser proposed that Clairvaux II marked the beginning of a new type of Cistercian church architecture: monumental, austere and standardized. He called it 'Bernardine' because he felt that it closely reflected St Bernard's own conception of what a Cistercian church should look like. For Esser, Clairvaux II was the prototype of the 'Bernardine' church. He argued that its original east end consisted of an aisleless, square-ended sanctuary with transepts opening onto square-ended chapels; that this 'Bernardine' plan was exclusively enforced within all the filiations of Clairvaux between *c.*1135 and 1153; that it was adopted under Bernard's influence in some of the other five main mother houses (Cîteaux, La Ferté and Pontigny), and that after Bernard's death in 1153 it ceased to be the norm in Clairvaux filiations, when a variety of types of cast end were employed. See Esser (1952) 221–3; (1953) 195–222. Hahn (1957) 84–128 extended Esser's argument by maintaining that not only the plan, but other features of Clairvaux II were universally binding, or at least widespread, on Clairvaux filiations up to 1153: the barrel vaults in the main vessel and the cross-placed barrels in the side aisles; the choir and transepts vaulted lower than the nave. He also proposed that all Bernardine churches used a modular system of proportions, based on two squares, one of 3, one of 4 units, for the laying out of the ground plan (pp. 66–82, 314–39).

More recent Cistercian scholarship has refined and criticized this concept of a 'Bernardine' architecture, and Clairvaux II's role in it. It admits that Cistercian building in the 1130s became more standardized, and that this new style – either through Bernard's direct backing or because of its association with him – was widely accepted as specifically Cistercian. But in the light of local variations it has questioned Esser's and Hahn's claims for uniformity. See, for example, Swartling (1967) 193–8, and Stalley (1987) 56–7. It also throws doubt on the exclusive role of Clairvaux in the development of the 'Bernardine' church, and warns against a too strict definition of the Bernardine elevation, see Fergusson (1984) 13–38, 52–3.

Most significantly, recent findings have called into question Hahn's and Esser's reconstructions of Clairvaux II as the prototype of the 'Bernardine' church. Particularly suspect are their arguments for Fontenay-style pillars and barrel vaults in the nave. The church shown in Dom Milley's bird's eye view of 1708 had a clerestorey, shows transepts of the same height as the nave (not lower as in Fontenay and Pontigny) and was clearly not barrel-vaulted. Schlink (1970) 138ff, suggested that this church was stylistically so different to the Fontenay type that it cannot be the 1135 building, and must represent an entire reconstruction. Aubert suggested two possibilities: a) that the 1135 church was planned to have barrel vaults over the main vessel, but was never finished, and rib vaulted later, or b) that the original barrel vault over the central aisle was rebuilt with a clerestorey after 1153, to match the new reconstructed choir (Clairvaux III). Kinder (1991) 210–11, claimed that the nave of the church in Dom Milley's view belonged to the building begun in 1135, and that therefore Clairvaux II was never the prototype for Fontenay or any other of the barrel-vaulted 'Bernardine' churches. She suggested that its elevation may have been three-storied, with small openings into the aisle roofs placed between arcade and clerestorey (see La Benisson-Dieu). Kennedy (1996) 145–51, thinks there may have been string courses between the stories, and reconstructs the nave supports as cruciform piers with half-columnar responds. The nave had either groin- or rib-vaults.

Hahn's proportional theories have been accepted as operative in many churches, but criticized as dogmatic and over-comprehensive. See Schmoll gen. Eisenwerth (1958) 158–80; Hirst, Walsh and Wright (1983) 208–29; Swartling (1969) 77–9; Stalley (1987) 68–75.

St Bernard's teachings on light, order and simplicity are too general to prove his involvement in the creation of a 'Bernardine' style, see Melczer and Soldwedel (1982).

51C. For Fontenay see Aubert (1947) 157–9 and passim; Hahn (1957) 97–104; Bucher (1957) 179–81; and Gilbert (1970) 1–3, 20–45.

51D. For the aesthetics of St Bernard see Melczer and Soldwedel (1982) Talbot (1986) and Rudolph (1990) 12–18.

52. Illustrated in *ibid.*, 1, 351; and also in John Bilson, 'The Architecture of the Cistercians', in *The Archaeological Journal*, LXVI (1909) 158 and plate II.

52A. See now Fergusson (1984); Halsey (1986), Wilson (1986) and Coldstream (1986).

53. On German Cistercian churches, cf. Georg Dehio, *Geschichte der deutschen Kunst*, I (Berlin, 1919) 249ff., and Henry-Paul Eydoux, *L'architecture des églises cisterciennes d'Allemagne* (Paris, 1952). For Amelungsborn see now Thümmler and Kreft (1970) 253. Its wooden roof may not be simply 'Saxon' but may be connected to a group of unvaulted Cistercian churches, without bay divisions, including Clermont, Boquen, Rievaulx, Jerpoint, Mellifont, see above, p. 317 and Chapter 2, Note 50. The architecture of the Cistercians in Germany is now covered by Hahn (1957) (particulary for the early foundations), Krönig (1973), and Nicolai (1988) (1989/1990) (1993) (particularly for the period from about 1200 onwards).

53A. For Eberbach and Maulbronn see Hahn (1957) 12–78, 244–7. Still the best treatments of the church at Maulbronn can be found in Anstett (1978) and (1985). For Worms see above, Chapter 1, Note 22F.

53B. For Heisterbach see Verbeck (1980) and Buchert (1986) (not available to me).

54. Irmgard Dörrenberg, *Das zisterzienser Kloster Maulbronn* (Würzburg, 1937). Few would now agree with Frankl that the early Gothic work at Maulbronn, comprising the south walk of the cloister, the west porch ('Paradies') of the church, and the lay-brothers' and monks' refectories, show a 'struggle with constructional problems'. On the contrary, they demonstrate a mastery of the vocabulary of Laonnois Early Gothic. For the position of the Maulbronn work in the reception of French ideas into Germany see Schlink (1975) 400f; Gosebruch (1977) 47–53, and Nicolai (1986) 253–96. Anstett (1985) still offers one of the best introductions to the monastery, though his stylistic analyses have been refined by Frank (1993).

54A. For the introduction of rib vaulting to Burgundy, in Cistercian and non-Cistercian buildings, see Branner (1960) 16–29, Schlink (1970) 89–98, and Kennedy (1996). For Ourscamp II see Bruzelius (1981). With the loss of so much early Cistercian architecture it is difficult to assess its role in the import of the rib. For all earlier views on the dating of the ribs at Pontigny and the arguments for and against their being part of the original plan see Kinder (1992). She argues that Pontigny II was laid out as early as the late 1130s and finished in about 1150. Kennedy (1996) 50–74, stresses the importance of the upper narthex at Vézelay (dated 1147) and the chapel of Saint-Croix at Vézelay (of the same period) as critical in the early adoption of the rib in Burgundy.

55. For Clairvaux II and III see Schlink (1970) 91, 108–19, 138–41; and Kinder (1991). Both suggest that the choir may have been begun even before St Bernard's death, thus calling into question the idea that it contravened St Bernard's supposed ideals of architectural purity. Fergusson (1984) 52–3, and Kinder (1991) argue that it was intended as a mausolcum–sanctuary for the body of the abbot whose speedy canonization was universally anticipated. Schlink (1970) 110–15, saw the general exterior disposition of the new choir as a simplified version of Cluny III, and argued for a Cluny-like barrel vault over the ambulatory and a semi-dome over the apse. A sixteenth-century source records the consecration of an altar in the westernmost ambulatory chapel in 1157, which suggests that the ambulatory was in place by then. The whole choir was consecrated in 1174. Some consequent remodelling may have taken place in the transepts and nave (Clairvaux II), but it is unclear from Dom Milley's plan of 1708, and from Gilbert's of 1808 whether these parts of the church were groin- or rib-vaulted, and whether these vaults belonged to Clairvaux II or originated only after 1153. For the sources of its drum-like chapel wall see Dimier (1957), who, however, dubiously attributed the origins of this type of polygonal outer wall enclosing chapels to the cathedral of

Thérouanne and the choir of the Premonstratensian church at Dommartin. Thérouanne, once dated as early as just after 1136, has recently been shown to post-date Dommartin – see Honoré (1973); and Dommartin, which was begun in 1153 and consecrated in 1163 is clearly too contemporary to be an unequivocal influence on Clairvaux. Besides, Clairvaux's square chapels and polygonal outer wall differ from the rounded chevet wall and chapels of Dommartin – see Kennedy (1996) 154–6. Fergusson (1994), has suggested early Christian Roman burial churches (e.g. seventh-century SS Luca e Martina) as a model, adopted as an appropriately authentic, and patristic, setting for the shrine of St Bernard, whose monasticism had been based on a return to the purity of early Christian models. Kennedy (1996) 152–4, argues that the so-called Clairvaux III and Clairvaux II are one and the same building; that the chevet choir was begun sometime before 1153 with the active support of St Bernard, who intended it to serve as the mausoleum of his friend, Bishop Malachy of Armagh who died in 1148. Choir, transepts and nave belong together as part of a single build. She also suggests that this church replaced an earlier (perhaps stone) church on the site, built soon after the removal of the monastery in the 1130s, a church containing nine altars.

55A. For the original church (Pontigny I) see Schaefer (1982) 3; and Kinder (1982A).

56. *Ibid.*, I, 187.

56A. See Kinder (1984), who has reconstructed the original height of the sanctuary. It was, like Fontenay, lower than the nave and crossing, but equal to the height of the transepts. For Kinder's dating of Pontigny II see (1992). She suggests a sequence of construction from east to west; a break in the second bay of the nave; a second architect taking over from that point and vaulting the whole nave. See also Kinder (1982) 151–8. She dates the beginning of the church to the mid-1130s and the completion of the whole building by about 1150. Kennedy (1996) 105–7, sees three campaigns in the nave, and reasserts the arguments for the start of the church in *c.*1150, sometime before the death of its principal benefactor, Count Theobold of Champagne.

57. Hans Rose, *Die Frühgotik im Orden von Citeaux* (Munich, 1915).

57A. Kennedy (1996) 112–13, also points to a number of early rib-vaulted churches where a failure to provide shafts as supports for diagonal ribs (as at Pontigny) does not imply a change of plan from groin to rib vaults.

57B. A quarry is mentioned in 1186, perhaps in connexion with the new choir. For the choir see Branner (1960) 28–9, 163; Kinder (1982) 53–4. Kimpel and Suckale (1985) 531, disconnect the chronology from the reference to the quarry and on stylistic comparisons with Sens Cathedral and the choir of Vézelay date the beginning to *c.*1170. Kinder (1982) 53–4, refers to a 1205 statute of the General Chapter concerning the renovation of the church, and relates the new choir to the burial in it in 1206 of Queen Adela, the widow of Louis VII. She considers that construction was still going on in 1210–15. Kennedy (1996) 269–79, dates the beginning of construction to the mention of a quarry in *c.*1180, and its completion by *c.*1200, certainly by the burial of Adela. She relates it stylistically to the choirs of Vézelay and Clairvaux, and speculates that its plan, like Clairvaux's, may have been conceived with burial functions in mind (in this case, of a queen).

58. George Fontaine, *Pontigny* (Paris, 1928) 89.

59. Aubert, *L'arch. cist.*, I, 7.

59A. For views of Cîteaux see above, Chapter 2, Note 50. For Cîteaux III, which was in buiding in 1188 and was consecrated in 1193, see Schlink (1970) 91–2. For the proliferation in Germany of the Cîteaux III type of choir, with straight-ended choir and straight ambulatory and chapels returned behind it, see Krönig (1973) 74; and Nicolai (1988) 23–39. The decisive example here, however, was probably Morimond, which also adopted the straight-ended choir plan with ambulatory. For the controversial dating of Morimond, and an interpretation of the obscure findings of the 1954/5 excavations, see Nicolai (1988) and (1993), who dates the beginning of the choir at Morimond to the accession of Abbot Heidenreich/Guido in 1202–4. It was consecrated in 1253. Kennedy (1996) 196–209, argues from the similarities between Morimond and its firmly dated daughter house, Ebrach, for a date in the second half of the twelfth century, probably before Cîteaux III, and perhaps in connexion with the burial there in the 1150s of its sometime abbot, Otto of Freising. She interprets the choirs of Clairvaux III, Cîteaux III and Morimond – all marked out from other Burgundian Cistercian churches by their ambulatories with chapels – as the mausolea of abbot–saints (or would-be saints), and as reflections of rivalry between the mother house (Cîteaux) and her two sister houses.

59B. The necrology of Bishop Normand de Doué indicates that the vaulting of the three-bay nave was begun during his episcopate (1149–53) and continued under his successor Bishop Ulger, who was buried (before 1160) along the south wall of the nave. See Mussat (1963) 180–1.

59C. See Mussat (1963) 293–4 and fig. 26B.

60. For the earliest rib vaults in Germany see above, Chapter 1, pp. 57–8, and Notes 22D, 22E, 22F.

61. A survey of the Transitional style in Germany can be found in Georg Dehio, *Geschichte der deutschen Kunst* (Berlin, Leipzig, 1919) I, 218ff. For a criticism of the whole concept of a 'transitional style' when applied to German Early Gothic architecture (and by extension to any kind of Gothic) see Sauerländer (1987). See also above, Chapter 1, Note 38D, and below, Part Two, Note 63A.

62. A history of the relevant studies can be found in the introduction to vol. I of Arthur Kingsley Porter, *Lombard Architecture* (New Haven, 1917). Some of the errors in earlier research were gradually corrected, but the tendency to give credence to early dates survived. But see Chapter 1, note 6.

63. Richard Krautheimer, 'Lombardische Hallenkirchen', in *Jahrbuch für Kunstwissenschaft*, XLIX (1928) 176.

64. A more recent assessment of Lombard architecture is provided by McKinne (1985). For her discussion of S. Nazaro see pp. 238–47.

65. For the earlier literature on S. Ambrogio see McKinne (1985) 256–84. She established the following chronology.

1) **1104–10**: the Romanesque church begun where the east end of the nave joins the triple apse complex. The eastern half of church, perhaps with tribunes and their vaults, and covered with temporary wooden roof and temporary lantern over east bay, complete by *c.*1110.

2) *c.*1100–1115/20: the western half of church, including narthex and Canons' Tower was begun.

3) *c.*1115–20: work on the atrium (or at least its sculpture) and completion of western half of church up to and including tribunes, and temporary wooden roof over whole church.

4) *c.*1120 onwards: the lower narthex rib vaulted, and upper narthex in building. Decision taken to rib vault central vessel of nave.

5) *c.*1128–30: Canons' Tower in advanced state, rib vaulting of nave.

6) 1140–4: construction of pulpit and choir stalls.

7) *c.*1150: remodelling of lantern.

8) 1181: tower heightened to top of next storey; *c.*1193–4 ribs in adjoining lantern collapse.

66. F. de Dartein, *Etude de l'architecture Lombarde* (Paris, 1865–82) plate 29.

67. McKinne (1985) 341–3 and passim. Brucher (1987) 55–9 dates the band ribs here to about the same period as S. Ambrogio's.

68. The dating of the Novara churches was established by P. Verzone (1935/6) (1934). Cited and accepted by Bony in his edition of Focillon (1963) 1, 55, note 2; and Bony (1983) 465, note 2.

69. Verzone (1935/6) 1, 49, 88.

69A. Other early rib-vaulted Lombard churches, notably S. Michele Maggiore in Pavia, S. Giovanni in Borgo di Pavia and S. Savino in Piacenza are discussed by Peroni (1969). In all, the dates are either uncertain or are of the early twelfth century.

69B. For the Rhenish–north Italian connexions, largely sculptural, see Kluckhohn (1955) 1–120. For the early band ribs of St Mary at Utrecht, Speyer and Italy see Kidson (1996) and above, Introduction, Notes 5D, 6, and Chapter 1, 22D, 22E. Lombard vaulting is sensibly discussed by Brucher (1987) 30, 43, 62, 69, 80. For Moissac see Chapter 1, Note 16 above.

70. P. Frankl, *Die frühmittelalterliche und romanische Baukunst* (Wildpark–Potsdam, 1926) 113. For S. Lorenzo and the lower church of S. Fermo in Verona see Arslan (1939) 5ff; and the review of the book by Kluckhohn (1940); Brucher (1987) 37–41.

70A. Bony (1976) 18ff.

70B. For an analysis of the construction and stereotomy of the Angevin vaults see Bilson (1910).

70C. Frankl's concentration on Santiago ignores the Cistercian contribution to Early Gothic in Spain. Some of the earliest rib vaults in Spain appeared in La Oliva (begun 1164), Fitero (choir apse and ambulatory chapels begun soon after 1170), Veruela (underway in the early 1170s), Santes Creus (begun 1174), Sacramenia (1170s). See Torres Balbás (1952) 34–7; Sowell (1985) 148–78, and passim; and Sowell (1982).

71. In addition to Elie Lambert, *L'art gothique en Espagne etc.* (Paris, 1931) 51ff., cf. also Juan Contreras Lozoya, *Historia del arte hispánico*, II (Barcelona, 1934) 31. The resemblances to Saint-Denis are closer than Frankl imagined: the same double ambulatory with slender *en delit* columns; ribs with torus mouldings; exposed flyers and paired sub-divided false gallery openings.

71A. Its flyers seem to be original with the choir, and add to the likelihood that the Saint-Denis choir, upon which Avila is based, also had them.

71B. Tarragona cathedral was begun on the site of the old mosque in *c.*1171. Indulgences for building are recorded throughout the second and third quarters of the thirteenth century. Between 1246 and 1266 vaulting is mentioned in both central and side aisles. The lantern tower over the crossing, after 1250, is attributed to a Master Bernat. The last high vault was turned in 1305 and a final consecration took place in 1331. See Batlle Huguet (1959) and Barral i Altet (1994) 163–86.

71C. For Fitero, begun soon after 1170, see Sowell (1985) 38, 150 and passim.

72. E. Lambert, *op. cit.*, 59ff., and G. E. Street, *Some Account of Gothic Architecture in Spain* (London, 1869) 78ff. The late Romanesque and early Gothic cathedral was built in two broad stages:

1) *c.*1150–*c.*1185. Lower parts of east end and transepts; cloister begun *c.*1175 and well advanced by *c.*1185.
2) *c.*1185–1225. Work resumed on the church under a Master Peter (mentioned 1207) and later a Master Iohan Franco (mentioned in 1225). Change to rib vaults. Vaulting of transept and two eastern bays of nave. Rest of nave vaulting under the influence of Master Mateo from Santiago. See Rodriguez Gutiérrez de Ceballos (1978) and Pradalier (1996) 604–5 for literature.

73. For a long time the building was used for profane, military purposes and was neglected: it can now be visited once more.

74. Paul Frankl, 'The Crazy Vaults of Lincoln Cathedral', in *The Art Bulletin*, XXXV (1953) 95; and Folke Nordström, 'Peterborough, Lincoln and the Science of Robert Grosseteste, etc.', in *The Art Bulletin*, XXXVII (1955) 241.

74A. Wilson (1990) 165, traces the origins of the 'crazy vault' to the triradial vaults of chapter houses, particularly a putative chapter house he believes was prepared by the choir architect in the 1190s. A likely source for triradials might have been provided by the triangular points of support that ran round the trapezium-shaped ambulatory of St Hugh's Choir, demolished to make way for the present Angel Choir in 1256, see Baily (1991) fig. 25, who, however, reconstructs the vaults as four- and six-part. Kowa (1990) 93, fig. 55, does reconstruct triradials, for both the ambulatory and the centralized eastern chapel.

75. At Lincoln, each series of three sections of the ridge-rib itself forms a shallow segmental arch, and these sections do not follow a perfectly straight line from west to east. Both these features suggest lack of experience. The form of this vault cannot validly be explained as springing from practical reasons, for instance that its form was intended to ease the arching of the ribs, since the same architect built quadripartite rib-vaults in the aisles, and could, therefore, also have built one in the nave.

76. A full description of St Hugh's Choir is provided by Pevsner and Metcalf (1985b) 196–214. Pevsner and Frankl identified the architect of the choir as 'Geoffrey of Noiers'. He is much more likely, however, to be an administrator of the *fabrica*. The most authoritative analysis can be found in Kidson (1986), who drew attention to the connexions with Canterbury choir, identified the hexagonal eastern chapel as an intended mausoleum for Bishop (it was hoped Saint) Remigius, and plotted the geometrical lay-out of the now-lost apse. A reconstruction of the whole choir, with intended eastern transept towers and an hexagonal eastern chapel in the manner of Canterbury's corona, is attempted by Baily (1991). He gives a full resumé of all earlier research on the choir. See also Kidson (1994), who repeats his conclusion that the choir was begun with six-part vaults in mind but altered in its upper parts to the present vault system, probably in order to retain the tripartite clerestorey.

77. On the subject of all the churches of this type, cf. Joseph Berthelée, *L'architecture Plantagenet etc.* (Melle, 1889), which is reprinted in its entirety in *C.A.*, LXX (1904) 234. Cf. Robert Charles de Lasteyrie, *L'architecture religieuse en France à l'époque gothique*, II (Paris, 1927) 96, in which building is said to have begun after 1200; cf. also, in the note, the mention of the Hôpital Saint-Jean at Angers, which is supposed to have been built as early as between 1170 and 1180. For the hospital and its patron Etienne de Marcay, see Grant (1994). For Saint-Serge at Angers see Mussat (1963) 223–32, who dates it to 1215–25.

78. *C.A.*, LXX (1904) 75. The vaults at Airvault are carefully analyzed by Mussat (1963) 360–5.

78A. For Saint-Jouin-de-Marnes see Mussat (1963) 361–5. Note however the similarity between the Angevin tunnel-net vaults and the net vault in the south-west chapel of the nave at Lincoln, of *c.*1230.

79. *C.A.*, LXX (1904) 70.

79A. The term 'Plantagenet' style is misleading. Henry II Plantagenet, though an active patron of architecture on both sides of the channel, does not seem to have favoured a particular 'style'. Moreover, English and west French architecture pursued separate directions in the second half of the twelfth century, to the extent that Henry's English buildings show little or no similarity to his French foundations, military or ecclesiastical. Finally, many of the buildings cited as 'Plantagenet' were built after the loss of Anjou and Poitu to the French king. Mussat simply refers to the style as 'Gothic in the West of France'. For an illuminating discussion of Henry II's patronage in France see Grant (1994).

CHAPTER 3

1. Frankl's conception of 'High Gothic' derives from the German nineteenth-century classification *Hochgotik*, a style which was thought to last from the end of the Early Gothic to the beginning of Late Gothic. See for example Gross (1933), who treats Gothic in Germany from *c.*1250 as 'High Gothic'. This classification fails to distinguish between what are now regarded as two quite different stylistic periods: High Gothic proper, which according to current opinion lasted in France approximately from 1190 to 1230, and the so-called 'Rayonnant' style, appearing *c.*1230 in Paris, and continuing to the onset of Late Gothic in the second half of the fourteenth century. On the need to distinguish Rayonnant as a separate entity see Bony (1983) 246, 501 note 2.

1A. The misconception that the earliest flyers must have been those in the nave of Notre-Dame in Paris, and therefore that all flyers in pre-Notre-Dame buildings must be later additions, has now been recognized. Many Early Gothic buildings dating from Sens Cathedral of the 1160s (and possibly even from Suger's choir of Saint-Denis) employed them. See above, Chapter 2, Note 38.

1B. The priority in the creation of the Chartrain type of High Gothic elevation may, however, go to Soissons Cathedral. See below, Chapter 3, Note 9A.

1C. Frankl's view (following Lefèvre-Pontalis and older French scholarship), that galleries support high vaults, is not strictly correct. The critical lateral support for the high vaults of the galleried churches were the buttress walls or quadrant arches inserted beneath the gallery vaults and roofs. See Bony (1983) 126–31.

2. This connexion has also been recognized by Hans Sedlmayr in *Die Entstehung der Kathedrale* (Zürich, 1950) 259. This book found its way into Frankl's hands in 1953, but he had already made the same observation in 1948. With this observation Sedlmayr connects his theory that the increasing elimination of the walls and the increase in penetrations and lighting sprang from a desire to emphasize the idea of the New Jerusalem. These theories are discussed more fully below, on pp. 273ff. Sedlmayr's theory of the Gothic 'baldachin' construction has been applied to the elevation of Chartres by van der Meulen (1984) 24–30, in the form of a 'primary system' of pillars, walls and windows, and a 'secondary system' of *pilier cantonné*, vault shafts and vaults.

3. Dehio (1901) II, 137: 'The Gothic window is only an opening in the constructional sense of the word: in terms of the spatial impression of the interior, it is a wall – a disembodied, ethereal and transparent wall, but still a clear optical division between a sacred interior and the profane world outside.' For the glass as 'diaphanous wall' see also Jantzen (1951) and (1984) 73ff.

3A. Oblong four-part vaults were by no means rare in Gothic architecture before Chartres, see for example, Pontigny II, Saint-Germer, Saint-Germain-des-Prés, Laon Cathedral transepts, Noyon choir. See Bony (1983) 499, note 26.

3B. Recent scholarship has attributed more specific novelties to Chartres – for example, the omission of the gallery and the enlarged clerestorey – as reasons for its significance at the beginning of the High Gothic style, see Bony (1983) 220–43; Kimpel and Suckale (1985) 235ff.

3C. Sandron (1998) 172, points to an early example (late 1180s) of 'en bec' abaci in the upper floor of the 'Early Gothic' chapel off the south transept of Soissons. It is therefore not a creation of High Gothic at either Chartres or Soissons.

4. These upper arches may date from the time immediately after the level of the second arches from below had been reached, when the clerestorey was already in existence (this means probably before 1206). The function of these upper flyers was probably not to take the dead weight of the roof, but its increased weight caused by wind loads, see Mark (1982) 36–41. Whether or not they were afterthoughts is still an open question. Kimpel and Suckale (1985) 252, and Mark and Borg (1973), deny Viollet-le-Duc's suggestion that they were added after 1316, and argue that they are part of the original structure. James (1982) 76–7, and van der Meulen (1984) 121, see them as later insertions, James dating them to after 1222, when, he argues, the decision was taken to omit the crossing tower and heighten the pitch of the roofs.

5. Louis Grodecki, 'The Transept Portals of Chartres Cathedral etc.', in *The Art Bulletin*, XXXIII (1951) 156. For a full discussion of the transept portals, and their functions and meanings, see Claussen (1975) passim. The sequence of building in the transepts and their façades is still a matter of controversy. Grodecki (1951) argued: (a) the south transept portals and buttresses above them were erected with no intention of building porches, these were inserted later by cutting away the lower portions of the portal and transept buttresses; (b) the north transept was originally built with only one central portal and subsequently given side portals and three porches – an alteration which involved cutting back the front faces of the transept façade buttresses. Van der Meulen (1967) 159–64, and (1984) 97–180, disposes of both arguments. For the south transept he claims that (a) no buttresses were cut back to include porches; (b) the narrower widths between the buttresses than between the side portals below them, and the different axes of the buttresses above and below the roofs of the porches, prove that the façade above the level of the porches was not complete (probably not even begun) before the porches were added; (c) however, the porches are so disaligned with the portals, and the four additional statues (which belong chronologically with the porches) are so obviously inserted into the earlier, completed, side portals, that the porches must have been added later to the completed portal level, together with the façade buttresses immediately above them.

For the north transept he argues (a) the axes between porches and portals are so accurately aligned that both were planned together; (b) the side portals were intended from the start; (c) the façade buttresses were never chopped back. However, van der Meulen also argues, – following the hypothesis of Kunze

(1912) 33–5 – that before either transept façade was begun it had been intended to have not three but two-bay transept arms, each with a single central portal, the northern dedicated to the Virgin, the southern to the Confessors. The rest of the present transept sculpture would have been placed on a new west façade (scheme 1). Only when the original decision to demolish the old west façade was reversed were the transepts expanded to their present width, and the sculpture already carved for the new west façade transferred to them. See, particularly, van der Meulen (1984) 142–3, figs 147–52. Van der Meulen's architectural and archeological analysis of the transept façades is closely reasoned, but on stylistic grounds his proposed arrangements of the portal sculpture in scheme 1 cannot be accepted. See Williamson (1995) 269, note 101.

However, James (1979, 1981) I, 33–51, 268–77, and II, 363–400; and (1982) 57–60, argues that there was never any intention to have a new west façade; that the porches of both transepts were designed and built together from the start, though delays on the north west porch held up the progress of construction on the north side. His claims involve a radical (and to many unsupportable) redating of almost all the transept sculpture – including the latest portal jamb statues – to before 1205. The problems are exacerbated by the fact that both porches were extensively restored and reconstructed in the nineteenth century, when the original stone coursing may have been altered. Kimpel and Suckale (1985) 490–1, note 32, point to archival records at Chartres of the restoration which suggest that the porches might have been added to the portals as afterthoughts without damaging or scarring the masonry. Claussen (1975) 77–80, 103–25, accepts the idea of an intended new west façade, and of the transept portals in their present shape as afterthoughts when this was abandoned. The north porches were begun first (*c.*1210/15) and working from the sides inwards were finished by 1240. The south porches had a less complicated history. They were begun 1225/30 and completed by 1240. He reconstructs the original appearance of the north façade with two rows of arches between the porches and the rose storey – see p. 92, figs 34–6, and pp. 94–5.

6. The supposition that a temporary choir (of wood?) was built in 1194, only to be pulled down and replaced as early as before 1220, is most improbable. Cf. E. Lefèvre-Pontalis, 'Les architectes et la construction des cathédrales de Chartres', in *Extrait des Mémoires de la Société nationale des Antiquaires de France*, LXIV (1905) 34. Frankl's rebuttal of this theory appeared in *The Art Bulletin*, XXXIX (1957) 33. The dates of the choir, the transepts, and the nave are important in establishing the chronology of the stained glass. See Louis Grodecki, 'Chronologie etc.', *B.M.*, CXVI (1958) 91. Frankl's answer was published in *The Art Bulletin* in March 1961.

The old controversy as to whether the cathedral after 1194 was built from east to west (Frankl (1957) (1961) (1963)) or west to east (Grodecki (1958A)) assumed that the building was constructed in vertical slices, from floor to vault, one bay at a time. The disagreement has now been settled in favour of more horizontal methods of building, in which work proceeded simultaneously on choir and nave, and with the nave construction more advanced (to a greater or lesser extent) than the choir. Beyond that general consensus, however, the two leading authorities on Chartres, van der Meulen and James, have opposed views on almost every single major issue concerning the sequence of construction. Van der Meulen (1965) (1967) and (1984) 53–148, posits the following sequence:

1) **Work begins** at the western crossing piers; first two bays of west aisle of north and south transepts (at this stage each transept arm was planned to extend only two bays beyond the crossing, so that, like Reims, the transepts would have been the same width as the eastern arm); pillars and side aisles of first four bays of nave with the intention of demolishing the mid-twelfth-century west façade and towers and building a new west end, the design of which acted as a source for some of the stranger features of the upper parts of the nave exterior, particularly its corbelled clerestorey balustrade.

2) **Decision to preserve** the twelfth-century façade and towers. As a result, pillars and aisles of remaining western bays of nave have to fit into the remaining space by being constructed in progressively reduced lengths.

3) **Pillars and side aisles** of the choir, ambulatory and radiating chapels; most of the remaining pillars and aisles of the first two transept bays from the crossing; in addition, each transept arm extended outwards one bay and their terminations transformed into towered façades providing large portals for the already-cut sculpture intended for the abandoned west façade (see note 5 above); a lantern tower, like Laon's, planned to rise over the crossing.

4) **Triforium**, clerestorey and high vaults of nave.

5) **Higher parts** of the crossing (the abandoning of the lantern tower); triforium, clerestorey and high vaults of first two bays of transept adjoining crossing, and upper parts of choir.

6) **Triforium**, clerestorey and high vaults of outer bays of transepts.

James's position, in (1979) (1981) and (1982) is even more radical. (a) The cathedral was built more or less simultaneously along its whole length (slight priority of nave). (b) The western towers and façade were never intended to be demolished and rebuilt; there are no breaks in construction between the fourth and fifth (from west) bays of the nave; the squeezing of the nave western bays was an essential product of the sacred geometry of the first plan. (c) The first plan envisaged a single-aisled ambulatory with deep radiating chapels (like Reims) and was changed to the present double-aisled ambulatory only in 1200. (d) There was no permanently resident architect in overall charge; each campaign of construction was the responsibility of a 'contractor' who directed a large gang of masons. (e) Each contractor and crew can be recognized by the geometry they use and by such details as stone sizes ('holographs') and moulding profiles. (f) There were nine contractors working in twenty-nine campaigns between 1194 and 1224. Each campaign lasted a year, after which the contractor and his whole team would leave the site, to be replaced the following year by a new contractor and gang. (g) Continuity of design was enforced by the clergy, and by each contractor following the general plan of his predecessors.

By a hyper-minute analysis of the fabric of the cathedral James attempted to isolate the contributions of each contractor, and set them in a year-by-year chronology. If he is right, then we can follow the progress of the cathedral's construction with hitherto unprecedented precision. Most scholarly opinion, however, doubts whether such precision will ever be possible, and James's contractors theory has not gained wide support.

Van der Meulen and James are critical of each other's conclusions: see James (1979, 1981) passim, and van der Meulen (1984a) and (1989) 646, 671–2. No study of Chartres has fully resolved the differences, though see the dendrochronological evidence published by Prache (1990). For discerning reviews of James's work see Shelby (1981) and Murray (1979) (1981). Kimpel and Suckale (1985) 244–54, have grave doubts on the subject of James's method, but accept his 'horizontal' theory of construction, suggesting a slight priority of nave over choir, without attributing the choir to a different architect. They date the west rose to the 1210s, the south to 'not before 1225' and the north to '*c.*1240'.

In 1990 dendrochronological analysis of the remains of the tie bars in the nave and choir aisles, as well as the latest dating of the choir clerestorey glass, and a re-dating of Guillaume le Breton's description of the vaults not to 1221 but to 1214–17, has confirmed the rapidity of Chartres's construction, and the slight priority of nave over choir. All this evidence suggests, according to Prache (1990), that the choir survived the fire of 1194 and was in working order from 1195 to at least 1202; that the nave aisles were up by *c.*1200 and the choir aisles by *c.*1210, that the high vaults (in choir? in nave? in both?) were constructed by 1215, and some of the clerestorey glass was in place before the departure of the second crusade against the Albigensians in 1218. The occupation of the choir on 1st January 1221 undoubtedly signals the structural completion of the east end. The donors of the choir's glass suggest a glazing from between 1215 to *c.*1235. Manhes-Deremble (1993) 9–15, provides a clear and up-to-date summary of the dating problems, especially in relation to the glass.

6A. Still the fundamental study of Bourges Cathedral is Branner (1962) and (1989) (English translation), though see also Ribault (1995). Branner's chronology is as follows, with the building proceeding from east to west:

1) **First campaign**, beginning in 1195 and finishing in 1214: the entire chevet and choir (first two double bays). It can be broken down into three overlapping phases: (a) 1195–1205, crypt, chevet and first straight bay up to the level of just below vaults of inner aisle (all built beyond the Roman wall); (b) 1202–8, rest of choir (inside the line of the old ramparts) up to level of inner aisle vaults. In 1209 Bishop Guillaume held prayers in the uncompleted choir. (c) *c.*1205/8–1214, a second (?) architect completed vaults of inner aisles, built upper triforium and clerestorey (to a different, enlarged, design to the first master's) and inserted the high vaults. Mention of the ambulatory, *in circuito chori*, in 1214. Ribault (1995) 65, on the basis of dendrochronological analysis of the crypt vaults, dates the entrance bays of the crypt to 1206.

2) **Second campaign** *c.*1225–55, divided into the following phases: (a) exterior aisles of nave (*c.*1225–35); (b) beginning of work on façade (*c.*1228–30); (c) inner aisles under construction (*c.*1235); (d) start of work on central nave vessel (*c.*1245); (e) most of façade complete by 1255. In a forthcoming article, 'Bourges after Branner', Peter Kidson has questioned some of Branner's long-standing conclusions. The late Romanesque details of the Ste Solange chapel, opening off the outer southern aisle one bay west of the chord of the apse, and occupying a position immediately to the east of the old Gallo-Roman wall, suggest that work was going on beyond the Roman wall sometime before Branner's date of 1195, and probably just before 1172, when all building work turned to the construction of a new town wall. In 1181 Philip Augustus permitted building beyond the old wall, and the details of the new crypt accord with a date in the 1180s as much as the 1190s. Dr Alexandra Kennedy has noted their similarities with those in the choir of Vézelay (geographically the nearest example of modern Ile-de-France Gothic), nearing completion in the 1180s. The huge size of the piers forming the inner hub of the crypt suggest to Kidson that at that stage (1180s) a different elevation was envisaged for the upper church, one with coupled hemicycle columns as in Sens or Arras. Branner's date for the beginning of the crypt and the choir, 1195, is based on a donation of £500 to the chapter by Archbishop Henri de Sully, and the mention of the church 'in much need of repair'. *Reparatio* ('acquire anew', 'recover', 'restore') could,

however, just as well refer to construction on the already-begun cathedral as to the 'repair' of the old. The point is important, since if the conception of Bourges as we know it pre-dates 1194, indeed can be dated to the 1180s, then it can claim (with Soissons, see below) to precede Chartres as the first of the High Gothic cathedrals.

6B. Peter Kidson has for some time argued that the chapels are an integral part of the chevet design. See Kidson, forthcoming, 'Bourges after Branner'. His views have been confirmed by Kimpel and Suckale (1985) 295–6, who suggest, along with Bruzelius (1987) 543, note 21, that such small chapels may also have been found in the original chevet of Notre-Dame in Paris.

7. One must work on the basis of the reconstructed cross-section given in Marcel Aubert, *Notre-Dame de Paris* (Paris, 1909) 98. See now the plans and sections in Branner (1962) and (1989).

7A. Branner (1989) 43–8, and fig. 50, argued that the present abutment system resulted from a change of plan. Originally, the clerestorey was to be lower, and supported by only one flyer. Its raising towards the end of the first campaign by a second architect (*c.*1205?), who used larger triplet plate tracery windows, necessitated the inner double battery, one for the high vaults, one for the roof. The first solution would bring it into line with the possible double-battery arrangement for the outer uprights of the nave of Notre-Dame in Paris, see above, Chapter 2, Note 37A.

7B. Branner (1962) 156–63, and (1989) 163–71, claimed that the architect of the choir had trained in the Aisne valley, and was also inspired by a number of early Gothic buildings in Picardy and north-eastern France. Branner underplayed the Parisian pedigree of his work. But in both its ground plan and the details of its elevation the obvious debts to Notre-Dame, Larchant and other Parisian buildings, as well as to the transeptless Sens cathedral, have been restated by Kimpel and Suckale (1985) 294–305. The dependence of Bourges on Cluny III (its five aisles of staggered heights with clerestories lighting the intermediate aisles) was clearly underlined by Héliot (1965a) 143–70, who plotted the 'Bourges family' of great churches in Europe. Branner (1966) pointed to the Burgundian Romanesque sources (especially Clairvaux III) for intermediate aisles with clerestories. A penetrating analysis of the spatial and rhythmic characteristics of Bourges is given by Bony (1983) 202–20.

The sophisticated engineering skills of the choir architect are highlighted by Wolfe and Mark (1974). Feraude and Mignercy (1996) have shown just how extensively iron reinforcements were used to stabilize the structure: transverse iron ties above the vaults of the upper aisles binding the high triforium to the walls of the intermediate aisles; iron chains running longitudinally at the base of the triforium, in all parts of the building up to the end of the first major campaign in 1219; longitudinal ties set within walls, and ties running longitudinally at capital level in the high triforium walls.

The influence of Bourges on cathedral architecture of the thirteenth century is discussed – largely in terms of its spatial character and stepped elevation – by Héliot (1965a) passim; Branner (1962) 170–87, and (1989) 177–205. However Michler (1980) laid much emphasis on Bourges's pier forms. Their cylindrical inner surfaces continue through the elevation high wall to the vaults – what Wilson (1990) 108, called its 'split piers'. Michler sees them as the key to understanding Bourges's profound influence on thirteenth-century architecture outside mainstream 'cathedral' building, in northern France, Burgundy, Italy and Germany.

7C. The reasons for the demolition are discussed by King and Clark (1983), 48–51; and Clark (1987) 61–3.

7D. Clark (1987) 61–3, discerns similarities between the western parts of the nave and the new choir, without attributing the choir to the west front architect. For the sources of the flat east end see Héliot (1972). James (1989) 85 note 6, and (1992) 278, note 64 (and with Clark's agreement) doubts that the donation of the quarry at Chermizy in 1205 marks the start of the work on the choir. He sees the choir as contemporary with work at the west end.

8. All the details can be found in Marcel Aubert's study in *C.A.*, LXXXIX (1927). The cathedral was damaged to a considerable extent in the Second World War.

See now Grant (1987) 126ff, and (1993), who established the following chronology:

1) **Traces of a *c.*1180 campaign**, including the north and south portals of the west front, and an interior plinth along the west wall and north wall of the west bay of the nave aisle.

2) **Nave construction** begins after the fire of 1200, and goes from west to east (north slightly in advance of south) in two campaigns: (a) present design of nave established; (b) slight changes in 5th bay from west. 1206 Jean d'Andeli is mentioned as master of works; 1214 Ingelran, 'master of the works' called to Bec; 1233 a charter names Durandus as master mason, and since the boss of the easternmost high vault in the nave is signed with his name these vaults, and therefore the whole campaign, must be nearing completion in the early 1230s. The present design, based largely on details from Notre-Dame in Paris and Bourges, was established from the start, including the floorless tribunes which were never meant to be true galleries. The projecting shaft clusters forming catwalks on the aisle side, which caught Frankl's attention, Grant related to the swelling piers of Bourges.

3) **The choir** was not begun in 1214, the date usually given, but probably in the early 1220s, and was most likely complete for the consecration of Peter of Colmieu as archbishop in the cathedral in 1237. Its inner elevation derives from the Aisne valley, its aisles and chapels from Lower Normandy. See also Baylé in: Baylé, dir. (1997) vol. 2, 185–91. Roth (1988) still adhered to the idea that phase 2 intended originally to have real tribunes. He reconstructs the changes to the design of the original clerestorey through three phases of construction.

9. *C.A.*, LXXVIII (1912), 318. This church was also badly damaged.

9A. Barnes (1963) dated the beginning of High Gothic Soissons to *c.*1197/8. See also Barnes (1969) and Ancien (1984). However, Héliot (1967) 288 and 305, note 50, suggested that the High Gothic design at Soissons might have been conceived independently of Chartres, and perhaps even before it. Since then there has been a groundswell of opinion in favour of the priority of Soissons over Chartres in the creation of the 'classic' High Gothic elevation, that is, a three-storey elevation with a triforium separating an arcade from a tall clerestorey which comes well below the vault springers. See Kurmann (1971) 45, Pestell (1981), Klein (1984) 203ff, and (1986). The problem stemmed from having no firm date for the beginning of the new choir, only its completion in 1212. Both Bony (1983) 227, and Kimpel and Suckale (1985) 261–6, and 542, adhered to the post-Chartres dating, the latter suggesting a beginning for the choir in *c.*1200/5, and a completion (including the eastern bays of the nave) by 1212. Schöller's (1980) analysis of the architectural drawing of a rose window in the south transept, intended probably for some original (but abandoned) west façade, confirms the very close contacts with Chartres, but not their direction. James's (1989) 119–41, detailed analysis of the masonry of the choir and its junction with the south transept has vindicated some of Klein's conclusions, and the 'early' dating of High Gothic Soissons. James confirmed Klein's suggestion that work began in the crossing and moved eastwards. He found that the entrance arch into the south choir aisle, and some of the masonry of the back wall of the triforium above it, belongs to the construction of the south transept, and can therefore be dated to before 1190, the date for the establishment of an altar in the chapel of St James in the transept's gallery. But this choir entrance arch, and its triforium above, belongs to the High Gothic choir, so at this stage (*c.*1190) the arcade and triforium heights for the High Gothic cathedral had been established. But for James it was not clear what kind of clerestorey was, at that moment, intended for the choir. James suggested a short clerestorey in the manner of Longpont ('Plan B'). But this would have produced a leggy, bottom-heavy elevation. It is more likely that a taller clerestorey, like the present one, was intended already at this stage (*c.*1190) to balance the tall arcades (themselves the result of having to create side aisles that corresponded in height to both the arcade and tribune stories of the south transept). It seems, therefore, that by *c.*1190 Soissons had already evolved the main ingredients of the 'classic' High Gothic elevation.

Sandron (1998) 43–44, 63–144, has confirmed some of James's conclusions, notably the simultaneous construction of the upper parts of the south transept and the High Gothic crossing piers and adjoining aisle bays of the nave and choir on the south side. This has, in effect, established the High Gothic system at Soissons by *c.*1190.

1) *c.*1176–*c.*1190. Construction of turning bays of south transept and St James chapel up to tribune height. Intention of extending its four-storey elevation northwards into what are now the adjoining south aisle bays of nave and choir, to join up with a choir, already existing or planned.

2) *c.*1190/2–1212, under a new (?) architect. Decision to renounce a four-storey elevation in the rest of the church and go over to the present three-storey High Gothic system. Beginning of the crossing piers, and the two adjacent bays of the nave and choir aisles on the south side, towards the transept. Beginning of outer wall of south choir aisle, from west to east. The details of these bays, and the crossing piers themselves, are closer to the south transept than to those of the main choir and nave. Buttressing of western wall of south transept constructed at same time as adjoining aisle wall of nave. Transfer of tomb of Josselin de Vierzy in 1192 from east end of nave to Longpont may relate to building in the eastern bay of the nave. Donation by Dean Guillaume some time before his death in 1193 for the 'corona' (apse? candle-wheel?) of the choir. When the crossing piers had reached a certain height the straight bay of the south transept was constructed to join them to the transept's earlier hemicycle. Vaulting of whole of south transept. Intention to have a lantern tower over the crossing. Sandron rejects James's 'Plan B' in favour of a tall clerestorey planned from the outset of campaign 2 (note the provision of heavy buttressing from the start), but suggests that the earliest windows of the clerestorey, the lancets in the westernmost choir bay, adjoining the crossing, may reflect a simpler preliminary design, abandoned in favour of the present doublet tracery. Work seems to have proceeded from the crossing eastwards and westwards (bases and capitals of the first piers east of the crossing piers different from those further east). Canons enter the choir in 1212.

3) 1212–40. Completion of nave and west façade.

Sandron's conclusions have confirmed that the reconstruction of the choir of Soissons was begun before the opening of the workshop at Chartres in 1194, but he is reluctant to reverse the traditional thesis and argue that Soissons was the principal source for Chartres. Both workshops are contemporary. Instead (pp. 214–15) he refers to the neat description of the relations between Soissons and Chartres Cathedrals by Klein (1986) 465: 'Soissons normalized the vocabulary of late twelfth-century architecture in the Laonnois and Soissonais, Chartres monumentalized it.'

10. The transition lies in the chamfer of the ledge at the base-line. The transition is achieved geometrically by letting a straight line slide along the part of the circle below and the straight horizontal above.

10A. Because the bosses of the chapels correspond exactly to the line of division between chapel and ambulatory, Sandron (1998) 168–9 stresses more the divisive qualities of the vault. The 'ambulatory' part of the vault consists of a series of triangular bays reminiscent of the 'W' vaults in the ambulatory of Notre-Dame in Paris.

10B. For the north transept see Sandron (1998) 85–6, 131–40, 174–5. He finds enough evidence beneath the present north transept roofs to suggest that the original transept was very similar to the south, and had a four-storey elevation with tribunes. It may have been begun a little earlier than its southern counterpart. He dismisses Barnes's (1969) argument that it originally formed a stylistic intermediary between the south transept and the High Gothic choir. The present transept he dates to the 1240s, apart from its north gable wall and its adjacent eastern porch, which belong to the last quarter of the thirteenth century. Its conservative retention of the parti of the choir can be paralleled in the earlier choir of Laon (*c.*1200?) and the later naves of Reims and Saint-Denis.

10C. The south tower was not finished until the early fourteenth century. See Sandron (1998) 113–31, 180–8, for the façade, its chronology and stylistic position.

10D. The literature on Reims is enormous. For a balanced assessment of the state of research up to the mid-1960s see Salet (1967). The historical events surrounding the construction are described by Branner (1961) and Abou-el-Haj (1988). A broader historical perspective is provided in the authoritative study of Desportes (1979). Kunst (1981) and Kunst and Schenkluhn (1987) interpret its design in terms of politically motivated 'quotations' (*Zitaten*) from earlier buildings. All scholarship will have to be reassessed in the light of the monumental monograph by Hamann-Mac Lean and Schüssler Part I, vols 1–3 (1993) (on the architecture) and Part 2, vols 4–8 (1996) (on the sculpture).

11. Louis Demaison, *La cathédrale de Reims* (*P.M.*) (Paris, n.d.) 29. The figures of the four architects of Reims, and the inscriptions giving their names, appeared in the labyrinth set into the nave pavement. But descriptions of the labyrinth before its destruction in 1778 are not reliable. The best summing up of the evidence is provided by Salet (1967) 348–62. The first serious studies of the labyrinth came from Demaison (1894) and (1898). His sequence – Jean d'Orbais, Jean le Loup, Gaucher of Reims and Bernard of Soissons – although challenged, established a broad consensus, and was followed by Branner (1961a) and (1962a); Reinhardt (1963) 75–82; and Ravaux (1979) (who adds a further six, anonymous, architects). But Hamann-Mac Lean and Schüssler (1993) vol. 1, 343–62, convincingly suggest the following sequence: Gaucher of Reims, Jean le Loup, Jean d'Orbais, Bernard of Soissons.

12. A plan can be found in Lasteyrie, *op. cit.*, 1, 210, and a view of the interior in the same work, 1, 80. Orbais lies to the south-west of Reims, or rather of Epernay.

See now Villes (1977), who puts forward the following campaign sequence.
1) *c.*1165–80 (the latter the year of a relic translation and an altar consecration): hemicycle columns and walls and vaults of the five radiating chapels. Intention to have a four-storey elevation. Plan anticipates the very similar plan of Saint-Remi at Reims.
2) *c.*1200: straight bay of choir and transept chapels. Vaulting of ambulatory and transept chapels and aisles, and high vaults of choir. Influences from choir of Saint-Remi at Reims (notably the clerestorey–triforium linkage). The moulding and capital details of the transept, and the three-storey elevation of the choir, with its doublet plate tracery in the clerestorey, registers the influence of the choir of Soissons Cathedral.
3) *c.*1210: transept walls, change in fenestration of clerestorey west walls.
4) *c.*1220: vaulting of transept and existing bays of nave completed and vaulted.

Salet (1967) 358–9, disclaimed any connexion between Orbais and Reims Cathedral. However, Reinhardt (1963) 109–11, and Hamann-Mac Lean and Schüssler (1993) vol. 1, 358ff, favour an attribution of the early thirteenth-century parts of Orbais to Jean d'Orbais. Villes (1977) 574, 586, 589, rejects any such attribution, but considers the bar tracery windows in the clerestorey of the easternmost nave bays at Orbais to pre-date those in the radiating chapels at Reims. If so, this would make the architect of Orbais the inventor of this type of bar tracery (though it had been used in rose windows, see Laon).

13. Lester Burbank Bridaham, *Gargoyles, Chimes and the Grotesque in French Gothic Sculpture* (New York, 1930), contains a wide selection of good illustrations of gargoyles. For developments in drainage, including the gargoyle system, in Gothic great churches see Lippert (1994).

13A. A neat summary of scholarship up to 1967 on the chronology and sequence of construction of Reims is given by Salet (1967). The most recent accounts can be found in Ravaux (1979), Kurmann (1987), and – most exhaustively – in Hamann-Mac Lean and Schüssler, Part 1, vols 1–3 (1993). Ravaux suggests the following sequence:
1) 6 May 1211 foundation stone laid. Work proceeded from east to west.
2) By 1221 radiating chapels, ambulatory, choir aisles, eastern and terminal transept walls; apse up to triforium height.
3) 1221–*c.*1231: west walls of the transepts, aisle walls of the nave down to sixth bay from the crossing, insertion of two portals into the already-built lower storey of north transept façade.
4) *c.*1231–*c.*1239 (with interruption 1233–6 due to insurrection of town against archbishop and chapter): triforium and clerestorey of straight bays of choir and transepts, transept roses.
5) 1240–1: vaulting of all these areas at greater height than originally intended; consequent changes in design of flyers and levels above radiating chapels and choir aisles (original design preserved in Villard de Honnecourt's drawing of the exterior abutment). 7 September 1241 Chapter enter new choir.
6) 1242–*c.*1252: demolition of old nave, and construction of piers and elevation of six eastern nave bays and vaulting of five of them.
7) *c.*1252–75: laying out of four western nave bays and construction of west façade. Completion of nave vaulting.

Within this outline Ravaux distinguished no less than twelve campaigns, each lasting on average four to five years, and under the direction of six (!) not four, architects.

Kimpel and Suckale (1985) 228–9, accepted Ravaux's general sequence but not his dating. For them, the sanctuary and transepts were completed by the 1233 uprising, and the three eastern nave bays (the liturgical choir) were finished by 1241.

Kurmann (1987) 62–159, proposed the following sequence:
1) 1211–*c.*1220: lower stories of chevet, sanctuary and south transept up to the level of the high vault springers, with the lower storey of the north transept lagging a little behind and not reaching springing level. The twelfth-century façade of Archbishop Samson kept and decorated with six prophet statues, now in south portal of west front, but originally spread across the façade in the manner of the statues on the west front of Saint-Remi at Reims.
2) *c.*1220–8: lower storey of the six eastern bays of the nave up to the clear break in construction between bays six and seven (counting from east).
3) *c.*1230–41: construction of upper parts of eastern nave bays, including its high vaults and a new system of flyers (different from that envisaged in the Villard drawing). In the late 1230s the initial designs for the interior of the west façade incised in the triforium of the south transept. These could have involved – for the central portal – a 'low' arch with a stone tympanum, and with or without a gable, or a 'high' arch, with or without a gable, and with the present system of a rose window in a glazed tympanum. At the same time a project was drawn up for the exterior west façade ('Reims I') based either on Notre-Dame in Paris, Noyon, or Laon. The canons moved into their completed liturgical choir, which occupied the three eastern nave bays, in 1241.
4) 1240s: high parts of transepts and of sanctuary, vaulting of sanctuary and its system of external abutment taken from the 'new' flyer design of the eastern bays of the nave. The balustrade above the chevet chapels implies a knowledge of the new choir of Saint-Denis, and must post-date 1231. Construction of transept towers.
5) *c.*1250: completion of transept façades, roses, and vaults.
6) *c.*1255–*c.*1261: the construction, according to the project 'Reims I', of the lower sections of the actual west façade, with the present lateral and corner buttresses, to a height of three to four metres.)
7) *c.*1261 onwards: change from 'Reims I' to the present façade ('Reims II').
8) 1274/5: the whole lower storey of west façade and of western bays of nave (bays 7–10). In central section of interior west façade the wide arch orders concentrically framing the tympanum, which had been envisaged in the triforium drawings, were replaced by a vertical grid of statued niches, acting as the visual continuation of those framing the door.
9) *c.*1275–99 completion of western rose and the rest of the facade; vaulting and roofing of western bays of nave.

In a monumental study of Reims, Hamann-Mac Lean (with Ise Schüssler) Part I, vols 1–3 (1993), has reasserted his belief in the starting point of the cathedral in the eastern bays of the nave – see Hamann-Mac Lean (1965). He has argued strongly against Ravaux's late dating of the west façade, and has isolated four main phases of construction, corresponding to periods of the four main architects (see above, Note 11).
1) Reims I (1211–18, Gaucher of Reims): arcade storey (up to triforium sill) of five eastern bays of nave, transepts and eastern limb, including completion of most of the chevet chapels (with south side proceeding north). Vaulting

of north aisle of eastern nave. Transept façades to resemble Soissons (west façade) and Laon choir façade. Exterior abutment system resembling Villard de Honnecourt's drawing of the Reims flyers. West front begun, with two (largely unexecuted) designs for the portals in this phase: 'Reims Ia', with portals like the north transept and Soissons Cathedral (west), with narrower west towers than the present ones, and a Coronation portal in the centre and a Last Judgement portal on the north side. 'Reims Ib' inserts gables over the portals, increases the number of figures in the side portals from three to six in each jamb, and in the central from five to six, and makes all the figures equal in size. Last Judgment portal moved to intended position in centre of north transept and replaced by an intended saints' portal. Right portal may have envisaged a Life of the Virgin. Lower level of lateral buttresses of north-western tower constructed.

2) **Reims II** (1219–34, Jean le Loup): chevet chapels finished and ambulatory vaulted. Adjustments made to the spacing of the apse pillars. Critical decision, probably made before 1223, of changing to the present exterior buttress system, and running a gallery of kings round the transept façades at rose level. This involved widening the transept towers, and realigning the axes of their buttresses to the outer edges of the transept façades. Displacement of Last Judgement portal from central to left side portal of north transept and substitution of the larger saints' portal from the west front. To fit this already-carved sculpture into the transept meant cutting back the east buttress of the Porte Romane. Transept roses and their sculpture cut, but not necessarily mounted. Windows in inner bays of western aisles of transepts moved outwards. Choir clerestorey up to vault springers. From bottom of triforium upwards work proceeds inside from the apse westwards, and from the crossing area to the transept ends. New (later) type of boss in eastern bays of south nave aisle.

Decision to widen the west towers, and construction of lateral buttresses of south western tower. Drawings of west façade inner wall in south transept triforium. Central portal reduces its jamb figures from six to five, with an additional figure placed on the front face of each buttress. Plan to glaze the central tympanum, but decorate the side ones with the sculpture which is now dispersed across the faces of the outer buttresses, which originally were to be decorated with blind tracery. Then the decision to stilt the portals higher, causing the insertion of extra rows of figures in the side portals. Change of design for the central panel of the interior of the west façade. Rejection of original plan to have, as on the back wall of the side portals, curved archivolts round central arch, and creation of the present system of vertically ordered niches. Some sculpture of these niches therefore belongs to the 1230s (!).

3) **Reims III** (1236–?1251, Jean d'Orbais): Actual construction of the flyers. Vaulting of choir, transepts, and eastern nave bays. Vaults higher than intended in Reims II, therefore transept roses have pointed, not round, framing arches. West façade acquires present shape at portal level. Glazing of side portals' tympana. Completion of pillars of western bays of nave. Naturalistic leaf carving throughout. Choir clerestorey finished by 1240; new choir entered in 1241.

4) **Reims IV** (*c.*1252–*c.*1287, Bernard of Soissons): West façade from triforium zone to string course above rose, and flanking western towers. Vaulting of last five nave bays. Increase in height of buttress tabernacles.

14. Illustrated in Paul Vitry, *La cathédrale de Reims I* (Paris, 1917) 12 Reims was restored, first by Viollet-le-Duc, and later by Millet and Ruprich-Robert; cf. Demaison, *op. cit.*, 62. The same work also contains a discussion of earlier restorations (p. 51ff.). Hamann-Mac Lean and Schüssler (1993) part 1, vols 2 and 3, reproduce a good selection of early photographs.

15. Villard de Honnecourt's sketch book contains a low ring of battlements for an east chapel. It is not known whether this design was ever put into execution, since Villard may have copied it from a drawing in the lodge of Reims. Cf. Hahnloser (1972) plates 61 and 62.

Villard's crenellations, which he called 'crétiaus', may be his mistaken interpretation of the small slab-like projections that run along the tops of the chevet chapels and their buttresses and continue into the transept façades. Deneux (1946) thought they were intended to support an aborted balustrade, but Mac Lean and Schüssler (1993) part 1, vol. 1, 80–3, suggest they were stepping stones across the dangerously sloping surfaces of the wall heads. When Villard de Honnecourt visited Reims, how much of the building he saw completed, and what project drawings, if any, he was privy to, are questions that may never be definitively answered. Hahnloser (1972) 226–30, dated Villard's Reims drawings to the early 1230s; Bucher (1979) 64–5, to '*c.*1228'. Branner (1963b) 135–8, argues against the existence of any project drawings at Reims at the time of Villard's visit. Reasonable doubts have been cast on Villard's status as an architect by Kidson (1981) and Barnes (1982) (1989).

15A. Apart from the nineteenth-century crenellations, the upper balustrade was not radically different in the 1850s than its appearance today. See Hamann-Mac Lean and Schüssler (1993) part 1, vol. 3, plate 40. The dating of this balustrade is discussed in Ravaux (1979) 39.

15B. For good general discussions of the Reims sculpture see Sauerländer (1972) 474–88, and Williamson (1995) 59–65, 156–60. The most authoritative treatments of the west façade and its sculpture, though arriving at radically different conclusions, are to be found in Kurmann (1987) and Hamann-Mac Lean and Schüssler (1993) part 1, vol. 1, and part 2, vols 4–8.

15C. Herschman (1981) argues for a more direct influence of Cluny III than of Bourges on the cramped, emphatically divided spaces of the Le Mans chevet. For its position in relation to Bourges see also Branner (1989) 183–89; and Branner (1966).

16. Gabriel Fleury, *La cathédrale du Mans (P.M.)* (Paris, n.d., but before 1913) 50ff.

16A. The building history is analyzed in some detail by Salet (1961), and Mussat (1963) 121–9, who argues, unconvincingly, that the first architect planned a three-storey elevation like Chartres, with double side aisles of equal height. More recently Grant (1987) 238, has established the following chronology:

1) **Begun 1217–20** by a Chartres/Soissons-trained architect who constructed the radiating chapels and probably intended a Bourges-type stepped elevation.

2) A **second architect**, the master of Bayeux Cathedral choir, working in the 1220s and 1230s with sculptors from La Merveille at Mont-Saint-Michel, designs and constructs the inner, taller ambulatory and Bourges-type choir piers.

3) **Clerestorey completed** *c.*1245–54 (date of consecration), in the latest Parisian Rayonnant style, by a third architect. Bouttier (1983) and (1987) 368ff and 380, attributes the clerestorey to Jean de Chelles, on no very good grounds.

17. A seventeenth-century illustration is contained in Fleury, II. The best aesthetic analysis of the exterior is by Bony (1983) 262–4.

17A. In many respects Durand's monograph on Amiens (1901–03) is still unsuperseded, though the cathedral's stylistic position in High Gothic and Rayonnant architecture, and its sequences of construction, have been the subject of more recent research from Branner (1965) 124–8 and 138–40, and Erlande-Brandenburg (1977), the latter proposing an unconvincing argument for changes in the design of the west front, for a 'break' between the front and the western bay of the nave, and for a change in the design of the present nave elevation at the height of the triforium string course. The most detailed research on the fabric of the building and its history has come from Kimpel (1977) (an analysis of its stone cutting techniques), Kimpel and Suckale (1973) and (1985) 11–64, 503, Murray (1990), Murray and Addiss (1990), and – most fully – Murray (1996). Kimpel and Suckale isolate three broad phases of construction:

1) 1218–*c.*1233/6. Destruction of the old cathedral in 1218; 1220 foundation of new; 1222 completion of foundations. Façade, nave and western aisles of the transept, working from west to east. Side aisles of nave with priority of south side over north. Complete (apart perhaps from parts of the clerestorey) by *c.*1230/3, certainly by 1236. Of the three architects named in the maze set in the nave floor in 1288, Robert de Luzarches, the first, was responsible for this phase, and his plans determined the unity of the whole building.

2) *c.*1230/33–*c.*1240. In 1233 chapel endowed in east aisle of south transept. Central and eastern aisles of transept with their portals, choir aisles, ambulatory and radiating chapels (also completion of nave clerestorey, work going from west to east, with priority on south side. Radiating chapels complete by 1241 since they serve as model for the Sainte-Chapelle. By *c.*1240 progress on building was slowing down. Durand (1901, 1903) and Branner (1965) assumed most of the work of this phase to be by Thomas de Cormont, Branner arguing that he constructed the lower parts of the transepts and choir aisles according to Robert de Luzarches's designs, but built the markedly different radiating chapels to his own. When he left Amiens *c.*1240 to take up his position in Paris as the architect of the Sainte-Chapelle he was replaced by his son, Regnault de Cormont, who remained head of the lodge for at least forty-eight years (he is mentioned in 1288). Kimpel and Suckale (1985), however, attribute all this work – and therefore also the Sainte-Chapelle – to Robert de Luzarches. By 1243 bells are hanging in the south-west tower.

3) *c.*1245 (certainly before 1258, when a fire damaged the walls and the choir aisle roofs just above the completed ambulatory and the chevet chapels) – 1269. Upper parts of transepts (clerestorey on west side and clerestorey and triforium on east sides), and triforium and clerestorey of choir and sanctuary, beginning with outer bays of transept triforia (east side) and triforium of apse, and working simultaneously west and east. Kimpel and Suckale attribute the early part of this phase to Thomas de Cormont, who (they contend) executed the triforia of the two outermost bays of transepts and of apse. In *c.*1250 he is replaced by Regnault who completes the rest of the transepts and choir by 1269.

Murray and Addiss (1990), and Murray (1996) 39–43, analyse the geometrical layout of the plan, establishing that it was generated mathematically from the crossing, and was set out in a single operation from the west façade to the base line of the radiating chapels. This is confirmed by Murray's examination of the fabric (1990) and (1996) 44–74:

1) He dismisses the 1236 charter concerning the removal of the parish church of Saint-Firmin as irrelevant to a chronology of the construction. He sees no breaks between the nave and the west façade. He argues from the uniformity of the entire lower wall of the cathedral beneath the aisle windows that

it was laid out in the 1220s from the west end of the nave to the base of the hemicycle, starting at the crossing and working simultaneously westwards and eastwards, with priority given to the south over the north side and the nave over the choir. This would explain the stylistically 'later' features of both the choir and the west façade. The lower parts of the south transept belong to the 1220s and not the 1230s. All this – including probably the shape of the nave pillars – is the work, or to the design, of Robert de Luzarches. His stylistic antecedents are not in the Parisis, nor simply in the 'classic' cathedrals of Chartres and Reims, but in Picardy and the Soissonais (particularly the abbey of Longpont and the cathedrals of Laon and Soissons).

2) In the 1230s a second phase of construction is initiated by Thomas de Cormont who completed the nave clerestorey, constructed the choir aisle vaults and windows, and the ambulatory and hemicycle chapels. The west front belongs to this phase, but is perhaps the work of a different group of masons.

3) This phase lasts from the mid- to later 1240s to some time before 1269, interrupted by the fire of 1258. Regnault de Cormont builds the upper transept and choir, introducing the glazed triforium and the openwork flyers. The present triforium tracery in the choir straight bays belongs not to his original design, but was installed under him after the fire.

Prache's (1996) publication of recent dendrochronological findings, and her arguments based on them, put a different (but inconclusive) gloss on these chronologies. The remains of the tie bar timbers just above the capitals in the nave aisles (1217–34) and transept aisles (1217–1241) are consistent with the established dates for their vaulting, but the choir aisles yield timbers as late as 1241–54, and the high roofs date from as late as the very end of the thirteenth century: 1284–5 (apse and choir), 1293–8 (transept arms), 1300–5 (nave). Prache, supporting her conclusions on Erlande-Brandenburg's (1977) contention that the west front and the nave vaults were heightened in the course of construction, argues that the vaults of the choir and nave are higher than originally intended, and that in their final present form they were built after the roofs, therefore in the last years of the thirteenth century. Her interpretation poses problems. There is no evidence of a heightening in the high vaults' *tas-de-charge*, as in Reims, or of a raising of the exterior buttressing, as in Beauvais – the two cathedrals she cites as precedents for such a heightening. Such late vaulting in the choir would, she admits, involve the cumbersome dismantling and re-erection of the clerestorey stained glass, but why was an apse window given in 1269, and why were the relics of Saint-Firmin translated into a new shrine in 1278 if the vaults and roofs of the choir were still to be constructed around these fragile and precious additions? And for a cathedral of Amiens' status to remain without any high vaults for up to half a century after the construction of its high walls is inconsistent with the vaulting history of every other High Gothic great church of the thirteenth century. Moreover, Erlande-Brandenburg's analysis of the 'changes' to nave and west front have been largely discredited by Murray (1996) especially 91–6. In any case, Murray (1996) 177–8, casts doubt on the dating accuracy of the dendrochronological analysis, though he admits that the nave roof was replaced *c.*1300.

17B. The plan of the hemicycle, with seven chapels and a centre pushed to the east of the last transverse arch, does not derive from Reims, but from the Cistercian churches of Longpont and Royaumont, and perhaps also from their offshoot, the exactly contemporary hemicycle of Beauvais Cathedral, begun in the late 1230s. See Murray (1980) 538–40, and note 62 p. 550; (1989) 102–3; and (1990) 121–2.

17C. For the chronology and sequence of construction, and attributions to the three architects, see above, Note 17A.

18. Reconstructed in George Durand, *Monographie de l'église Notre-Dame, Cathédrale d'Amiens* (Paris, 1901–3) plate 5. This work includes an exhaustive treatment of all the details.

18A. A perceptive analysis of the historical factors, Godly and less than Godly, at work on the design and construction of Amiens is given by Kimpel and Suckale (1985) 11–64; and (especially the un-Godly) by Kraus (1979) 40–59. See also the lucid account by Murray (1996) 17–27, of the institutional interests served by the cathedral.

19. Durand, *op. cit.*, 221 and fig. 33 in the text. For a structural analysis of Amiens see Mark (1982) 50–7; and Mark and Prentke (1968) 44–8. The structural weaknesses of Amiens, for so long ignored because of the cathedral's reputation as the high point of the 'Gothic system', have been identified by Murray (1996) especially 66–77. The persistent problems created by the openwork flyers around the choir, pose questions of motive and even meaning; they certainly fly in the face of structural rationalism, and show an adventurousness that went well beyond the safe system invented in the nave – see Bork, Mark and Murray (1997).

19A. The inscription on Hugues Libergier's famous tombsone, now in Reims cathedral, says that he worked for Saint-Nicaise from 1229, but the annals of Saint-Nicaise say that Abbot Simon began work on the church in 1231. Bideault and Lautier (1977) esp. 296, think the 1229 date an error; Kimpel and Suckale (1985) 346, consider the earlier date as a contract date, the later marking the beginning of actual construction.

19B. See Branner (1962b) 47, (1965) 18–19, 23–4, 28, 30–1; Bony (1983) 381–5; and Bideault and Lautier (1977).

19C. Bideault and Lautier (1977) 297, argue that Hugues Libergier started work in the nave, and that the west façade was built sometime between 1244 and 1254. But stylistically there is nothing in the façade which must be later than 1240 – see Kimpel and Suckale (1985) 431 – and its portals seem to have influenced the north transept portals of Westminster Abbey, begun soon after 1245, see Wilson (1986) 47.

19D. Frankl's term 'classic Gothic' is confusing here, because it puts Saint-Nicaise together with High Gothic buildings such as Chartres, Reims and Amiens. In fact, it belongs to the succeeding stylistic phase known as Rayonnant. See above, Chapter 3, Note 1.

19E. Bideault and Lautier's (1977) 299–300, account of the demolition differs slightly from Frankl's.

20. Charles Givelet, *L'église et l'abbaye de Saint-Nicaise de Reims* (Reims, 1897), where the central mullion is shown as uninterrupted in the illustration opposite p. 62, but not in the perspective drawing opposite p. 60. On the details of the forms in the triforium, see M. Devreux, L'ancienne église de Saint-Nicaise de Reims', in *B.M.*, LXXXV (1926) 132.

A useful catalogue of all the drawings and documents related to Saint-Nicaise up to its destruction is given by Bideault and Lautier (1977) 317–28. The Parisian and Amienois sources for the tracery of Saint-Nicaise are considered by Branner (1965) 18–19 and note 10. Branner (1962b) fig. 15, and (1965) 31, fig. 3, first published the seventeenth-century elevation drawing (see fig. 28a).

21. The arches in the eastern transepts continue upwards in the directly opposite shape, thus forming an arched letter X. They, and other buttress reinforcements around the east transept, can be dated not, as hitherto thought, to the 1380s, but from *c.*1320, and attributed to William Joy, who went on to design the similar, but larger scissor arches at Wells (after 1338). The strainer arches in the western transepts are Perpendicular in style and are dated by most authorities to around 1420. See Morris (1996) 46–58.

21A. The Early English cathedral at Salisbury has attracted much recent attention. Blum (1991) has set out a full chronology of the church and its ancillary buildings from 1220 to 1310. She establishes the following phases for the church, working from east to west:

1) 1220–5: under Elias de Derham as overseer or *designator*, and Nicholas of Ely as *magister cementarius* (from no later than 1227). The Lady Chapel (dedicated to the Trinity), the eastern chapels, the sanctuary and flanking aisles, and just turning the corner into the southern parts of the eastern aisle of the north eastern transept, up to the south face of its south-east buttress. 28 September 1225, three altars consecrated in the eastern part of the church.

2) 1225–*c.*1247: completion of eastern transepts and crossing, liturgical choir, western transepts and crossing, cloister portal and adjoining vestibule into the north cloister walk from the south arms of the transept, inner north wall of the cloister, and at least a start made on the first bay of the nave. At the time of Bishop Robert de Bingham's death in 1246 he had, according to Matthew Paris, completed the glazing of the windows, the choir stalls, and the lead roofing of 'the front of the church', which must mean the roofs east of the crossing. Probably a change in building supervision after Elias de Derham's death in 1245.

3) 1247–58/62: building of the nave without significant interruption under Nicholas de Eboraco, *magister operis* (active *c.*1247–*c.*1260). Walls and west façade complete by 1256. Consecration on 30 September 1258; but only fully roofed by 1262 and at that date still unvaulted in westernmost (or all?) nave bays. According to fourteenth-century sources, only finally completed by 1266.

This chronology has been broadly confirmed by recent dendrochronological evidence, see Simpson (1996). He suggests that the original superstructure of the crossing probably had a timber spire or belfry on top of a low stone lantern.

The more stylistic aspects of Salisbury's design have been admirably discussed by Draper (1996) and Jansen, (1996A). Draper concentrates on the liturgical proprieties of the design, and on its deliberate rejection of Lincoln and its followers; Jansen on its relations to a new, austere 'episcopal' style appearing in southern English architecture in the early thirteenth century (Lambeth Palace, Winchester etc.). A searching analysis of the cathedral's proportional layout can be found in Kidson (1993A). The west façade, and its liturgical functions in the Sarum Use, is discussed, together with Wells's, by Blum (1986a) and Ayers (2000).

21B. The conventional date of 1334 onwards for the Salisbury steeple (associated with the contract of July of that year) has been convincingly re-dated to *c.*1310, partly on the basis of stylistic comparisons with the chapter house at Wells. See Morris (1996). Tatton-Brown (1991) and (1996) sees no break in construction or design between the tower and the spire.

21C. For the Early English work at Wells see Harvey (1982), Kowa (1990) 97–105; and Draper (1995). The nave was begun *c.*1205 perhaps by the architect Adam Lock. The interdict of 1209–13 halted work at the fourth bay (from

west), but it was complete by *c.*1230. The most authoritative account of the nave and west front is now Sampson (1998) esp. 23–60.
(a) *c.*1220–1229, under Adam Lock, the western bays of the nave and the portal zone of the west front up to the string course. Therefore Lock is the designer of the facade.
(b) 1229 (year Thomas Norreys takes over as architect) – *c.*1250. Central panel of façade up to base of great gable by *c.*1237/8. By *c.*1249/50 north and south towers brought to that height, and whole of great gable completed. The geometrical layout of the nave is discussed by Singleton (1981), and by Sampson (1998).

21D. For the thirteenth-century work at Beverley see now Hoey (1984) and Wilson (1990) 172–4 (analysis of its proportional ratios) and, particularly, Wilson (1991).

21E. For Nicholas of Ely, the possible designer of Salisbury, see Harvey (1984) 94. The problem of the relative contribution to Salisbury of Elias de Derham and Nicholas of Ely is discussed in Blum (1991) 11. Elias was probably the overseer or *designator*, and Nicholas, as he was referred to in about 1227, was the *magister cementarius*.

21F. The whole question of 'Englishness' in Early English Gothic has been thrown into oblique relief by Draper's (1995a) comparisons of the style with Rhenish Early Gothic. He tackles the question directly in Draper (2000), where he discusses the choices and developments in architectural styles in post-Conquest England and their relations to written and spoken languages. For the characteristic 'horizontal fusion' of English Gothic discussed in this section by Frankl, and its dialectic with a tendency to emphasize vertical continuity in the bay divisions, see Hoey (1986) and (1987).

21G. Branner (1963b) and (1965) 39ff, and 143–6, first convincingly attributed the new work at Saint-Denis not to Pierre de Montreuil but to the anonymous 'Saint-Denis master', a title now almost universally adopted. The actual contribution of Pierre de Montreuil to the later work at Saint-Denis continues to attract attention, and a balanced assessment of the problem can be found in Bruzelius (1985) 173–4. Bouttier (1987) unconvincingly attributes the initial design of the new choir to Jean de Chelles.

21H. Glazing of middle stories had been used for some time in transept end walls and apses, see Héliot (1968), Bruzelius (1985) 150–1, traces the practice of glazing triforia to the Oise valley in the first decade of the thirteenth century.

21I. The sequence and chronology of construction has been plotted by Bruzelius (1985) 82–137:
1) 1231–45 (reign of Abbot Eudes Clement). A continuous and rapid campaign under the Saint-Denis master. The first phase starts in the north transept and the apse and north choir wall simultaneously, with the eastern parts of the north transept in advance of the western. This phase also includes the first three bays of the 'nave' (the liturgical choir) on the north side. The second phase repeats this process on the south side, with the eastern half of the south transept in advance of the western, and first three bays of the 'nave' on south side up to top of arcade storey. At the end of this campaign the north transept and choir have high vaults, but not the south transept.
2) 1245–8(?) (though there is little or no interruption of work). Completion of south transept.
3) *c.*1252–4. Perhaps under Pierre de Montreuil. Extension of whole south aisle, and north wall of northern aisle, of nave to Suger's narthex, and construction of triforium and clerestorey of first three bays of 'nave' on south side (but monks' choir probably still not complete).
4) *c.*1258–late 1270s. Remaining arcades of north wall of nave and upper parts of all the remaining western bays on both sides.

Bouttier's (1987) 375–8, sequence broadly follows Bruzelius's, though the chronology of the phases differs.
1) 1231–57, divided into four campaigns:
(a) 1231–6. North transept with its east and west aisles. First three bays of liturgical choir on north side. All bays of the sanctuary and vaulting of its apse and first two bays. Easternmost aisles of south transept with its eastern tower.
(b) 1236–46 (the latter given as date of Abbot Eudes's departure). Completion of east aisles of south transept, and beginning of its west aisles. Arcade and beginning of triforium of three southern bays of liturgical choir. High vault of north transept. Upper parts of south transept but not its high vaults. North and south roses.
(c) 1247–*c.*1250 (under Pierre de Montreuil). High vaults of south transept and its west tower. Crossing vault, clerestorey of three south bays of liturgical choir (showing new kind of tracery), and south transept portal.
(d) *c.*1250–5. Three vaults of liturgical choir. Nave arcades and aisles back to Suger's westwork. Abolition of workshop after deposition of Abbot Mallet in 1257.
2) 1270s–1281. Completion of nave. Consecration in 1281.

21J. Panofsky (1951) 43–52, 84–8, sees these refined structural repetitions as the epitome of the scholastic habit of mind. Bouttier (1987) distinguishes two attitudes to the design of window tracery: 'crystallization' (the placing side by side of identical modular units) and 'hierarchy' (the subordination of sub-units to the whole composition). The stylistic and aesthetic rationale behind the handling of mullions and shafts in the elevation is discussed by Branner (1965) 49–50, and Bruzelius (1985) 45–7, 93–5, 99–100, 140–3.

22. The original stained glass, of which nothing appears to be known, should be imagined to have been in about the same stage of stylistic development as that in the cathedral at Reims.

22A. Only the south transept rose at Reims is thirteenth century. Ravaux (1979) 38–9 dates its execution to *c.*1238–9, but its design could be placed in his 1231–3 campaign. Mac Lean and Schüssler (1993) place the design under Jean le Loup (1219–34), though imply the execution could have taken place in the late 1230s under Jean d'Orbais. The conception of the rose must predate the late 1230s because it is copied by a Reims shop in the south transept of Notre-Dame in Cluny, begun soon after 1233, see Sauerländer (1965).

22B. See now Murray (1980) and (1989) 51–111. He has convincingly revised Branner's chronology (1962c), and identified the main campaigns:
1) 1225–32/3, under Bishop Miles of Nanteuil. The whole conception of a five-aisled choir with staggered elevations on the Bourges model first laid out, but combined with a plan for three-aisled, towered transepts in the manner of Chartres and Reims. Eastern aisles of transept strongly influenced by Notre-Dame in Paris and the nave at Amiens, and showing a preference for bulk and mural simplicity.
2) *c.*1238–*c.*1249, under Bishop Robert of Cressonsac. Eastern choir aisles and chevet, showing thin walls and linear effects, in a style close to the lower parts of the choir at Amiens and the Sainte-Chapelle.
3) *c.*1249–*c.*1272, under Bishop William of Grez. Choir triforium and clerestorey, by a third architect who was dependent on the latest Parisian Rayonnant.

22C. For the collapse see Wolfe and Mark (1976), and, most authoritatively, Murray (1989) 112–20.

22D. Durand sited it there. Erlande-Brandenburg (1977) 257, located it on or near the axis of the new cathedral. Murray (1990) note 20, p. 128, rightly interpets the term 'retro' in the 1241 charter as too ambiguous to assign Saint-Firmin's position accurately. Durand's analysis of Amiens, as two distinct campaigns, before 1236 (the nave) and after (the choir) was seriously questioned by Kimpel and Suckale (1985) and convincingly discredited by Murray (1990).

22E. Kimpel and Suckale (1985) 59ff; and also Note 17A above.

22F. A papal bull of 1244 indicates building was in progress. In 1241 Louis IX's acquisition of further Passion relics may have prompted the conception of a new chapel to house them. The handiest guide to the Sainte-Chapelle is Grodecki (1975). Still the best short account is in Branner (1965) 59, 72, 74; see also his (1971a). A useful discussion of Louis IX's patronage in relation to the Sainte-Chapelle can be found in Weiss (1995) and, more fully, in Weiss (1998), though the connexions he draws between the chapel's relic tribune and the Throne of Solomon are not convincing; nor am I persuaded that Louis's crusade had such a dominant influence on the chapel's iconography. Brenk (1995) sees the chapel's 'programme' as the depiction of the royal presence, and specifically Louis as the most Christian king, through Old Testament metaphor. He also relates the subject matter of the windows to the position of the pews of Louis and Blanche of Castille.

23. Reproduced in François Gebelin, *La Sainte-Chapelle etc.* (Paris, 1931) 13.

24. The ornaments are illustrated in Decloux and Doury, *Histoire . . . de la Sainte-Chapelle etc.* (Paris, 1857). The restorations are discussed in Grodecki (1975) 8–12. The painting of the masonry in the lower chapel was done without taking account of any of the indications of the original polychromy, which were still evident. The entire repainting of the upper chapel did, however, follow the traces of medieval paintwork. The west wall paintings were invented in 1850. For the apostles see Sauerländer (1972) 471–2, and Williamson (1995) 147–9.

25. Jacques Meurgey, *Les principaux manuscrits à peinture du Musée Condé à Chantilly* (Paris, 1930) 59 and plate 39. Illustrated in colour in Jean Porcher, *Les Très Riches Heures du Duc de Berry* (Paris, n.d.). The illuminations were begun some time before 1416.

26. There is a distant relationship with the construction in the aisles of the cathedral at Bristol (*c.*1320) and also the girder buttresses in the side aisles of S. Fortunato at Todi, begun in 1292, see White (1993) 38–41; and Gillermann (1989).

27. Drawings have proved that these windows are old, and certainly not nineteenth century in date. The term 'spherical triangle' has been in current use for many years, and it is now common knowledge that it does not refer to a triangle drawn on the surface of a sphere. See Branner (1965) 62–3, who derived the Sainte-Chapelle window from Amiens. Kimpel and Suckale (1985) 403, also see a derivation from the triangular windows inserted into the galleries of Notre-Dame in Paris in 1220–30.

27A. For the tribunes and reliquary see Branner (1971), and Weiss (1998) 53–77.

27B. The traditional attribution of the chapel to Pierre de Montreuil was

seriously questioned by Branner (1965) 61–5, who noted the very close similarities with the radiating chapels of Amiens cathedral. Although Grodecki (1975) 30, and (1977) 173, considered the question still open, many authorities have adopted Branner's (and Viollet-le-Duc's) position – e.g. Bony (1983) 388–91 – and have attributed it to the architect of the Amiens chapels: either Thomas de Cormont (for Branner), or Robert de Luzarches (for Kimpel and Suckale (1985) 400–5). See above, Note 17A. Murray (1996) 66, acknowledges the links between Amiens and the Parisian chapel, but also points out the differences between the two buildings, and does not think we are required to believe that the master mason of the Amiens chapels left to go to Paris to design the Sainte-Chapelle. Bouttier (1987) 372–3, unconvincingly revives the attribution to Pierre de Montreuil. Murray (1999) sees certain similarities in the geometric layout of Amiens and the Sainte-Chapelle (both are designed around vaults proportioned as double squares), but the respond mouldings are different, and the measurements and proportional systems of the chapel are much closer to the chapels of Saint-Germain-en-Laye and to the Lady Chapel of Saint-Germain-des-Prés. He concludes that the designer was not Robert de Luzarches or Thomas de Cormont, but someone familiar with the common language of Parisian and Picard architecture. He draws comparisons between the chapel's length-breadth proportions and those of the House of Solomon (1 Kings 7).

28. There are already a few Gothic details in some of the stained-glass windows at Chartres. Their chronology is still controversial, but these details are definitely earlier than the windows in the Sainte-Chapelle.

For the windows see Grodecki (1975) 47ff. For a fuller description see Aubert, Grodecki, Lafond, Verrier (1959) and Jordan (1994). The particularly rich finish of the interior can only be explained as a product of the function of the chapel as a setting for its precious relics and reliquaries. For the equation between metalwork and architecture see Branner (1965) 57–61, and Bony (1983) 400–5 and Kurmann (1996a). The chapel's exceptionally well-preserved cycles of sculpture, stained glass, tempera painting and enamels make it a particularly rich source of integrated meaning. See above, Chapter 3, Note 22F.

29. The design dates from 1835, and was executed in 1839. The painting was done on a base of chalk plaster. By removing this base at one or two points, it would be possible to ascertain what remains underneath it in the way of traces of paint. See Grodecki (1975) 24, 45. For the painted decoration in Gothic churches in general see Michler (1977).

30. The short finials still have horizontal ledges below the spires. They stand slightly forward. Gables above upper windows is a device the Sainte-Chapelle adopted from slightly earlier or contemporary buildings in north-east France, e.g. Cambrai and Tournai Cathedral choirs, see Branner (1965) 23, 62, and Bony (1983) 386–8.

31. See Wilson (1986) 22–89, for the best description of the building and its stylistic sources. A lively and detailed account of the building history is also given by Binski (1995) 10–51, who reviews the earlier literature, particularly by Branner. The documentary history is set out in Brown, Colvin and Taylor (1963) vol. 1, 130–59.

32. There is a short note in *C.A.*, LXIX (1903). A good survey of dates can be found in Lasteyrie, *op. cit.*, I, 118. See also: Valentin de Courcel, 'La cathédrale de Troyes', *C.A.*, CXIII (1955) 9ff.

The best account of the first, early thirteenth-century building campaigns at Troyes (*c.*1200–28) is by Bongartz (1979). A useful summary of his conclusions, as well as a full history of the later Gothic work on the cathedral, is given by Murray (1987). For an integrated approach to the dating of the earliest campaigns on the choir (up to the pre-Rayonnant work of the 1220s), using as evidence the sculpture and the stained glass, see Pastan (1994). She confirms the clear division, noted by Bongartz, between the first campaign of *c.*1200 (most of the radiating chapels) based strongly on Early Gothic in Champagne, and the second of *c.*1210–20 (piers and straight bays of choir and apsidal statues). But she also notes the invasion of Parisian influences in the glass of the second campaign which pre-figures the Parisian Rayonnant incursions in the architecture of the choir upper parts in the 1230s.

32A. Bongartz (1979) 234ff, and Branner (1965) 43–5, think that the new choir triforium and clerestorey were begun immediately after the storm in 1228. However, Bruzelius (1985) 167–71, puts its beginning to the mid-1230s. The chronology is important because the upper parts of Troyes choir are so like those of the Saint-Denis master's work at Saint-Denis that one building must have been the inspiration of the other, and both may have been designed by the same architect – as Branner argued in (1965) 39–50. At issue here is the origin of the classic Rayonnant basilican elevation. Bongartz (1979) 234–7 and 241–3, does not attribute the Troyes work to the Saint-Denis master, but he does argue that the pre-hurricane design may have closely resembled the post-1228 work (including linkage between the mullions of the triforium and clerestorey and a glazed triforium), and he therefore follows Branner's view that the priority must go to Troyes. Bruzelius (1985) 153, 167–71, parallels all the key elements of the Troyes work with the late 1230s and 1240s campaigns at Saint-Denis, and sees Troyes as a copy of Saint-Denis, and not by the Saint-Denis master. Bouttier (1987) 370, suggests (but provides no evidence) a date of '1245' for the Troyes upper parts.

33. Chanoine H. Boissonet, *Histoire et description de la cathédrale de Tours* (Paris, 1920) 72.

Frankl is right to be sceptical of the attribution of Tours to the architect of the Sainte-Chapelle. Still the best, and most concise, analysis of Tours is Branner (1965) 37–9 (the first choir campaign, begun *c.*1210, comprising chapels, ambulatory and choir and apse piers) and 65–7 (the upper parts of the choir, begun in the late 1230s/early 1240s, and completed by *c.*1244).

34. Reinhardt (1972) suggested that work began under Bishop Berthold von Teck around 1236, and Grodecki and Recht (1971) have convincingly shown that the masons who completed the south transept *c.*1235 went on immediately to work on the first three bays of the nave. Recent scholarship has identified the sources of the nave design in early Rayonnant buildings in Picardy and Champagne, and especially in the Paris region, with Saint-Denis as the major model. The debts to Notre-Dame in Paris have been underlined by Grodecki (1976). Branner (1964) attempted to downplay the Saint-Denis source in favour of Burgundian influences. See also Prache (1982).

35. Hermann Beenken, in *Der Meister von Naumburg* (Berlin, 1939) 132, has given a convincing reconstruction of the original state. The figure of Gepa was probably the last work of the Naumburg sculptor, while that of Konrad was probably the work of an assistant, poor in talents, and has been considerably restored. Unlike those in the Sainte-Chapelle, the figures stand at the level of the bottom of the windows.

Beenken's reconstruction has now been corrected by Ernst Schubert (1964). His convincing analyses of the west choir are based on archeological evidence in the structure itself, and on the excavations of the 1960s. See also Leopold and Schubert (1968). Schubert (1982) has also held out against more recent attempts to date the west choir and its sculpture to the 1240s, that is, under Dietrich II's predecessor, Bishop Engelhard (1207–42). See a repetition of his earlier positions in Schubert (1996) 72–86.

36. Ernst Gall, *Die gotische Baukunst etc.*, I (Leipzig, 1925) plates 38, 40, and 43. For the possible Norman sources of the Naumburg passage see Héliot (1970a).

37. Illustrated in *C.A.*, LXXVIII (1912) before p. 33 (after Viollet-le-Duc). The Reims pedigree of the Naumburg passages is emphasized by Sauerländer (1977) especially pp. 18off. However, the differences with Champenois passage structures are underlined by Schubert (1982) 134–5, and von Winterfeld (1994) 310–11.

37A. Schubert (1968) 30–1, and (1996) 78–80, and most other authorities, think that architect and sculptor were one and the same person; Héliot (1970a) that they were different. The 'Naumburg Master' undoubtedly commanded a workshop, but this does not fundamentally compromise his individuality, nor his genius. A critical commentary on the construction of the entity 'the Naumburg Master' is provided by Brush (1993). See also Wiessner and Crusius (1995) for the historical background. Sensible comments on the nature of the 'Naumburg Master' and his atelier, and recent literature, are to be found in Williamson (1995) 177–84. The late Romanesque lower stories of the west towers were laid out, according to von Winterfeld (1994) 300, early on in the building of the late Romanesque church, that is, *c.*1230–40. The first storey of the north-west tower, based on the towers of Laon and Bamberg, is either contemporary with the latest parts of the west choir, or shortly after it. Stylistically, its decorative details show affinities with the western parts of the nave at Schulpforta and the choir and choir screen at Meissen Cathedral. The upper stories of the north-west tower date from the fourteenth and fifteenth centuries. The 'Gothic' stories of the south-west tower are nineteenth-century pastiches. See Schubert (1968) 51–2, 231–4, and (1996) 25–8.

37B. See von Winterfeld (1979) vol. 1, 132–7, 156–7. The final consecration of the church in 1237 included the complete west towers, with perhaps the exception of the last, or the last two, storeys of the north-west tower. The intention (later given up) of carrying a colonnade of columns around all four sides of the lower storey of the north-west tower, links the Bamberg tower design to the south-west tower of Lausanne Cathedral. See Nussbaum (2000) 35–7. Both the Naumburg and the Bamberg versions depend not on the west towers of Laon, but on the tower flanking the south transept, the Tour de l'Horloge, since their principal aedicules are based on octagons, and not squares. The historical circumstances that led to the appearance in Bamberg of Remois sculptors and of architects trained in the Soissonais are touched on by Vorwerk (1998) especially 215–16. She points to the Bamberg bishop, Eckbert of Andechs-Meranien (died 1237) and his connexions to the French princess, Yolande de Courtenay, the second wife of his brother-in-law, King Andrew II of Hungary. She also suggests that Villard de Honnecourt, who was in Hungary probably in the early 1230s, may have brought the idea of the Laon towers (he drew one of them in his 'sketchbook') to Bamberg. For Villard as a 'trace clement' in the diffusion of Early and High Gothic to Central Europe see also Crossley (1997).

38. Lisa Schürenberg, *Die kirchliche Baukunst in Frankreich 1270–1380* (Berlin, 1934) 18.

The traditional starting date of 1248 for the choir of Clermont-Ferrand Cathedral was questioned by Branner (1965) 142, who suggested that building actually started only in 1262, with the marriage of the future Philip III to Isabella of Aragon. However, Davis (1981) convincingly re-dated the beginning to 1248 or a little earlier and established the following chronology, with the main campaigns subdivided into phases:

1) **Campaign One**, by Jean Deschamps, *c.*1248–63: (a) five radiating chapels, and ambulatory responds, (b) outer walls of straight bays of choir on both sides and sacristy on north side (except for its inner wall), six columns of the apse, vaulting of ambulatory, beginning of north transept, (c) pillars on the chord of the apse, upper parts of apse to level of vault springers, east wall and buttresses of south transept, interior walls of sacristy. Intention to build transept towers in this campaign. In 1263 Dean Guillame selects his tomb in the axial chevet chapel.

2) **Campaign Two** (by a second, unknown architect, but closely in sympathy with Jean Deschamps' intentions and style), *c.*1263–*c.*1280: (a) pillars and upper parts of choir straight bays on north side, east wall of north arms of transept, second storey of north-east transept tower (all this up to 1273) (b) (by a third architect) first floor of transept façades, the chapel of SS Peter and Paul on the south side of the choir, lower walls of eastern bay of nave, four clerestorey bays on south side of choir, most of the south-east tower's second storey, and vaulting of main vessel of choir.

Davis's dating makes the choir not a provincial and slightly retarded version of Parisian fashions, but an advanced synthesis of Rayonnant forms emerging in Paris and beyond in the 1250s: e.g. from the choirs of Beauvais and Cambrai, from the north transept façade of Soissons cathedral, and especially from Saint-Denis. The stylistic sources of both campaigns are discussed more fully in Davis's doctoral dissertation (1979) 143–30.

38A. Léon cathedral, the first and last truly Rayonnant great church in Spain, awaits a proper monographic study. See Lambert (1931) 238–50; Torres Balbás (1952) 84–94; Branner (1965) 119–20; Karge (1989) 133–8 and Kurmann (1999). The choir was begun soon after the accession of Bishop Martin Gonzalez in 1254. As in Burgos, Alfonso X's financial support was an essential precondition for the new building. Work began at the east end and continued steadily westwards until completion at the end of the thirteenth century (by 1303). 1258 foundation of two of the radiating chapels. An Enricus *magister operis* is mentioned in the cathedral obituary in 1277. He was also at work at Burgos cathedral between at least 1261 and 1277. Given the notable stylistic differences between Burgos and Léon, Karge suggested that Enricus may have been either an administrator and not a designer, or he may have been a sculptor-architect, responsible for the south transept and cloister portals at Burgos (which are integral to the architecture), and for the later north and south transept portals at Léon (which could have been added to a pre-existing structure). See also Williamson (1995) 225–34. The plan of Léon is clearly indebted to Reims Cathedral, while the elevation is of an advanced Rayonnant format dependent less on Saint-Denis and Paris than on early Rayonnant in Champagne (e.g. north rose, Châlons-sur-Marne Cathedral).

39. Jean Vallery-Radot, *La cathédrale de Bayeux* (Paris, n.d., but after 1915). For the Bayeux choir (to which Frankl is referring), rebuilt between *c.*1230 and *c.*1240, see Thirion (1978) 240–86, especially 250ff; and Baylé, in: Baylé, dir., (1997) vol. 2, 164–7. Grant (1987) 234ff, attributed the design of the whole choir to the architect of the intermediate elevations of the choir of Le Mans cathedral.

39A. The rich stylistic background of the choir of Saint-Etienne, Caen (the first building consistently to combine Ile-de-France forms with Norman traditions) is analyzed by Grant (1990), and Grant in: Baylé, dir., (1997) vol. 2, 156–8. She points to sources as diverse as Canterbury, Noyon, Saint-Denis, Vézelay and Notre-Dame in Paris.

The two western bays of the choir at Lisieux, including the false galleries and the westernmost clerestorey, were built as part of the campaign under Bishop Arnulf of Lisieux (1141–81) or shortly thereafter. See Chapter 2, Note 29. Frankl is referring here to the later campaign on the choir, which completed the whole chevet and sanctuary. Bony (1983) 514 note 24, dated this campaign to after the fire of 1226. But Erlande-Brandenburg (1974) 157ff, properly sited it in the reign of Bishop Jourdain de Hommet (1201–18), a dating followed by Grant (1987) 236ff, and Clark in: Baylé, dir., (1997) vol. 2, 172, who put the completion some time before 1215.

40. For Coutances see Herschman (1981) especially 323–5, who argues for two campaigns, the second involving a change of design:

1) **1220s–35.** First level of transept, radiating chapels, ambulatory piers and second level of inner ambulatory.

2) **1239 onwards.** Clerestorey, and vaulting, of inner ambulatory, clerestorey of main vessel, high vaults of choir, upper parts of transepts.

Grant (1987) 303ff, and Grant, in: Baylé, dir., (1997) vol. 2, 137–52, sees no change of plan or interruption in construction, but argues for a continuous campaign starting in *c.*1220, and substantially complete by 1238, the death of Bishop Hugh de Morville (1208–38). Stylistically, the choir is a sophisticated variant of Saint-Etienne at Caen's choir, with influences from Le Mans (stepped section) and La Merveille at Mont-Saint-Michel.

41. Cf. the reconstruction of the original state in Seymour, (1968) 65–7, 142–6. His addition of octagonal upper storeys is confirmed by remains on the structure. He has shown that at least the belfry stage of one of the west façade towers was complete by 1231. But Frankl's *c.*1205 date for the beginning of the western narthex may be too early. Branner (1960) 53, note 26, suggests the façade was begun after 1210. The affiliations of the Noyon western transept with Anglo-Norman precedents in England and Scotland are noted by Héliot (1980).

42. The 'similar figures' – employing the word 'similar' in its planimetrical usage – are the result of the methods of measurement. Cf. Paul Frankl, 'The Secret of the mediaeval Masons', in *The Art Bulletin*, XXVII (1945) 46. For a proportional analysis of the façade see Bony (1983) 500–1, note 31. The basic study of the French cathedral 'classic' or 'harmonic' façade is by Kunze (1912), who established that the Gothic two-tower façade attempted to express, as clearly and harmoniously as possible, the plan, elevation and section of the nave behind it.

42A. The west façade of Notre-Dame has a complicated building history, and pre-history. For no clear reason Branner (1962b) 40–1, note 7, suggested that the present façade was an afterthought, and replaced a slighter earlier design begun further east. The west end, he argued, was originally designed to terminate about four aisle bays east of its present position, roughly on a line with pillar seven (counting from the east), and its foundations were laid about 1186 (when relics were exhumed from the apse of the old church of Saint-Etienne). Branner suggested that in about 1194 the 'façade master' suppressed this façade and laid out his own about four bays further west, in its present position. Branner's hypothesis was given some weight by the discovery, in 1983, of fragments of portals and portal sculpture, dating from any time between *c.*1150 and 1165, and embedded in the the south side of the nave, under the foundations of the seventh column (from the east) – precisely the area that Branner had singled out. Clark and Ludden (1986) related these fragments to the re-used sculpture of the St Anne portal of the west façade, and they (118, note 38) and Horste (1987) 193, saw them as clear indications that the Early Gothic cathedral had been begun simultaneously at the east and the west. However, Taralon (1991) 360–1, has convincingly underlined that these fragments do not have the character of foundations, capable of supporting a substantial towered façade, and that the façade was always to occupy its existing position. He attributes its layout 'probably' to the so-called third master, who introduced the Chartrain and Soissonais pier forms in the western bays of the nave.

The existing façade was begun with the north and central portals, and is itself the result of a change of plan. Bruzelius (1987) 561–2, suggested that its northern sections may have been laid out as early as *c.*1190 by her 'second' architect. Sauerländer (1959) and (1972) 404, 450ff, reconstructed this initial project as dependent on the west façade of Sens. The central portal would have been a little narrower than now, and much lower, due to the less pointed curve of the archivolts. In 1208 we hear of negotiations to demolish houses in the southern part of the *parvis*, where the southern portal was to be constructed. The resultant delays may have caused a revision in the design. In *c.*1215, or even earlier, when the northern and central portals had reached lintel height, the present scheme was put in hand. A new architect (Bruzelius's 'third' architect) heightened and steepened the archivolts, widened the portals, thickened the façade wall above the portal arches (hence the gable over the Coronation portal and the corbelling out of the springers of the outer archivolts on the central and southern portals), and completed the whole portal storey. The irregularities of the execution are discussed in precise detail by Taralon (1991) 388–91. Bruzelius (1987) 561–9, proposes sequences that differ slightly from Erlande-Brandenburg's (1998) 95–102, as follows: *c.*1220 the south tower chamber and part of the organ gallery in front of the rose was built. From *c.*1220 to 1225/30 the 'fourth' master brought construction to the top of the rose and completed the north tower chamber. On this storey work moved from south to north. From *c.*1235–late 1240s the 'fifth' master (having remodelled the nave flyers and the clerestorey?) constructed (now from north to south) the gallery and west towers. See Bruzelius (1987) 561ff. The inspiration of Chartres in the design of the west bays and façade is discussed by Branner (1962b), who in this article, and in (1965) 26–8, 41, underlined the important role of the rose and gallery stories in the formation of Parisian Rayonnant. Of like mind are Kimpel and Suckale (1985) 334–8.

43. Louis Grodecki, 'The Transept Portals of Chartres Cathedral etc.', in *The Art Bulletin*, XXXIII (1951) 159ff. For the controversies surrounding the design of the north and south transept portals at Chartres see the additions to Chapter 3, Note 5 above, and also Williamson (1995) 37–47.

43A. Van der Meulen (1984) 157–79, argues, unconvincingly, that some of these exotic forms in the north transept porches are early sixteenth-century restorations.

43B. The most authoritative and and detailed discussion of the stylistic char-

acter, and the dating, of the west façade can now be found in Murray (1996) 87–102.

44. The best view of the gallerics is given in the longitudinal cross-section in Durand, *op. cit.* (Note 18 to this Chapter) plate VI.

45. Viollet-le-Duc, *Dictionnaire*, I, 88. A few German wall arcades can be found in Leopold Giese's short article, 'Blende', in Otto Schmitt, *Reallexikon zur deutschen Kunstgeschichte*, II (Stuttgart, 1948) 890.

45A. The latticework diaper on the central gable of the west front is indentical to that inside the four walls of the lantern tower over the crossing, rebuilt *c.*1240 after the collapse of the crossing tower in 1237 or 1239. Therefore the west front alterations must date to *c.*1240. See Pevsner and Metcalf (1985b) 212.

45B. Bideault and Lautier (1977) 297, 308–16, date the façade to *c.*1245–50, not 1231. Their purely stylistic arguments are not persuasive. Kimpel and Suckale (1985) 346–7, go back, justifiably, to a dating in the 1230s. The stylistic significance of the façade is analyzed, incisively, by Branner (1965) 23–4, 30–1. Bony (1983) 381–5, assesses the novelty of the façade and its analogies to metalwork. Claussen (1975) 68–74, points to a tradition – going back to Laon – of 'triumphal arch' porches resting on free-standing supports, and points to the particularly close similarities in format to the slightly earlicr west porch of the Cistercian church at Longpont. He also dates the Saint-Nicaise porch to the 1230s, and discusses the parallels with the contemporary choir screen at Chartres, and Saint-Nicaise's influence on the choir screen at Strasbourg (*c.*1252).

46. Viollet-le-Duc, *Dictionnaire*, III, note on p. 192 and illustration on p. 193. This has been discussed in Dehio, (1901) II, 158.

46A. Ravaux (1979) 11–12, 43–5; followed broadly by Kurmann (1987) 117–59, and Kimpel and Suckale (1985) 421–2. The single dissenting voice in this late dating is Hamann-Mac Lean and Schüssler (1993) vol. I, especially p. 11, note 8, 337, though we shall have to wait for the publication of the volume on the pre-history of Reims and the environs of the cathedral for their full analysis of the document which Ravaux used for his 1252 dating, and their (presumed) refutation of his reading of it. For their discussion of the west front and its chronology see pp. 113ff, 126ff, 223–314, and Note 13A above.

46B. The folding of tracery around corners, as well as the coulisse-like rhythm of the portals' five ascending gables, and numerous other details – architectural and sculptural – prove that the principal sources of inspiration for the Reims west façade were the north and south transept façades of Notre-Dame in Paris, dated *c.*1245–58, and *c.*1260–7. See Kurmann (1984) 42–62, and (1987) 138–44. Kurmann points to the unique Reims conflation of two quite different traditions: (1) an overall structure derived from the two-tower façades, and the 'triumphal arch' portal type, of Laon and Amiens, which by the mid-thirteenth century was an anachronism, and (2) the flat Rayonnant coulisse-gable type of portal, first developed in the transepts of Notre-Dame in Paris. Both Kurmann (1987) 144–6, and Kimpel and Suckale (1985) 422, reject – a little too firmly – the inspiration of Saint-Nicaise's gabled façade at the cathedral. Even if we date Saint-Nicaise's front to the 1240s, contemporary with Jean de Chelles's north transept at Paris, its influence on the cathedral cannot be excluded.

47. The most detailed analysis of the differences in height and of the other constructional connexions is given in Hans Kunze, *Das Fassadenproblem der französischen Früh- und Hochgotik* (Leipzig, 1912) 44–75. The alignments of the buttress tabernacles from choir to west façade are discussed in Hamann-Mac Lean and Schüssler (1993) Part I, vol. 1, passim. The changes of plan during the various campaigns of construction on the west façade are described by Ravaux (1979) 43–59, and by Kurmann (1987) and Hamann-Mac Lean and Schüssler (1993) see above Note 13A.

48. The spires were actually built, and are supposed to have been destroyed by fire in the fifteenth century. However, this is not quite clear, since the foot of the north spire has been preserved and is made of stone. This remnant indicates the pitch of the spire.

49. Because the work of building took so long, the tracery in the towers already contains double curves.

49A. For the Notre-Dame connexion, and the similarities of these pinnacles, and of the whole façade, to metalwork, see Kurmann (1984) 52–7, 58–60; and Kurmann (1987) 138–44.

49B. For the royal connotations of the Reims imagery see Sauerländer (1992).

49C. Kurmann (1987) 46–59 envisaged a spread of prophets across the upper surfaces of the old façade similar to the statucs on the west façade of Saint-Remi at Reims.

49D. For the contract of 1230 see Ravaux (1979) 11–12. The tracings are discussed at length by Kurmann (1987) 100–14, and Hamann-Mac Lean and Schüssler (1983) Part I, vol. 1, 229–36.

50. Von Winterfeld (1979) vol. 1, 144ff, argues for a date for the Prince's Portal as early as 1224–5. The more usual date given is *c.*1230 for the beginning of the portal and *c.*1233–4 for the arrival of the Reims-trained workshop to complete the portal's right jambs and tympanum in a style clearly derived from the Reims north transept sculpture and the Visitation figures of the west front. For a balanced assessment see Sauerländer (1976), Williamson (1995) 91–8, and Schurr (1998) especially 222–4, with full literature.

50A. See Kurmann (1984) 47; and Kurmann (1988) 245ff, 272ff.

51. Ravaux (1979) 13–14.

51A. See Ravaux (1979) 56–7; but Salet (1967) 360–6, doubts the veracity of the (transcribed) inscription. Hamann-Mac Lean and Schüssler (1993) Part I, vol. 1, 343–9, provide a convincing analysis of the labyrinth and the sequence of architects, and interpret the labyrinth inscription as a reference to Gaucher as the first (not the third) architect and to his work on the west portals which began between 1211 and 1218.

51B. Kurmann (1984) 56–8, and Kurmann (1987) 140–2, rightly points to a row of details on the portal and rose stories of the Reims façade which derive from the south transept façade of Notre-Dame in Paris, giving these stories a *terminus post quem* of 1258–60.

52. Ravaux (1979) 12.

52A. Ravaux (1979) 54–7; Kurmann (1987) 155–9.

52B. Hamann-Mac Lean and Schüssler (1993) part I, vol. 1. See Note 13a above.

52C. For the sequence of construction of the nave chapels, starting on the north side at the west end, and the attribution of the three easternmost north nave chapels to Pierre de Montreuil, see Kimpel (1971) 31–43, 83ff, and Kimpel and Suckale (1985) 343–5; also Branner (1962b) 46–7; and Branner (1965) 68–71.

53. The inscription was restored by Viollet-le-Duc, who also enriched the adjacent parts of the façade in his own fashion. The original appearance can be seen in Aubert (1920) 152 and 153. The best analysis of the north and south transept façades is to be found in Kimpel (1971), though a more accessible summary is provided by Kimpel and Suckale (1985) 410–21. They are also discussed and compared by Branner (1965) 101–6, who first noted their similarities with contemporary metalwork. See also Kurmann (1987) 138–44. The rose windows mark the climax of a century of experiment in circular window forms in France. The history of the rose and its meaning is outlined in Suckale (1981).

53A. For the Lincoln nave vaults see Pevsner and Metcalf (1985b) 211–12. The fullest discussion of tierceron and triradial vaulting in England and on the continent is by Frazik (1967).

53B. An article on Lincoln was published in *The Art Bulletin*, XLIV (1962) 29–37.

53C. For the stylistic affiliations and liturgical functions of the the new Ely choir see Draper (1979) and Dean (1979) 63–70. See also the convincing symbolic interpretation of the choir, in terms of Mary, *Ecclesia* and monastic celibacy, in Maddison (2000) 43–50.

53D. Kimpel and Suckale (1985) 33 and 61, consider the vaults of the choir and crossing were part of the same campaign, completed by 1264. Murray (1996) 74 notes the differences in profile of the crossing vault ribs to those of the transepts, and considers it to be the last space to be vaulted, sometime before 1269.

53E. The literature on the medieval architect is enormous. Still useful are du Colombier (1973), Booz (1956) and Harvey (1972); but for more up-to-date assessments see Coldstream (1991) for a good general introduction and the detailed Binding (with Annas, Jost and Schunicht) (1993). Claussen (1993/4) pinpoints the change from anonymous to named architects in the later twelfth century, and associates it with the gigantism of French building, and the consequent rise in the status of the architect as a craftsman of almost miraculous skill.

54. According to Camille Enlart, *Origines françaises de l'architecture gothique en Italie* (Paris, 1894) 9. Dehio, (1901) II, 500, gives 1197 as the date of the beginning of building. See Wagner-Rieger (1956–7) vol. 2 44–50; and Fraccaro de Longhi (1958) 235ff. They establish that the choir and transepts were already underway by 1173, though the present Pontigny-type structure was started probably by 1187. Cadei (1980) assessed the stylistic connexions with Castel del Monte.

54A. For Casamari see Wagner-Rieger (1956/7) vol. 2 50ff, and Fraccaro de Longhi (1958) 241–8. It was begun in 1203 and consecrated in 1217.

55. Details are given in Aubert, *L'arch. cist.*, especially at I, 222. The best account of Longpont is Bruzelius (1978) and (1979). She emphasizes that Longpont is not just a simplified copy of Soissons Cathedral, but the beginning of a specifically Cistercian and 'monastic' High Gothic. James's (1984) attempt to date its beginning to the 1180s is not convincing. The close stylistic and institutional connexions between the Cistercian church and Soissons Cathedral (Longpont was the main necropolis of the Soissons bishops in the thirteenth century) is discussed by Sandron (1998) 199–200.

56. A few older Cistercian churches had sexpartite vaults; cf. Aubert, *ibid.*, I, 254. This form also survived in other schools (e.g. at Dijon). See Bruzelius (1982). She stresses the debts to the mother house of Pontigny in particular, and to Burgundian/Yonne valley traditions in general. Kimpel and Suckale

(1985) 277, 518, argue for filiations with Senlis, and the Aisne valley, especially Soissons, Noyon and Laon cathedrals. See also Bideault and Lautier (1987) 127–35.

56A. There has been much discussion over the date of Braine. Bony (1957/8) summed up the traditional view by dating it to 'the mid 1190s', that is, after Chartres. He therefore saw it as a critical example of what he called 'the resistance to Chartres', a deliberately conservative movement that rejected the novelties of Chartres (in this case a tall clerestorey and *pilier cantonné*). In Bony (1983) 172–9, he revised this sequence, dating the beginning of Braine to '*c.*1190' and seeing it as a precursor to Chartres. In this he had been anticipated by Pestell (1981), who dated the beginning of the work to the 1180s, and saw it as a typical product of the late Laon school, but also as a prefiguration of some aspects of the Chartres design. Klein (1984) came to the same conclusion. Caviness (1984) and (1990) 73–6 turned stylistic supposition into hard evidence by establishing, from the Braine charters, that the church was begun, or at least the site selected, as early as *c.*1176, and that building was complete by 1208 (not 1216, as usually given). Kimpel and Suckale (1985) 266–8 return (none too convincingly) to a starting date of *c.*1195–1200, and a completion soon after the death of its patron, Agnes of Dreux, in 1204. They rightly downgrade its stylistic influence in the development of French High Gothic architecture. Prache's (1994) even-handed summary emphasized the role of Agnes of Dreux in its foundation and suggested that construction could not have begun much before 1185–90, dates which would correspond to the virtual completion of a comparatively small church in 1208. This dating perfectly accords with the close stylistic connexions, highlighted by Sandron (1998) 197–9, with Soissons Cathedral. He suggests that the first Braine workshop had been active in the south transept of the cathedral, and moved to Braine *c.*1190, when the new 'High Gothic' master took over the construction of the cathedral choir. For a reconstruction of the remarkable west front/west porch and sculpture, clearly modelled on Laon's west front, see McLain (1985). But Klein (1984) and Prache argue for a different scheme than that proposed in Gencourt's 1825 drawing (where the nave elevation went right up to the west wall). The west towers opened on to the interior, above the arcades, as at Laon and Mantes. An 'integrated' analysis of the church, in terms of the inter-related meanings conveyed in its history, patronage, glass, sculpture and architecture, can be found in Caviness (1990) 65–97. Teuscher (1990) convincingly reconstructs the original placement of the tombs of the Counts of Dreux and their family in the choir and crossing, and properly sees the programme as a forerunner of the larger, royal, tomb ensembles at Royaumont and Saint-Denis.

56B. See Bader (1960) (1961) and (1964).

57. Plans of Kaschau (Kassa) and Xanten in Dehio (1901) plate 448. Kaschau is not covered in Dehio's text, but cf. Ladislas Gál, *L'architecture en Hongrie* (Paris, 1929) 232ff, where the drawing attributed by E. Henszlmann to Villard de Honnecourt is discussed (p. 234). French and other choirs of this type are referred to in note 2 on p. 239. The theory that Villard de Honnecourt designed Kaschau Cathedral is discussed also in *C.A.*, 1 (1912) 429. There are also oblique chapels at Toul, Ypres, and Oppenheim.

As regards Kaschau (Košice), the theory of Villard's authorship is now discounted. The choir was begun in the last decade of the fourteenth century. For the history of the church, and its influence on Slovakian Late Gothic see Marosi (1964) and (1969). The origins of the diagonally planned chapel scheme depend, again, on the dating of Saint-Yved at Braine. Héliot (1972a) identified Saint-Michel-en-Thiérache as the source; but Klein (1984) 211–253, demonstrated that Saint-Yved was earlier than Saint-Michel. Instead (pp. 116–17), he pointed to the openness and incipient diagonality of the apse-echelon choir of Saint-Vincent in Laon. Kimpel and Suckale (1985) 267, identified the church at Mons-en-Laonnois (probably begun *c.*1180–90) as the earliest known example of the type. See also Prache (1994) especially 110ff, who reminds us of the diagonal chapel plan of the Sainte-Chapelle in the ducal palace at Dijon. She also notes (113, figs 7, 8) that Klein's geometry of spun squares underlying the plan of the choir of Braine can be applied almost exactly to Saint-Michel-en-Thiérache, and was realized as a full polygon at Our Lady in Trier. For the distribution of this diagonal chapel scheme in France, Germany and the Low Countries see Bony (1957/8) 36 and fig. 12.

57A. Branner (1965a) 77–8, showed the importance of the south transept of Cambrai in the ground plan of the Magdeburg choir, and possibly its biforia gallery openings. He also pointed to the debt to Tournai in the use of towers flanking the transepts. The origins of its plan (but not its elevation) in the choir of Basel cathedral were underlined by Kunst (1969) 31–3, and Nicolai (1989), though Basel may itself be dependent on Cambrai.

58. Hermann Giesau, *Der Dom zu Magdeburg* (Burg, 1924). A clear account of the construction of the choir is provided by Schubert (1975) 16–33, and Schubert (1989). He identified four main campaigns of construction:

1) **1209–12**, under Archbishop Albrecht II (1205–32). Four eastern piers of apse and adjoining (easternmost) bays of ambulatory and their radiating chapels.

2) ***c.*1215–? *c.*1220.** Enlarging the earlier plan by widening the westernmost ambulatory bays and choir aisles, and thickening the piers at the chord of the apse. Rib vaulting of choir aisle straight bays and radiating chapels. Beginning of gallery at junction of choir and north transept, and raising of transept towers to that height. Possibly first double bay of nave on the 'bound' system.

3) **? *c.*1220–? after 1232.** This phase is marked by the appearance of a new architect, perhaps identical with, certainly trained under, the so-called 'Paradies Master' at Maulbronn, who was responsible for the western porch and monks' refectory there. At Magdeburg he inserted into the new apse the marble *spolia* columns from the Ottonian cathedral and the figures of saints, apostles, angels and Wise and Foolish Virgins (re-located from an intended portal?). He also built the gallery (the so-called *Bischofsgang*). Schubert (1989) 36–7 admits that this phase can be attributed to either Archbishop Albrecht II or to his half-brother Archbishop Wilbrand von Karfernburg (1235–53). Choir serviceable enough to hold trial of the Margrave of Brandenburg in 1234.

4) **Second half of thirteenth century.** Choir clerestorey and upper parts of transepts. In 1266 Archbishop Ruprecht buried in south transept.

Nicolai (1989) revises this sequence. He convincingly argues that the new cathedral was begun, not in the eastern sections of the chevet, but outside the northern perimeter of the Ottonian church, at the north transept, and that it proceeded with the north side of the choir in advance of the south. There was no 'campaign two' as Schubert proposed: the apse chord pillars and the choir aisles were planned in their present form from the start. The first workshop did the lower parts of the north transept and the northern sections of the ambulatory and its radiating chapels. A second workshop, active after 1215, did the rest of the radiating chapels, began the choir gallery at the junction with the north transept, built the lower parts of the south transept and its tower, and made a start on the three eastern bays of the nave. The third shop, working from *c.*1222–32 under the 'Bischofsgang Master', vaulted much of the ambulatory and radiating chapels (according to the Lower Rhenish-inspired designs of shop 2), inserted the *spolia* columns and the apse sculpture, and built the choir gallery under the inspiration of Maulbronn and the eastern parts of the Cistercian church at Walkenried, the latter finished by 1225/30. Nicolai unequivocally attributes the third stage to Archbishop Albrecht II. Schlink (1989), who broadly agrees with Nicolai's sequences, identifies the specific sources for the Bischofsgang Master in Maulbronn and the choir of Auxerre Cathedral. He dates the beginning of this third phase to the late 1220s/early 1230s. For the function of the choir gallery as the archbishop's private chapel see Kroos (1989) 88–97. Iconographical interpretations of the choir and its sculpture as Hohenstaufen celebrations of the traditional partnership of German church and empire are advanced by Helga Sciurie in Ullmann ed. (1989) 163–8, and Friedrich Möbius, also in Ullmann ed. (1989) 158–62. Still useful is Götz's (1966) analysis of the choir as a seat of episcopal judgment.

59. Leo Sternberg, *Der Dom zu Limburg* (Limburg, 1935), which contains a copious bibliography. Also Willy Weyres, *Der Georgsdom zu Limburg* (Limburg, 1935). Cf. also Hanna Adenauer, *op. cit.* (Note 14 to Chapter 2) 69. Clear accounts of the building of the cathedral and its sources can be found in von Winterfeld (1985), and even more fully in Metternich (1994). Dendrochronological analysis has established that work began at the west end much earlier than hitherto supposed – *c.*1190 – and proceeded eastwards, the choir in building *c.*1215–20. For an iconographical interpretation of the church see F. Ronig (1978). The influence of Saint-Jacques at Reims on the 'recessed panel' elevation of the transept ends is discussed by Kurmann (1977).

60. Charles Porée, *La cathédrale d'Auxerre* (Paris, 1926). See also Paul Deschamp, *La cathédrale d'Auxerre* ('Tel', 1948), which contains excellent photographs by Max Foucault. Branner (1960) 38–47, established the following chronology and sequence of construction for the Auxerre choir.

1) **Begun about 1215** and finished shortly before 1234. Collapse in 1217 of the old towers which flanked the choir. Branner reconstructed an 'initial design' consisting of a low three-storey elevation with alternating system, and six-part vaults, modelled on Lausanne and Geneva Cathedrals.

2) ***c.*1220**, having completed the apse pillars and the lower storey of the straight bays, the choir was heightened under the influence of Chartres, the structure thinned, and a *pilier cantonné* and four-part vaults introduced.

Apart from adding a third, pre-1217 campaign of construction, involving the renovation of the old crypt and the building (or at least cutting) of the present apse columns, Titus (1988), broadly followed Branner's sequences and reconstructions. But Kennedy (1996) 210–50, advanced a convincing case that the choir, with the possible exception of the high vault (which may have been changed from six- to four-part) is a homogeneous construction and design; that it reflects Bishop William de Seignelay's original conception of *c.*1217, and that it was built in a single campaign. King's drawing, on which much of Branner's and Titus's evidence for the 'heightening' of the elevation is based, is inaccurate. Bony (1957/8) 42–3, was the first to interpret the choir as a significant alternative to the mainstream High Gothic of Chartres, and to place it within a broad para-Chartrain movement. Branner (1960) 38–47, placed the choir at the starting point of Burgundian Gothic. Kimpel and Suckale (1985) 306–21, pointed to links with Paris and Sens cathedral, and offered a critique of the

whole concept (including Branner's) of 'regional schools' of Gothic. Kennedy (1996) 310–50, stresses the traditional 'Burgundian' roots of the Auxerre design, including debts to Champagne (St Remi at Reims) and Sens Cathedral (ground plan of choir).

61. Guido Marangoni, *Vercelli etc.* (Bergamo, 1931) 24ff. See also Paolo Verzone, *S. Andrea di Vercelli e l'arte emiliana* (Turin, 1936), and Geza de Francovich, *Benedetto Antelami* (Milan, 1952) 392. See also Wagner-Rieger (1956–7) vol. 1, 157–67, who does not attribute the church to Antelami, and who sees signs of English influence. For recent literature on the sculpture, all of it arguing for a post-Antelami understanding of French models, see Williamson (1995) 128 and note 17, p. 277. Michler (1980) 79–81, sees, in the church's 'split piers', connexions with Bourges Cathedral.

62. P. Colmet Daage, *La cathédrale de Coutances, P.M.* (Paris, 1933) 10, and Lefèvre-Pontalis in *C.A.*, LXXV (1908) 1, 247.

63. For the choir, see above, Chapter 3, note 40. The nave is essentially a face-lift of its Norman predecessor, the remains of which, contained in the western towers and nave galleries, are discussed by Herschman (1983). Herschman (1978) 94–6, dates the start of the Gothic nave to the beginning of the thirteenth century, and sees its source as the western bays of the nave of Fécamp. Grant (1987) 65ff, also dates the beginning to *c.*1200 and the completion to *c.*1220. She notes the Fécamp features, as well as details resembling the choir of Saint-Etienne at Caen and the church at Eu. See also Mussat (1966) 9–50, and Baylé in: Baylé, dir., vol. 2, 160–3. The complex anglicisms of thirteenth-century Norman Gothic architecture, paradoxically strengthening after the loss of Normandy to France in 1204, are clearly assessed by Grant (1991).

63A. The choir at Baycux was begun in *c.*1230, and completed *c.*1245. The clerestorey of the nave was undertaken after the completion of the choir, in the years *c.*1245–5, but probably by the same workshop. See Herschman (1981) 326–8, Grant (1987) 239ff, 268, and Thirion (1974) 250ff. For the transepts, which belong to the second half of the thirteenth century (*c.*1260–80), and which represent a characteristically Norman response to the transept façades of Notre-Dame in Paris, see Anderson (1994) and (1996).

63B. For Sées nave see Grant (1987) 258ff, who classifies it as one of the last and most mannered manifestations of Norman Gothic, probably built under Bishop Gaufredus de Maiet (1240–57). See also Olde-Choukair, in Baylé dir., vol. 1 (1997) 159–73, and vol. 2 (1997) 179–84.

64. The chronology of Burgos, and its stylistic affiliations with France, have been reconstructed by Karge (1989) and (1989a). He isolates four main phases of construction for the thirteenth-century building (see 1989, 69–118).

1) 1221–30. The whole of the choir; part of the chapel of St Nicholas (opening eastwards off the north transept); the lower courses of the east and south walls of the south transept, including the lowest arcade of the Puerta del Sarmental. The stylistic influences in this phase clearly come from Bourges Cathedral and its Parisian and Loire affiliates. The Burgos elevation echoes, not only Bourges's inner aisles, but also the main elevations of Saint-Leu d'Esserent and Moret-sur-Loing. Its clerestorey tracery closely follows that of Tours Cathedral choir. Its dosseret profiles echo those in Bourges, Larchant and Notre-Dame in Paris. Karge rightly rejects the traditional comparisons between the plan of the choir and that of Coutances or even Pontigny: they are based on Lambert's misidentification of the present thirteenth-century ambulatory and chapels (fundamentally remodelled in the 1270s) with the original east end, whose plan Karge reconstructs with an ambulatory with bays of six-part vaults, each bay opening into small apsidal chapels, separated from each other by the outer curving wall of the apse. The system comes straight from the apse at Bourges, and must be the earliest example of this solution outside France (see pl. 135).

2) *c.*1230–*c.*1245/50. St Nicholas chapel finished *c.*1234. Upper parts of Puerta del Sarmental carved to a new design by a sculptural workshop coming from Amiens (west) and Bourges (west) (*c.*1240). New design also for inner south transept wall. Lower parts of north transept, including portal (completed *c.*1245). From *c.*1245 addition of chapels to choir straight bays; new entrance responds to chevet chapels, and beginning of nave. Completion of transepts *c.*1250.

3) *c.*1250–60. Most of nave complete by *c.*1255, but westernmost bays and the two lower stories of the west façade completed by 1260 in a slightly more advanced style. Consecration of cathedral in 1260.

4) *c.*1260–75 (under the architect Enricus, active at least from 1261 to his death in 1277). This phase, stimulated by the encouragement of Alfonso X (1252–84), was characterized by up-to-date Parisian Rayonnant additions, and sophisticated combinations of sculpture and architecture. Tracery galleries in transept façades, and south transept rose. Third storey of west façade (*c.*1265). Two-storey cloister (*c.*1265–70). New radiating chapels of chevet (*c.*1275).

65. For Tarragona see above, Chapter 2, Note 71B.

66. For illustrations of Cuenca, see Juan Contreras Lozoya, *Historia del arte hispánico* (Barcelona, 1931–43) II, 99–102, and in the text p. 104. Cf. also Lambert, *op. cit.*, 159ff. The façade was restored in 1902. If this cathedral is perhaps disappointing, the position of the town, of which one could use that much abused word picturesque, is an ample compensation.

Lambert (1931) 159–74, dates the construction of the choir between *c.*1200 and 1210; Torres Balbás (1952) 50–4, to *c.*1210–25. Welander (1991) 292–5, dates the foundation to the period of Bishop Garcia (1208–25). Alfonso VIII's donations to the cathedral from 1183 to 1214 make no mention of building activity, and the sources that the high altar was consecrated in 1207/8 are late and contradictory. Welander's later dating tallies with the close stylistic similarities between the eastern parts of the cathedral and a group of buildings all dating to the middle of the first quarter of the thirteenth century: the Cistercian church at Las Huelgas, the Cistercian refectory at Huerta (begun *c.*1215, complete by 1223), and the cathedral of Siguenza. See also Sowell (1985) 184–5, Karge (1989) 122–3. The choir of Cuenca cathedral represents a precocious incursion of Early Gothic Laonnois and Soissonais influences into Spain, with borrowings from the cathedral and Saint-Léger at Soissons, and from Laon Cathedral. Welander (1991) also identifies profile similarities in the Noyon chevet, in the nave at Rouen and at Saint-Pierre at Dreux. There are also close similarities with Essômes, and with the sculpture of Longpont and of Saint-Yved at Braine. Since the flanking sections of the choir were destroyed in the fifteenth century the alignment of the choir chapels cannot be exactly reconstructed, but it is likely that they were stepped, and perhaps even angled diagonally like those of Saint-Yved. See also Lamarca (1978) 15–18. Welander (1991) considers that part of the workforce in the early campaigns at Toledo came from Cuenca. For the later nave of Cuenca, begun probably after *c.*1260, and its connexions to the transepts at Burgos, see Karge (1989) 130–33.

67. Elie Lambert, *Tolède* (Paris, 1925) 54. See also Josep Gudiol i Ricart, *La catedral de Toledo* (Madrid, *c.* 1948) 30, and August L. Mayer, *Toledo* (Leipzig, 1910) 58.

The history of the thirteenth-century cathedral of Toledo has now been carefully examined by W. Welander (1991) especially 32ff. Stylistically he sees it as a predominantly Spanish achievement, having a dual character: it belongs both to Bourges, and the Bourges idea of a Rome-centred Parisian architecture of the later twelfth century, but it also espouses a French-resistant Mozarabic art. Conceptually, it embodies three consecutive but overlapping ideals. The first, inspired by its founder Archbishop Rodrigo (1209–47), proclaimed the revival of Visigothic Toledo, celebrated a nascent Spanish nationalism against the infidel, and asserted the primacy of Toledo over its Spanish metropolitan rivals. Its French borrowings, together with its early Christian and Roman reminiscences, are consistent with the pro-Papal ideals of the Parisian-educated Rodrigo, who had attended the Fourth Lateran Council in 1215. The second project, under Archbishop Sancho I (1251–61), a Mozarab who had visited England in 1255–6, initiated the transformation of the cathedral choir, perhaps under the influence of Westminster Abbey, into a gigantic royal mausoleum chapel; and it reasserted the prerogatives of Toledo as the coronation church of the kings of Spain. The third, a revised version of the second project, underscored these royal associations and proclaimed the triumph of Mozarabic Toledo under Archbishop Gudiel.

Welander establishes the following chronology and sequence of construction:

Campaign One (under the architect Martin): *c.*1215/21–38. The radiating chapels, outer ambulatory and its vaults, eastern chapel. Strongly dependent on Bourges, Notre-Dame in Paris, but also on the Pantheon in Rome, in its half-rotunda plan and the alternating polygonal and rectangular shape of its radiating chapels. 1222 and 1224 papal bulls in favour of the financing of the cathedral, the latter referring to actual construction. 1226 official laying of foundation stone by Archbishop Rodrigo and Fernando III. Radiating chapels on north side complete by 1231, all of them by 1238. By 1247 nave may have been begun since by that date the chapel on the south side of the first southern bay of the nave was complete.

Campaign Two (under a new architect): *c.*1260–75/84. Piers of sanctuary, eastern crossing, eastern transept, and inner apse, all with a distinctly new socle profile. The polygon of the inner apse is generated from a different point than the arcs of circles defining the intermediary piers and outer ambulatory wall, resulting in misalignments and irregularities between inner and outer ambulatory bays. (On this see, in detail, Junquera (1937)). Southern chapel of choir in use by 1264. Inner ambulatory: superstructure and vaults, using a Parisian, Beauvais-inspired elevation with band triforium and oculus clerestorey, but with Mozarabic tracery and multi-cusped arches. Beginning of first three bays of nave on south side and perhaps south transept vaults (called 'First nave campaign'). This whole campaign inspired by Archbishop Sancho I (died 1261), of royal blood, who set up the royal chapel in the inner apse. It ends in 1275–84, a period of financial difficulty and disputed elections to the archiepiscopal throne.

Campaign Three: 1285–9. The beginning coincides with the return of Archbishop Gudiel, the death of Alfonso X and the coronation of Sancho IV in the cathedral, the end with the translation of the bodies of Alfonso VIII and Sancho III in 1289 to the apse bay. Triforium and clerestorey of the choir and

east sides of the transept, including vaults of choir, whose lierne patterns parallel, or even anticipate, the earliest liernes in England.

Campaign Four: *c.*1288/9–1301. This coincides with documentary references to Archbishop Gudiel setting up his tomb in the *coro* (the eastern bays of the nave) in 1288/9 and in 1291, and his burial there in 1301. Sculpture of kings, apostles, angels in triforium of choir, forming a coherent funerary iconography, enhancing the character of the choir as a royal mausoleum. North transept portal (La Puerta del Reloj). High walls of western side of transept (to different design than elevation of choir and eastern half of transept) and vaulting of north transept and crossing. Completion of the *coro* with the high walls and vaulting of the eastern bays of the nave ('Second nave campaign')

Karge (1989) 119–22, differs from Welander's account on a number of points. He dates (I think correctly) the conception of the choir to *c.*1220, and not as early as possibly '*c.*1215'. He puts the completion of the whole choir to the middle of the thirteenth century, and follows the conventional dating of the high choir vaults to 1493, together with those in the eastern bays of the nave (the *coro*). While Welander's early dating leads him to exclude Le Mans' influence on Toledo, Karge convincingly reasserts the critical importance of Le Mans' chevet, begun after 1217, on Master Martin's east end. But Karge is, along with Welander, critical of Branner's derivation of the radiating chapel system from Le Mont-Notre-Dame and Sainte-Croix in Etampes, see Branner (1962) 166–7, and (1989) 191–2. Instead, he sees parallels between the system and that at Burgos, and identifies similarities between the latter cathedral and many details in the chevet of Toledo. Burgos seems to have been a little ahead of Toledo in construction, since it is the smaller cathedral and was more speedily completed. For the stylistic overlaps between Mozarabic and French in the choir see Mata (1999).

68. George Edmund Street, *Some Account of Gothic Architecture in Spain* (London, 1869) 235.

69. An equally 'Spanish' aspect of the exterior is the proliferation of later chapels, most of them funerary, around the core of the building, in such a way as to obscure large parts of the original cathedral. For the growth of these chapels in later medieval Europe, including the Iberian peninsula, see Colvin (1991) 152–89.

70. *C.A.*, LXXX (1916) 300ff. For the chronology of the thirteenth-century Gothic work at Nevers Cathedral see Branner (1960) 157–9. Work began in 1211 on vaulting the Romanesque west transepts. The nave, constructed from west to east, begun not much before 1235 and complete by *c.*1250. Kimpel and Suckale (1985) 321ff and 525, put the beginning '*c.*1220–30'. Anfray (1964) 18–48, describe the Gothic nave. Kimpel and Suckale (1985) 321ff, place it in its Burgundian context, especially in relation to Scns.

70A. For Toul cathedral see Schiffler (1977) and Villes (1972) (1983). Both agree that the choir was begun in 1221 by an architect who had come directly from work on the ambulatory and radiating chapels of Reims Cathedral. The first phase of construction consisted of the sanctuary, the choir aisles and the beginning of the transept, with a break at the spiral staircases between choir aisles and transept. The second phase, indebted strongly in its details to Parisian Rayonnant and to Saint-Nicaise at Reims, saw the completion of the transept and the first bay of the nave. Villes (1983) 78ff, thinks that phase one was complete (without vaults) by 1230/5, in time to influence the very similar choir apses of the Church of Our Lady in Trier and of St Elizabeth in Marburg (the latter begun in 1236); and he puts the completion of phase two at *c.*1250. Schiffler (1977) 2, 115, 208, 210, dates the completion of phase one later (*c.*1240) and of phase two to between 1245 and 1265. Burnand (1989) 309–16, thinks most of phase one was over by 1235, but phase two lasted into the 'second half of the century'. For the influence of this work on St Vincent at Metz see Brachmann (1998) 65–8.

71. There are chapels in the transepts, to the left and right of the entrance to the choir. Charles Oursel, *L'église Notre-Dame de Dijon, P.M.* (Paris, n.d.) plan before the title page and p. 39.

72. *Ibid.*, illustration on p. 31. It is not known when Notre-Dame at Dijon was begun, but at least some time before 1230, when in March of that year 20 livres were given to the 'opus'. It was finished by 1240 when, according to Stephen of Bourbon, sculpture in the narthex fell and killed a 'usurer'. Both Bony (1957/58) 43–4, and more thoroughly Branner (1960) 54–62, place the 'conservative' features of the church in the context of Soissonais Early Gothic and its Burgundian variants. Branner (1960) 132–3, established two campaigns: 1) *c.*1220 the choir and east walls of the transepts; 2) the rest of the transepts to *c.*1230, and the nave completed by *c.*1240. He and Bony placed its beginning after that of the choir of Auxerre, see above, Chapter 3, Note 60. However, Titus (1984) 130–7, and (1988) 56, argued that Notre-Dame came first. On purely stylistic grounds, he suggested that Dijon was begun *c.*1210, or even as early as 1200 (in the chapel area and transepts). He saw the church, especially the eastern nave bays, as the model for the first campaign at Auxerre (hemicycle and choir aisles), and an indication of what Auxerre was to look like before the Chartrain 'alterations'. This, in effect, makes Notre-Dame at Dijon the precursor, not the follower of Auxerre and promotes its importance in the foundation of thirteenth-century Burgundian Gothic architecture. Kennedy (1996) 345–8, convincingly rejects this, and confirms the '*c.*1220' starting date.

73. Discussed in Joseph Gantner, *Kunstgeschichte der Schweiz*, II (Frauenfeld, 1947) 51 and 64. Bony (1957/8) 44ff, was the first to include Lausanne and Geneva in a wide 'para-Chartrain' movement (which included Notre-Dame at Dijon), and to see the influence of William the Englishman's Trinity Chapel at Canterbury on the choir of Lausanne. Branner (1960) 50ff, saw both Swiss cathedrals as sources for the Burgundian Gothic of Auxerre and Notre-Dame at Dijon, a derivation questioned by Kennedy (1996), who stresses the sources of the Burgundian buildings in Champagne, the Parisis, and Sens. For Lausanne in particular see Grandjean (1975) 45–174, who identifies a tentative beginning *c.*1160–70 with ambulatory and the foundations of (never realized) radiating chapels, followed by two long campaigns:

1) *c.*1192–*c.*1215, choir, transepts, crossing and first bay of nave.

2) **rest of the nave** (ground floor of western massif mentioned from 1220). The whole building, even including most or all of the western towers, was substantially complete by 1232 (translation of relics). (Bell for south-west tower in 1234).

For Geneva see Bony (1957/8) 45, Branner (1960) 34, 50–1, and, most recently, Freigang and Kurmann (1991). They date the first phase of construction, up to the base of the triforium in nave and transepts, to *c.*1180–1215, and the second, more advanced work, under the influence of Lausanne Cathedral (especially its lantern tower), from *c.*1215–50, mediated by the Bishop of Geneva (1215–60), Aymon de Grandson, who had been a canon of Lausanne from 1210. They also give a comprehensive picture of Geneva's stylistic affiliations in late twelfth- early thirteenth-century Gothic in the Rhone valley.

74. Paul Clemen and Cornelius Gurlitt, *Die Klosterbauten der Cisterzienser in Belgien* (Berlin, 1916). For all these churches see Brigode (1975) 237–45; and Buyle et al. (1997) 44–6, 119–32.

74A. Of the group, Villers has the best-preserved early thirteenth-century structure. Begun on the model of Clairvaux II shortly before 1208, it changed allegiance, under Abbot Conrad d'Urach (1209–14) to Laonnois, Soissonais and 'resistance-to-Chartres' forms, including a six-part vault over the single choir forebay and a polygonally apsed choir (without an ambulatory) with superposed exterior passages. The fascination with tiered oculi in the apse and in the transept end walls is, however, a more local peculiarity. See Brigode (1971) and de Waha (1977). I was not able to consult Coomans's (1997) thesis on Villers.

74B. The choir was begun in 1221 and completed at the latest by 1251. A consecration took place in 1280. See Devliegher (1954 and 1956). For its position in the 'resistance to Chartres' movement – both for its diagonal chapels and its exterior clerestorey passages – see Bony (1957/8) 36, 45.

74C. See Chapter 3, Notes 56A and 57.

75. Reconstructed in Henri Velge, *La Collégiale des Saints Michel et Gudule à Bruxelles* (Brussels, 1925) plate XVIII. The original triforium is reconstructed in the same work, p. 232, fig. 21. For the position of Ste Gudule in the history of Brabantine Gothic see Lemaire (1963) 38–41.

76. Richard Hamann, *Deutsche und französische Kunst im Mittelalter* (Marburg, 1923). His ideas are summed up in vol. II, 172. Hamann's theory, of wandering bands of masons, particularly from Normandy, travelling from site to site in Central Europe, has been called into question by more recent scholarship on the reception of Gothic in central Europe. See von Winterfeld (1979) vol. 1, 155–7; and Marosi (1984) 183–7.

76A. A well-balanced introduction to the early reception of Gothic in Germany can be found in Nussbaum (2000) especially 25–45, 24–59.

77. Werner Noack, *Der Dom zu Bamberg* (Burg, 1925); Wilhelm Pinder, *Der Bamberger Dom und seine Bildwerke etc.* (Berlin, 1927); Hermann Beenken, *Bildwerke des Bamberger Domes* (Bonn, 1925). See now von Winterfeld (1979), vol. 1, 85ff, and Vorwerk (1998).

77A. For Tischnowitz (the Cistercian church of Tišnov) see Kuthan (1982) 275–84 and Kuthan (1994) 393–407; for Ják see Dercsenyi (1957) 173–202; and for the fullest account of the stylistic connexions between Ják, Lébény and Austria and Middle Germany see Marosi (1984) 97, 104, 109–11, 146ff. For a summary of recent research on Ják see Mezey-Debreczeni and Szentesi (1991).

78. The completion of the south tower began in 1894. Heinrich Bergner, *Naumburg und Merseburg* (Leipzig, 1926); 2nd ed. by Fritz Haesler. For the Bamberg and Naumburg towers see above, Chapter 3, Notes 37A and 37B.

78A. An entertaining introduction to the Albigensian heresy is provided by Le Roy Ladurie (1980). For St Dominic and the Dominicans see Brooke (1975) and Southern (1983) 279–82.

78B. Short and useful introductions to the Franciscan order are given by Southern (1983) 282ff, and Moorman (1968). See also the celebration of the Franciscan achievement in two exhibition catalogues coinciding with the 800th anniversary of St Francis's birth: *Francesco d'Assisi* (1982), and *800 Jahre Franz von Assisi* (1982). Picou (1984) provides a conspectus of plans for the Franciscan monasteries in France, along the lines of Dimier's for the Cistercians. A forcefully argued attempt to relate mendicant architecture to fri-

ars' ideals has been made by Schenkluhn (1985). For Dominican legislation on architecture and decoration see Sundt (1987). The best, and only, survey of Franciscan and Dominican architecture in Europe from the early thirteenth century to the end of the Middle Ages is now Schenkluhn (2000), with chapters on the ideals of the mendicants, on monastic layouts, on the female houses, on the clear ideological and architectural differences between the two orders in the thirteenth century and their gradual standardization in the fourteenth.

79. A history of the building and a reconstruction of the original state are given in J. B. Supino, *La basilica di San Francesco in Assisi* (Bologna, 1924) 44. Cf. also Beda Kleinschmidt, *Die Basilika San Francesco in Assisi* (Berlin, 1915).

For the construction of the Assisi church see Rocchi (1982) and Schenkluhn (1991) 19–124, and (2000) 37–43. Schenkluhn has called into question Rocchi's idea of the original church as a single-storied structure comprising only the three nave bays of the lower church, with no transept or apse, and has questioned his suggestion that it was only under Brother Elias, in the 1230s or even 1240s, that the church assumed its present form. Schenkluhn (1991) 19–124 argues for two rapidly sequential and overlapping 'planning stages':

Plan One 1228–35. Foundation stone laid by Gregory IX on 17 July 1228, for a two-storey church, including the present apse and transept, and a three-bay nave, with a narthex to the lower church extending one bay further to the east (the church is occidented). The present campanile and circular nave buttresses were not part of this plan. St Francis is buried in crypt in 1230, in front of the apse.

Plan One (transitional phase). Displacement of the main façade one bay eastwards, to rise above outer wall of lower narthex, thus lengthening the nave of upper church by one bay. This bay is larger than the earlier nave bays and slightly misaligned with them. New south portal into lower church inserted in eastern, narthex bay. Planting of a buttress tower to south of the new façade.

Plan Two 1237/9 onwards. Construction of new eastern bay of upper church, which is shortened, at vault level, by running a thin barrel vault behind the upper parts of the west façade. Circular, bastion-like buttresses added to nave at lower and upper levels. Transformation of a pseudo-passage into the present Remois passage in the upper church. Completion of upper parts of upper church and building of campanile. New entrance bay and portal opening off south side of eastern bay of lower church. The result of these changes was to emphasize the importance of the upper church and the south eastern (principal) approach to the church for the pilgrims.

The mention of bells in 1239, even if this does not imply the completion of the campanile, suggests that by that year the critical modifications to Plan One, including the eastward extension of the upper church and its new façade, had already taken place. The church received its final, formal consecration in 1253. The final result is a contrast between a dark crypt-like lower church, 'Romanesque' in character, and a bright spacious upper church, with many of the characteristics of northern 'cathedral Gothic'.

Schenkluhn (1991) 125–226, and (2000) 41–3, interprets the design as a conflation of building types and quotations: (a) the Italian funerary church with large transept opening directly onto an apsidal choir placed over a tomb (a combination of Old St Peter's in Rome and south Italian Romanesque basilicas like Montecassino and S. Nicola Pellegrino in Trani), (b) the two-storied rectangular bishops' chapels in royal France (Noyon, Reims, Notre-Dame Paris), (c) the papal aula in the Lateran, with semicircular niches on its long sides reminiscent of the cylindrical buttresses of the Assisi nave and (d) the Holy Sepulchre Church in Jerusalem, whose double-doored portal is quoted in the south eastern portal to the lower church. From this admixture Assisi emerges as a truly apostolic church, an *ecclesia specialis*, evoking Rome, Jerusalem and the papacy, and underlining Gregory IX's support of the Franciscans as allies against his personal and imperial rival, Frederick II.

79A. For the iconography of the windows see Haussherr (1981), and for a general discussion Grodecki and Brisac (1985) 222–4, 264–5.

79B. Sta Chiara was complete enough to receive the bones of Saint Clare in 1260, and it was consecrated in 1265. For this church, and the other Assisi followers, see Schenkluhn (2000) 56–63. Other followers of note included the first church of Sant'Antonio in Padua (1238–56), San Fortunato at Todi (polygonally apsed choir and nave with Remois passages), San Francesco at Terni, San Francesco at Gualdo Tadino, the abbey church at Montelabbate and San Francesco al Prato, Perugia. For discussion of these see Curuni (1982) 85–149, and Schenkluhn (2000) 56ff.

80. Only an approximate reconstruction is possible. Cf. J. B. Supino, *L'arte nelle chiese di Bologna* (Bologna, 1932) 165, and the plan on p. 175. For the chronology and intended 'meanings' of this church, as well as an attempted reconstruction, see Schenkluhn (1985) 85–99 and Schenkluhn (2000). Its straight-ended box choir flanked by chapels was clearly indebted to the Cistercian 'Bernardine' plan; liturgical choir and nave were three-aisled, but the choir consisted of three vaulted bays, almost a hall church in section, while the nave had wooden roofs.

80A. For an extensive analysis of this church, including its quotations from Clairvaux III and Notre-Dame in Paris, and its possible connexions with the aesthetics of St Bonaventure, see Schenkluhn (1985) 114–70 and Schenkluhn (2000) 71–6, who calls it 'the first vaulted cathedral-building of the mendicant orders'.

81. A full analysis of the church is given in Cadei (1978). Schenkluhn (2000) 64–7, calls it the first surviving example of the 'triple chapel room church', a highly successful Italian mendicant form, in which a wide, single-aisled nave, usually wooden roofed, is terminated at the east end by a composition of three staggered arched spaces, consisting of a taller and wider choir flanked by two lower chapels. The type is repeated in S. Francesco in Siena (see below, p. 210) and S. Francesco and Sta Caterina in Pisa.

82. Richard Krautheimer, *Die Kirchen der Bettelorden in Deutschland* (Cologne, Augsburg, 1925) 15. Frankl is referring to the Franciscan church, an extremely simple building with a straight-ended box choir and a wider, single-aisled nave, both spaces unvaulted. It belongs to a group of what Krautheimer called 'pre-Romanesque' early mendicant churches in Germany whose simple forms consciously evoked early Christian and apostolic simplicity. See Schenkluhn (2000) 106–8. See also Dehio/Piel (1964) 436. The Franciscan church at Ulm was destroyed in 1875, see Krautheimer (1925) 75, 80. A view of the church is reproduced in Schaffoldt (1924) plate 16. For the earliest Franciscan churches in Germany, dating from the 1220s, see Binding (1982) 431–60. Among the earliest German mendicant churches are flat-roofed, single-aisled churches of the Franciscans (1220s) in Eisenach in Thuringia and the first church of the Dominicans in Cologne, Italianate and three-aisled, in building by 1229. See also Konow (1954) for such early churches as the Dominicans in Konstanz, begun soon after 1236 and the Dominicans in Zurich, built between 1231 and 1240.

83. Viollet-le-Duc, *Dictionnaire*, I, 298. See also G. Rohault de Fleury, *Gallia dominicana, Les couvents de St Dominique au moyen âge* (Paris, 1903), and Elie Lambert in *B.M.*, CIV (1946) 178.

A full analysis of this possible prototype for the Dominican two-aisled church, and a discussion of the earlier literature on it, is given by Schenkluhn (1985) 55–62. He argues that the Dominicans did not construct the two-aisled church in Paris. The convent they founded in 1217 was on the site of the hospice of Saint-Jacques, built around 1209 by John of St Albans. Some time after 1218 the Dominicans simply converted the simple double-aisled hall of the hostel into a church. Sundt (1989) 203–4, points to a seventeenth-century Dominican source which dated the beginning of the church to 1241–52, and its completion between 1254 and 63. If true, this would mean that the Jacobins' church in Toulouse (begun in 1229) and not the Parisian church, would be the first Dominican attempt at double-nave church planning. Schenkluhn (2000) admits that the dating is unclear, but dismisses the 1241–52 date, and adheres to the views he expressed in 1985. Frankl's idea, shared by many, that these double-aisled halls were used as lecture halls for university teaching remains problematic. The Dominican church in Bologna served regularly as a meeting place for various university functions, but Sundt (1989) 197, points out that the statutes and privileges of the university of Toulouse show that the university's secular functions did not take place in the double-aisled (Dominican) Jacobins' church but in the Chapter House of the Franciscans. The university did, however, regularly use the church as a chapel for its religious services. It is by no means certain, therefore, that the double-aisled scheme imitated refectories and chapter houses because of those buildings' associations with secular assembly and discussion.

84. The shape of the original church, and the sequence of construction of the present building, have been revealed by Prin's (1955) excavations of the late 1940s, and his convincing analysis of the written sources. Prin's sequence isolates the following phases:

1) **1229–*c.*1235**: a rectangular hall church divided into two unequal aisles by five piers.

2) ***c.*1245–*c.*1252**: addition of an aisleless, polygonal chevet.

3) ***c.*1275–92**: the vaulting of this chevet, first with the intention of having no intermediary supports (a plan abandoned, but whose original capitals, lower than the present ones and now invisible, exist in the inner faces of the apsidal buttresses). Then, perhaps under the influence of the Dominican double-aisled hall church at Agen just completed in or around 1283, the choir was divided into two aisles by the present tall columns, and the eastern bay given the existing umbrella vault.

4) ***c.*1325–*c.*1335**, the replacement of the original rectangular church with a regular double-aisled hall nave with vessels of equal breadth, and with pillars and vaults of the same height as those of the new choir. The flanking nave chapels were inserted up to *c.*1390.

This sequence is accepted by Sundt (1989) 185–9, who explains the choice of the double nave scheme – in Toulouse at least – on economic, structural and topographical grounds, arising from the Dominicans' poverty in the early thirteenth century. Sundt also notes that the majority of double-nave Dominican halls in France are the result, not of conscious planning, but piecemeal addition. Schenkluhn (2000) 53–5, sees a number of factors influencing the choice

of the double-nave, among them hospital halls and monastic refectories. He also discusses the later history of the Jacobins in Toulouse as the burial place of St Thomas Aquinas, and the effects of this transferral of 'his' learning from Paris to Toulouse on the scale of the new church, itself an enlarged version of the Parisian double-aisled hall (194–6).

85. Walter and Elisabeth Paatz, *Die Kirchen von Florenz*, III (Frankfurt a. M., 1952) 664. See also Walter Paatz, *Werden und Wesen der Trecento-Architektur in Toskana* (Burg, 1937) 7.

Despite its art-historical importance as the first vaulted mendicant church in central Italy, S Maria Novella's building history is still problematic. In 1221 the Dominicans were given the church/chapel of St Mary, which stood next to the eleventh-century parish church which occupied the area of the first bays of the nave. Indulgences for building in 1246 and 1250 to the north of the old church could refer to the remodelling and extension of the St Mary Chapel, or to the beginning of the present choir. In 1251 financial pressures suspended building. In 1277 a model is mentioned, (for the present church, begun then, or for part of the structure already begun in 1246?). 1279–*c.*1300 mention of work to the south of the old parish church, that is, on the present nave. In 1298 the monks' choir (in eastern nave bays) was in use. 1325, first mention of expenditure on the west façade. A 'late' date for the whole building sequence (beginning of the present church in 1277/9) is favoured by Arthur (1983) and by Kleefisch-Jobst (1991) 50. An 'early' date (begun *c.*1246) is supported by Villeti (1981) and Schenkluhn (2000) 48–9. Schenkluhn here, and (1985) 113–14, points to the rich stylistic background of the design: its elevation a more spacious version of the 'mother church' of S. Domenico in Bologna, its pillar shape derived from S. Miniato al Monte in Florence, its Cistercian 'Bernardine' choir plan quoting San Galgano. The similarities with all these buildings, and with the 'Bernardine' plan of the first Franciscan church of S. Croce in Florence, of *c.*1250, as well as S. Maria's clear influence on the elevation and spatial disposition of the cathedral of Arezzo, begun in 1277, strengthen the case for the 'early' dating of the church.

85A. The sequence of construction and the chronology, based on new dendrochronological evidence, have been clearly set out in Michler's authoritative study (1984) 29–37. He identifies three decisive phases of construction, some subdivided into campaigns.

1) *c.*1235–*c.*1237 (first campaign): preservation of the old church east apse (conch), south apse and southern parts of north apse, all up to first storey.

*c.*1238–*c.*1240 (second campaign): demolition of old church, east apse liturgically useable.

*c.*1241–*c.*1243 (third campaign): all three eastern apses vaulted and roofed.

2) *c.*1244–*c.*1248: (with no clear break from the third campaign of phase one): nave outer walls to half the nave length westwards, and first two eastern pillar pairs of nave.

3) *c.*1265 onwards (first campaign): outer nave walls up to beginning of western towers, and laying out of present two-tower west end.

*c.*1265–83: completion of nave and first two stories of western towers. 1283 consecration. See also Schenkluhn and van Stipeln (1983).

There has been some disagreement over the original design of the nave. Hamann and Wilhelm-Kästner (1924/9) vol. I 50ff, and Kunst (1968) 134ff, argue for an original basilica, quickly changed to a hall. Michler (1969) 104ff, and (1984) 25–9, sees no reason to doubt that the present hall was intended from the start.

86. K. Wilhelm Kästner, *Die Elisabethkirche in Marburg etc.* (Marburg, 1924). Kunst (1968) 131–45 suggests the influence of Cambrai Cathedral and the Abbey of Chaâlis on the triconche east end. Michler (1984) 14–24, locates the main sources in a 'lower', non-cathedral class of architecture, belonging predominantly to the last quarter of the twelfth century, and coming from the Laonnois, Champagne and especially Paris and its environs. Götz's (1968) 26–7, suggestion that the triconche east end derives from the Teutonic Knights' church in Tartlau in Transylvania has foundered on Marosi's (1984) 163–4, re-dating of Tartlau to the 1240s. A connexion with the trefoil plan of the church of the Nativity at Bethlehem, advanced by Möbius (1989) 230, is no more convincing. See Crossley (1997) 268.

87. Illustrated in *C.A.*, LXXVIII (1912) opposite p. 344. A more likely source for the superimposed windows with Reimsian tracery is the Liebfrauenkirche in Trier, see below, Chapter 3, Note 88. Michler (1984) 23, rejects Saint-Léger at Soissons as a source, and points to other double-window apses: Mons-en-Laonnois, Larchant, Souppes-sur-Loing, etc.

87A. For the political background to the foundation of the church of St Elizabeth see Schenkluhn and van Stipeln (1983), Geese (1981), and Crossley (1997). The changing liturgical arrangements in the church, as reflections of a growing 'aestheticization' of the cult space and its furnishings, are brilliantly analyzed by Köstler (1995).

88. Illustrated in Oskar Karpa, *Dom und Liebfrauen zu Trier* (Berlin, 1944). The starting date for the church is controversial and still uncertain. Schenkluhn and van Stipeln (1983) 29, and note 24, date the beginning, not to 1235 as Frankl and others assumed, but to 1227. Borger-Keweloh (1986a) 24–7, 59–94, 127–31, in the most recent and authoritative study, dates the start to sometime after 1233. Work stopped in 1242, but by 1253 the whole eastern part of the church had been finished, and construction had reached the north-west clerestorey. Nussbaum (2000) 42–44, thinks the most plausible starting date is 1227. Relations with the church of St Elizabeth at Marburg are obviously close. Tuczek (1971) has found that the foot unit used in both buildings is the same. Borger-Keweloh (1986A) 126, admits the possibility of the same Reims-trained masons at work in both buildings, but considers that they were designed by different architects.

88A. Schenkluhn and van Stipeln (1983) 28ff, argued that the Liebfrauenkirche's centralized plan is an up-dated copy, in the language of Reims (the French coronation church), of the Palatine Chapel at Aachen (the German coronation church), with the aim of underlining the claims of Archbishop Dietrich von Wied of Trier, over the Archbishops of Mainz and Cologne, to crown the German kings. Nussbaum (2000) 43, doubts this interpretation, sees the church's dedication to the Virgin as crucial to its centralized plan, and derives the idea from the centralized early thirteenth-century Liebfrauenkirche which lay just to the west of the Romanesque cathedral in Metz. Borger-Keweloh (1986a) 132–45, also stresses the importance of the dedication to the Virgin, and emphasizes its function as a burial church. For the importance of the east end of Toul cathedral, begun in 1221, as a possible transmittor of Reims forms to Trier and Marburg see Schiffler (1977), Villes (1983) 78ff, especially 83, and Borger-Keweloh (1986a) 122ff.

89. Frankl (1960) 35ff. Critical evidence for Villard's presence in Hungary in the 1220s or 1230s, and for the activity of other craftsmen from northern France working for the Hungarian court in the early thirteenth century, is provided by the fragments from the Cistercian monastery of Pilisszentkereszt, excavated by Gerevich in the 1970s and 1980s. They include: (1) parts of a tiled pavement very similar to that drawn in Villard's book and captioned by him 'I saw such in Hungary' (fol. 15r) and (2) fragments of the tomb of Queen Gertrud of Andechs-Meranien (died 1213), wife of King Andreas II of Hungary. Hahnloser (1972) 393–7, implied that Villard had not just visited Pilisszentkereszt, but had in some way participated in the workshop. Gerevich (1971) (1982) (1983) (1985), who discovered and published the tomb, and Marosi (1984) 135–6, attribute it to a Chartres-trained sculptor, and find its closest stylistic affinities with the sculpture of the cathedral's south transept portals. Both also acknowledge the close stylistic parallels with the architecture and sculpture of Reims (1220s up to 1233) and Notre-Dame in Paris. Gerevich dated the tomb to the mid-1230s, Marosi to the 1220s. For the position of Villard in the Andechs-Meranien family connexions see Crossley (1997) (with full literature). Villard's journey to Hungary was dated by Hahnloser (1972) 395–7, to the mid-1230s, and by Bucher (1979) 20–3, to the later 1220s. Takács (1998) places the queen's tomb in the year 1228, or soon thereafter, and underplays its relevance to Villard, who was only one among many sculptor-architects trained in the most advanced centres of French High Gothic working in Hungary in the 1230s and 1240s (e.g. the Remois south portal of the Abbey of Pannonhalma).

89A. Villard's traditional position as an architect is upheld in Hahnloser's (1972) canonic edition of the 'lodgebook'. Bucher (1979) calls him a 'mason-contractor'. More recently, Villard's status as an architect has been seriously questioned by Kidson (1981), and by Barnes (1981) (1982) (a work which provides an excellent bibliography on Villard up to 1982) and (1989). Barnes argues that he was a metalworker. Schlink (1999) thinks that Villard was probably illiterate and dictated the captions of this drawings to scribes. He may have begun his training in a workshop specializing in the figural arts (metalwork, manuscript illumination, glass painting) and then graduated to an interest in more monumental genres (architecture, machines). Many useful articles on Villard are published in *Avista Forum*, the Journal of the Association Villard de Honnecourt for the Interdisciplinary Study of Medieval Technology, Science and Art.

89B. In fact, Gerhard had longer to prepare his designs, for the Chapter passed a resolution to finance the new cathedral on 13 April 1248, and there is nothing in the document to suggest that the intention to rebuild did not go back to the very beginning of that year. See Wolff (1968) 67–9. Wolff (1968) 67–70, 212, and (1986) 8, gives 30 April as the date of the fire of the old cathedral, but Wolff (1980) 12, puts it on 26 April. For the *fabrica* at Cologne during the building of the choir and nave see Schöller (1988). Haussherr (1991) sees the radical novelty of the new choir at Cologne, as opposed to the more traditional rebuilding of the slightly earlier Bamberg Cathedral, as an indication of the pro-Hohenstaufen political outlook of the Bamberg bishop, Ekbert of Andechs-Meran, over and against the anti-Hohenstaufen, pro-French politics of Archbishop Konrad von Hochstaden, the driving force (with the Chapter) at Cologne. The symbolic meanings of the new building, especially its apostolic and papal overtones, is brought out clearly by Kroos (1979/80).

90. A clear analysis of the relationship with Amiens and Beauvais can be found in Franz, Graf Wolff Metternich, 'Zum Problem etc.', in *Festschrift des Kölner Domes* (Cologne, 1948) 51. A comprehensive analysis of details is given in Helen Rosenau, *Der Kölner Dom* (Cologne, 1931). Still useful is Paul

Clemen, *Der Dom zu Köln* (Düsseldorf, 1937). For the history of the Gothic choir of Cologne, including the contributions of the architects Gerhard and Arnold, see the masterly study by Wolff (1968) and also Wolff (1980) (1986).

90A. See above, Chapter 3, Note 17A.

91. The original German term *Dreistrahl*, translated here as triradial, applies first to tracery which consists of three radiating spokes like those in a rose-window, and second to the ribs in a section of a vault which is divided by three such ribs.

92. Wolff (1968) and (1980) 12–14, and (1986) 7–32, established the following sequence of construction:

1) **Phase One.** 1248–*c.*1261 under Master Gerhard (died 1258–61). Foundations, planning of whole structure including transepts and five-aisled nave, construction of northern part (now demolished) of the sacristy, and of ambulatory and all the radiating chapels up to the height of the vault springing, with the Chapels of St John and the Three Kings vaulted and complete by *c.*1260.

2) **Phase Two.** *c.*1261–8 (at the latest) under Master Arnold (first mentioned in 1271). Construction of whole lower storey of choir, piscinas inserted in radiating chapels. By 1265 choir aisles ready for services, by sealing them off with provisional walls from transept and central aisle of choir.

3) **Phase Three.** Building of sacristy, begun *c.*1275, part of which consecrated in 1277.

4) **Later Phases.** *c.*1277 beginning of the triforium; *c.*1300 first designs for south tower of west façade begun, the earliest by Arnold. At the same time (*c.*1300) the upper choir and buttressing complete, probably now under the direction of Master Johannes, Arnold's son (first appearing in 1296). 1310 glazing of fifteen clerestorey windows in choir. 1308–11 choir stalls erected. 1322 consecration of choir.

The radical alterations to Gerhard's design in the exterior of the choir clerestorey, introduced by Johannes under the influence of the west front of Strasbourg, are discussed by Wolff (1968) 216, and Rode (1954).

92A. It is difficult to follow Frankl here. All free-standing piers or aisle responds in the choir of Cologne have cores that are circular, that is convex, in shape. See Wolff (1968) figs 44–7, 49–50. Perhaps he is thinking of the complex hollows and pear shapes of the supports in the south-west tower, and the drawings for them (Plans A–D), dated *c.*1300 onwards.

92B. The connexions with the Sainte-Chapelle are underlined by Branner (1965) 128–35. For the sculpture see Williamson (1995) 195–7.

93. Durand, *op. cit.* (Note 18 to this Chapter) 290. This piercing of the spandrels in the triforia ultimately derives from the main windows of the chapel of Saint-Germain-en-Laye, see Branner (1965) 74–5.

93A. However, the outer sides of the four buttress uprights on the south side of the choir were originally pierced with openwork niches, before they were filled in during the 1828–33 restorations. See Wolff (1963) 143–7.

94. Paul Clemen, *Die Kunstdenkmäler der Städte und Kreise Gladbach und Krefeld* (*Die Kunstdenkmäler der Rheinsprovinz*, Bd. III, part IV) (Düsseldorf, 1896) 447. See Borger (1958) 38–40, and 173–204, who dates the start of the choir to 1256 or thereabouts and its consecration (by Albertus Magnus) to 1275. He supports the attribution to Master Gerhard.

95. Carlfred Halbach, *Der Dom zu Altenberg* (Altenberg, 1953), with excellent illustrations; Karl Eckert, *700 Jahre Altenberg etc.* (*Die Kunstdenkmäler des Rheinland*, Part IV) (Bergisch Gladbach, 1956), with many illustrations of the stages of ruin after the fire of 1815. The basic work is now Panofsky-Soergel (1972). See also the wide-ranging Krönig (1973) especially 83–7. Panofsky-Soergel corrected the foundation date from 1255 to 1259. Ten altars were consecrated in 1276, and another nine in 1287, so that the choir was probably complete, as Davis suggests, by *c.*1280/85. See Davis (1984) especially 131–2. Although the design has been attributed to Gerhard, the architect may have been a 'Walterus', mentioned in the abbey's necrology. First Branner (1965) 132–4, then Panofsky-Soergel (1972) 107–9, and Krönig (1973) 83–7, derive the design almost exclusively from the French Cistercian church of Royaumont. The case for a dependence on Cologne is convincingly re-stated by Schröder (1977). Davis (1984) sensibly dismisses any partisan concentration on French sources to the exclusion of German, or vice-versa, and sees the choir as a copy of a wide range of precedents, including Rhenish and Ile-de-France forms, though it is hard to accept his conclusion that the new Saint-Denis was 'a prime model'.

95A. Most scholars now accept that Gerhard was a German, see, e.g., Rieckenberg (1962). Some confirmation of this comes from Kimpel (1977) 211, Kimpel (1979/80), and Wolff (1986) 9–11, who show that many of the forms of Amiens Cathedral were carefully copied in the new choir, but not its advanced stone-cutting techniques, which a French architect, if directing the lodge at Cologne, would surely have introduced. However, Wilson (correspondence 1991) and (1990) 124, suggests that such techniques were the responsibilities not of the *magister operis* but of his deputy, the warden of the masons, who could have been German. To Wilson, Gerhard (*Gerardus* in the sources) was almost certainly 'Gérard', a Frenchman.

95B. The 'normative' qualities of Cologne are also underlined by Kurmann (1979/80) especially 259ff; and Gross (1948) 17–26, who sees it as an ultimate and 'ideal' statement of regularity. Wolff (1980) 93ff, not only praises it as a culmination and perfection of the 'cathedral style', but as a 'borderline building', touching the limits of the possible.

95C. For Léon see above Chapter 3, Note 38a. For Lincoln Angel Choir the most authoritative works are Dean (1979) especially 155–69, and (1986).

96. See above, p. 136. And see above, Chapter 3, Note 40.

97. Samuel Muller, *Der Dom von Utrecht* (Utrecht, 1906).

97A. See now Haslinghuis and Peeters (1965), and – for the financing of the enterprise – Vroom (1981) (1989) and (1996). The starting date of 1254/5 is based on circumstantial evidence: the fire in Utrecht in 1253 (*terminus post quem*), and post-1274 written tablets in the cathedral attributing its foundation to Bishop Hendrick van Vianden in the reign of William II of Holland (died 1256) (*terminus ante quem*). Indulgences for building work in 1265 and 1267 could refer to repairs for the old, damaged predecessor. Therefore Helten (1988) (1989) and (1994) 101–3, thinks that work was begun much later, in the reign of Bishop Jan van Nassau (1267–90). He singles out 1288 as the first mention of the 'nove opere'. Six chaplaincies were endowed 'in Novo opere' in 1303. He identifies three main phases in the lower storey of the choir construction, corresponding largely to changes in moulding profile and respond type:

1) *c.*1288–*c.*1296: the ambulatory and radiating chapels, modelled on the choirs of Soissons (buttresses, plan of radiating chapels and ambulatory vaults) and Cologne (tracery of radiating chapel windows, moulding profiles). Helten also argues for influences during this phase from Westminster Abbey (spheric triangular tracery of the radiating chapels and their arch surrounds, pillar-thick arcade arches, rib-sized transverse arches in the ambulatory). I am not convinced that these similarities are anything more than fortuitous, and cannot follow his contention that such 'quotations' reflected Count Floris V's (1266–96) pro-English alliances or his claims to the throne of Scotland. More plausible is his suggestion that the conception of the apse, ambulatory and radiating chapels went back to the 1250s.

2) **Shortly after 1296–*c.*1325.** Responds of south choir aisle and south chapels opening off it. Burial of Bishop Guy van Avesnes in one of these chapels in 1317. Strongly indebted to south tower of west façade of Cologne. See also Zimmermann-Deissler (1958) 93.

3) ***c.*1325–1360.** Responds of north choir aisle and free-standing pillars of choir on both sides, with their arches, up to triforium.

The upper parts of the choir were completed in the late fourteenth and first half of the fifteenth century. Kolman *et al.* (1996) 213–21, follow this sequence in the main, but give 1254 as the date of the foundation, 1265–95 as the period for the radiating chapels under Jan van Nassau, *c.*1300–25 as the length of phase 2 and *c.*1325–60 for the construction of the north choir aisles and northern choir pillars, as well as the eastern crossing pillars. They point to Doornik Cathedral (begun 1243) as an important source for the ground plan, while the details of the radiating chapels are so close to the earliest work in the choir of Cologne that they attribute them to Master Gerhard of Cologne.

98. Durand, *op. cit.*, I, 282. For the upper parts of the Amiens choir and the eastern walls of its transepts, which amount to a revolutionary change in its stylistic appearance, see Murray (1996) 66–77.

99. Double curves had already existed earlier in the profiles of bases and other members.

100. For all questions on details cf. Lisa Schürenberg, *op. cit.* (Note 38 to this Chapter) 206.

The fullest account of the church and its construction is by Davis (1984a), but see also the earlier Salet (1955). Davis identifies two campaigns of construction, each by a different architect:

1) **From the foundation in 1262** (and the laying of the literal foundations in 1263) to the fire of 1266: choir (including probably the vaults), lower storey of the transepts (including portals), eastern bay of nave (side aisles and central vessel) up to string course, portion of the west façade up to but not including springers of porch vaults. Original west façade design envisaged a tripartite opening in front of each of the three portals, with nine openings in all, topped by nine gables. This work was characterized by 'an extraordinary degree of detailed refinement and decorative elaboration'.

2) 1267–*c.*1286 (the latter the year of the death of Cardinal Ancher, its principal benefactor after Urban IV's death). Clerestorey level of the transepts, northern and southern transept porches, western pair of nave bays, continuation of west façade with springers for the porch vaults, tracery in the central portal's tympanum, and the simplification of the west façade to five gables with tripartite openings only into the central portal (like the present 1904–5 design). Bruzelius (1987a) has pointed to a donation of Charles of Anjou in 1276 for timber for 'three vaults of the church', which she convincingly identifies as the three vaults in the transepts and crossing. Davis argues that the 'dense, powerful and sober style' of the second architect, forced on him partly by economic realities, has parallels with other late Rayonnant works in France, e.g. at Saint-Germain at Auxerre, and at Narbonne. It anticipates the fluid and compact qualities of French Flamboyant.

3) The rest of the nave was completed in the nineteenth and early twentieth century.

101. The model for the building of open tracery between two parts of the interior was that at the joint of the chapel on the choir with the aisle in the transept of Amiens.

But more likely sources for this device are the openings between choir and transept chapels in Notre-Dame at Dijon (see plate 140). Saint-Urbain's stylistic debts to Champenois and Parisian forms are incisively analysed by Branner (1965) 106–8, and by Davis (1984) 848–50, who stresses the connexions with Hugues Libergier's work at Saint-Nicaise at Reims. For the position of the apse in the history of glazed apses in France and Germany see Héliot (1968) especially 110–11.

102. In a review of G. Minvielle's book *Histoire et condition juridique de la profession d'architecte* (Paris, 1921), which appeared in *B.M.*, LXXXI (1922) 480, Lefèvre-Pontalis wrote that he had been wrong to regard Jean Langlois as the architect of Saint-Urbain, for he had embezzled funds, and must, therefore, have controlled the building funds, which only the administrators did. On the other hand, Langlois appears as *magister fabrice*, while the administrators are called *operarii*. In 1261, shortly before Saint-Urbain was begun, a contract was made in the monastery of Saint-Gilles between Martinus de Lonay and the abbot. In this document the architect is called *magister* and the administrator *operarius*. Later, administrators were also called *rectores*, *directores*, and by several other titles; cf. Paul Booz, *Der Baumeister der Gotik* (Munich, Berlin, 1956) 23. Since Langlois was called *magister fabrice*, he may have been the architect. He may, in addition, have been an exception and controlled the building funds too.

The term *magister fabrice* is ambiguous. The word *fabrica* in medieval French and English sources refers, as Branner (1976) showed, not only to the building, but also the fabric agency responsible for the whole enterprise. The same ambiguity appears in German accounts, where *magister fabricae* can refer to the building clerk, or to some kind of financial officer, but not necessarily to the master mason. See Perger (1970) 68 and note 11. The variety of the terminology for such officers, clerks, administrators and architects is discussed fully by Schöller (1989) 161–8. Salet (1955) 118–22, thinks, on balance, that Jean Langlois was the practicing architect; Davis (1984a) 849 and note 9, doubts it. For the influence of Saint-Urbain on the early stages of the English Decorated style see Bony (1979) 10, 11, 46.

103. Schürenberg, *op. cit.* 82.

See Branner (1965) 109–10; Freigang (1992) 331–44, established the following chronology:

1) **Begun soon after 1269** with a shorter choir, the foundations of whose apse were drawn by Viollet-le-Duc.

2) *c.*1280 the present choir and apse started further eastwards, and work proceeded from the choir into the north transept, latterly under Bishop Pierre de Rochefort (1300–22).

3) Soon after the completion of the north transept a new workshop executed the Rochefort Chapel (north side of eastern bays of nave), the south transept, the eastern bay of St Bartholomew's chapel and the vaults of the whole work. Under Bishop Pierre Rodier (1323–30) the west bay of St Bartholomew's chapel was finished. Freigang sees the whole extension as a special case in southern French Gothic. In some respects (the form of the transept chapels and their divisions) it relies on Narbonne and Toulouse Cathedrals, but its most advanced Rayonnant features come directly from Norman and Parisian precedents, especially the transepts at Rouen.

104. Chapels divided by walls on the lower storey but not on the upper one had already been built in the choir at Vézelay, in the choir of the church of Saint-Etienne at Caen, and in the choir of the cathedral at Bayeux.

105. *C.A.*, LXXIII (1907) 32: René Gobillot, *La cathédrale de Séez* (Paris, 1937) 35.

The glass in the choir clerestorey at Sées dates from *c.*1280–5, see Lafond (1953) 59–83; therefore the structure must have been begun in the 1270s. Wilson (1990) 4, derives one of the most distinctive features of the interior, the choir arcade gables with the triforium mullions running down to them, from the interior faces of the south transept façade at Notre-Dame in Paris, which was also the source for Sées's south transept rose. See also Olde-Choukair, in: Baylé, dir. (1997) vol. 1, 159–73, and vol. 2, 179–84, who confirms that the radical restorations (in fact, total rebuilding) of the choir in the late nineteenth-century scrupulously preserved its medieval appearance. She also notes, as precedents for the interior arcade gables of the choir, the gables backed by blind tracery panels which were inserted over the entrance arches from the north transept to the choir aisles at Notre-Dame in Paris (perhaps *c.*1270?). She also notes, in a similar position, the late thirteenth-century gables over the entrance arches from the north transept to the Lady Chapel at Larchant.

106. Lottlisa Behling, *Gestalt und Geschichte des Masswerks* (Halle a. S., 1944) plate 21 and p. 24. This is a good guide to the general stylistic history of tracery.

For Germany it is superseded by Kiesow (1956), and in general by Binding (1989). For Minden see Kunst (1969a), who underlined the influence of Cologne cathedral choir, particularly on its pillar forms; and Fiebig (1991), who convincingly redates the nave to the 1250s and 1260s, but distinguishes between its formal vocabulary (based largely on Reims and Cologne cathedrals) and its spatial typology (based on Paderborn cathedral).

107. Felix Mader, 'Stadt Regensburg', in *Die Kunstdenkmäler der Oberpfalz*, XXII (1933).

Research on Regensburg Cathedral during the 1990s has made it one of the most intensively investigated churches of recent times. See Hubel (1989), Schuller (1989) and Hubel and Schuller (1995) – the latter the most convenient account of the history of the cathedral, based on new information from the 1984–8 restorations and on new dendrochronological evidence. They identify the following thirteenth-century history:

1) **Begun under Bishop Leo Tundorfer** (1262–77) after the fire of 1273. Layout of three apses in echelon, in general imitation of the three-apsidal choir of the Romanesque cathedral, but closely indebted, in its specific form, to the ground plan of the slightly earlier choir of Saint-Urbain at Troyes. Choir, sacristies, and apses up to dado level; St Nicholas Chapel (the lower storey of the building adjoining the southern apse to the east, and mentioned in 1280).

2) **Rapid progress under Bishop Heinrich von Rotteneck** (1277–96). The first phase, from *c.*1277–*c.*1285/90, saw construction of the apse and southern wall of the south choir aisle, the terminal wall of the south transept and the aisle wall of the eastern bay of the nave on the south side – all up to aisle vault springer height. The first two bays of the southern wall of the main choir were built up to the base of the triforium (wooden tie bar of 1284 found in it). All this is executed in a conservative, mural style, by a local workshop. The second phase, *c.*1285–1305, perhaps under a *magister Ludovicus lapicida* (first mentioned in 1283, died in 1306) introduced a totally new stylistic regime, based on advanced Rayonnant models. Lower north wall of the choir; south-east crossing pillar, and the adjoining arcade arches on the south side of the choir (with sunk spandrels) and on the east side of south transept; vaulting of the south choir aisle and beginning of the apse *vitrée* in the main choir.

3) **Under Bishop Konrad von Lupburg** (1296–1313), in a short phase, 1305/10: completion of the north choir chapel up to vault springers; all lower windows of main apse, up to, but not including, triforium; south triforium of choir straight bays; lower walls of east bay of nave on north side; triforium of south transept; first bay of nave on south side up to and including triforium; first south bay of nave apart from vaults; choir triforium and clerestorey without vaults; north choir aisle vaulted.

***c.*1320, under Bishop Nikolaus von Ybbs** (1313–40) whole choir and transepts roofed and vaulted.

The work from *c.*1285 to *c.*1320 established the basic design of the cathedral, including the elevations of the main apse, the choir, the transepts and nave, even though much of the execution progressed well into the fourteenth century. It is characterized by a sophisticated understanding of Parisian, and Parisian-derived Rayonnant (e.g. Saint-Denis, Saint-Urbain at Troyes), but also a sculpturally vigorous articulation of the wall which aligns it with non-Parisian developments (e.g. the choir of Bordeaux cathedral, begun 1262). The theory, first advanced by Friedrich Adler, and repeated by Frankl in the first edition of this book, namely that Bishop Leo Tundorfer got information about Saint-Urbain in Troyes from Cardinal Ancher at the Council of Lyon in 1274, is speculative. In any case most of the Saint-Urbain elements in the choir, apart from its ground plan, appear only *c.*1290, some years after Tundorfer's death in 1277. See also Altmann (1976) 101. Kurmann (1995), in a comprehensive analysis of the cathedral in the context of Rayonnant in France and England in the late thirteenth century, underlines the very close debt which the 1290s architect owed to Saint-Urbain: its apse *vitrée* with passages, its window tracery, its buttresses, its clerestorey set within thin but distinct 'framing' sections of wall. However Kurmann also speculates that most of the essentials of the earlier, 1273, project probably included many of these features of Saint-Urbain; the 1290s architect simply made them more explicit and executed them with greater sophistication. He also suggests (note 26, p. 400) that the Roman and Petrine references at Regensburg – emphasized by Hubel and Schuller (1995) 22, 34 – would be quite consistent with the papal associations of Saint-Urbain, founded, as it was, by Urban IV.

107A. The most authoritative account of Narbonne, and of Rayonnant in the Midi, can now be found in Freigang (1992) 19–109. For Narbonne he establishes the following sequence of construction:

The cathedral was the brainchild of Archbishop Guy Foulques (1259–65) (later Pope Clement IV). Financial preparations for the new church underway in the 1260s; transference to present site in May 1271; official foundation stone on 3 April 1272. Work proceeded from east to west.

Campaign I, *c.*1270–*c.*1275: Design (by an unknown architect) of choir; foundations and lower parts of radiating chapels; intention at this stage to make the lateral chapels of the choir like those at Clermont-Ferrand Cathedral: square in plan, with four-part vaults and divided by solid interior walls.

Campaign II, *c.*1275–*c.*1285 or a little later: radiating chapels and first (cast-

ernmost) two lateral chapels on the south side, up to height of vault springing; first lateral chapel on north side, but up to a lower height. Probably under the influence of Toulouse cathedral, the lateral chapels made internally apsidal and fronted by a tall, narrow 'aisle' pierced in their dividing walls.

Campaign III, *c.*1285–*c.*1295, probably by a Jean Deschamps, engaged at Narbonne as *magister principalis* in 1286. Completion (including vaulting) of all the radiating chapels, all the lateral chapels on the north side, but only the two easternmost lateral chapels on the south side. In 1289, 1291 and 1295, documentary mention of altars, chantry priests or indulgencies for several radiating chapels. Design, and beginning of the construction of, the façade and eastern wall of the north transept, based closely on the transept façades of Clemont-Ferrand cathedral. Tracings, discovered in 1983 on the floor of the easternmost radiating chapel, show a full-scale plan of a straight-bay choir pillar and its hemicycle variant, and the profiles of the eastern angles of the transepts and of the interior embrasures of the triforium and clerestorey windows. Dated to the 1290s, they indicate that their author (probably Jean Deschamps) was considering the design of the main elevations of choir and transepts.

Campaign IV, *c.*1295/late 1290s–*c.*1310?, the latter date coinciding (a) with the death of Archbishop Gilles Aycelin (1291–1311), an energetic benefactor of the cathedral during this campaign, and (b) with a statute regulating masses in the lateral chapels, suggesting that the main choir not yet serviceable. Work proceeded under the direction of a new architect (arriving in the last years of the thirteenth century), Dominique de Fauran. Construction and completion of two western lateral chapels on south side, without the 'aisles' of the northern chapels. Provision of transept eastern towers on north and south sides. Construction of main arcades with cylindrical pillars of simpler profile than envisaged in the tracings. Main elevation up to top of triforium; vaulting of aisles.

Campaign V, *c.*1310–32 (at the latest), some, or all, of it under Jacques de Fauran, son of Dominique, who assumed control of the lodge sometime before 1320 (when he became the principal architect of Gerona cathedral), perhaps as early as 1310. Change of stone-type above the triforium. Clerestorey and vaults of high choir, and flying buttresses. Clergy occupy the choir in 1319, when perhaps it was covered with a temporary roof. The year 1332, when services (perhaps the first high Mass) start, marks the completion of the whole choir and its furnishings, though its structure was probably finished in the the late 1320s. For Narbonne see also Freigang (1989) (1989a) (1991); and Paul (1990) (where she also attributes the tracings discovered in 1983 to the Jean Deschamps appointed in 1286) and (1991).

107B. For Limoges see Davis (1979) 332–43, and especially Davis (1986). He locates the principal motive for building a north-French Rayonnant cathedral in the Limousin in an act of political defiance. Since the Treaty of Paris in 1259, Limoges was a city divided: the castle and its environs were dominated by the English, while the French still controlled the cité around the cathedral. The bishop who initiated the project, Aimeric de Malemort, was thereby asserting his, and his Chapter's, allegiance to the king of France.

Davis divides the history of the choir and the early fourteenth-century work on the transepts into eight phases, under four architects or workshops, proceeding from east to west:

1) **First architect** (probably Jean Deschamps), working in the 1270s. Foundations set out from *c.*1270. Official foundation stone laid in 1273. Design of whole choir plan; construction of radiating chapels, hemicycle pillars and first two lateral chapels on north and south sides, in a style indebted to the earlier phases of the choir of Clermont-Ferrand.

2) **Second architect**, working in the 1280s, responsible for two western bays of the choir and their lateral chapels, the south-western finished by 1294.

3) **Third architect**, *c.*1290–*c.*1310: choir arcades and vaults of choir aisles; choir triforium and clerestorey, and high vaults of the two western bays; lower parts of the transepts up to the triforium; construction of chapel of Saint-Martial opening off north transept.

4) **Fourth workshop**, *c.*1310–*c.*1325: completion of choir vaulting; clerestorey of eastern wall of south transept, and its rose and gable.

Work resumed on the transept in 1344, but damage suffered in the 1370s meant that the north arm of the transept and the first two bays of the nave were still under construction in the second half of the fifteenth and early sixteenth centuries.

107C. The exact relationship between Narbonne and Toulouse is still uncertain. Cazes, Carbonell-Lamoche and Pradalier-Schlumberger (1979–80) argue that construction on Toulouse began well before the official foundation, supposedly in 1272, but proceeded slowly, so that at the death of Bishop Bertrand de l'Isle Jourdain (the driving force behind the new choir) in 1286 the lateral chapels on the north side, and the northern radiating chapels up to and partly including the axial chapel were complete, but the southern ring of chapels was still under construction. They also date the keystones in the north choir aisle vault to pre-, those of the south aisle to post-1286. However the choir arcade piers, whose details suggest (to them) a post-1286 date, presuppose at least the installation of the north aisle keystones. See Paul (1991) note 26, p. 39. Freigang (1992) 113–49, has argued that the start of Toulouse was delayed to 1274–5; that work began on the straight choir chapels on the north side; that from *c.*1282 all the radiating chapels, except the southernmost, were in building. By 1300 at the latest, and not, as the legend has it, by the death of Bishop Bertrand in 1286, four radiating chapels (but not the fifth, southernmost) were vaulted. The remaining chapels, all on the south side, were initiated under Bishop Gaillard de Pressac (1306–17). The revenues of the see suffered after the reduction of the size of the diocese in 1317, and this meant that the whole ground floor of the choir was only completed in the 1360s and 1370s. At this point the triforium was begun and the choir stalls set up. The design is a de luxe response to Narbonne campaign I, extending that cathedral's radiating chapel system into the straight bays with a series of lateral polygonal chapels, piercing their inner walls with openwork tracery to prefigure the double-aisle spaces of the transepts of Carcassonne, and planning a three-aisled transept. Some of these innovations, including the polygonal chapels along the straight sides, and the shape and profiles of the main piers, in turn influenced Narbonne campaigns II, III and IV. The more mannered design of Toulouse, with its play of contrasts between austere supports and delicate, openwork tracery, suggests to Freigang that it was designed by a different architect to that at Narbonne, though the workshops remained in very close contact.

107D. For Rodez see Davis (1979) 363–72, and Freigang (1992) 165–88, who establish the following sequence of construction:

1) **Cathedral begun in 1277** by a Narbonne-trained architect. Work proceeded from east to west. Burials and altar endowments in the radiating and lateral chapels of the choir in the 1290s and first two decades of fourteenth century suggest that ten chapels were complete by *c.*1320. The hemicycle geometry and high vault, the proportions of the aisle bays, the mouldings of the apse arcade and the details of the radiating chapels show close connexions to Narbonne, though the length of the choir, the dimensions of the chapels and the shape of their responds immediately recall Toulouse.

2) ***c.*1320–30–*c.*1350**. Introduction of a new architect, who completed the last radiating chapel on the north side, introduced, at the earliest *c.*1316, but probably later, the rectangular chapels further west, and designed the famous undulating piers of the apse and first straight bays. He also built the upper parts of the hemicycle to a design which probably altered the original Narbonnais design of the upper parts, with an isolated and deeply splayed triforium unit reminiscent of that in the choir of Bordeaux cathedral. The polygonal and pannelled treatment of the projecting triforium passage on the exterior is also very similar to Bordeaux. See Paul (1991) 31, 34, who, however, notes the similarities between the Rodez triforium and Limoges. On stylistic grounds Gardelles (1963) 205ff, and (1992) 76–9, attributes this section of the work to Bertrand Deschamps, to whom he also attributes the upper parts of the Bordeaux choir, which he dates *c.*1320. In 1348 the sanctuary and high altar were mentioned, and the two eastern straight bays of the choir were complete.

3) **Fifteenth–sixteenth centuries**. After 1447 the erection of the clerestorey and the vaulting of the four eastern bays of the choir. In 1449 the old nave was demolished; around this period the beginning of the western arcades of the choir, which differ in plan to the eastern. 1462 contract for the eastern crossing piers. Nave built in late fifteenth and early sixteenth centuries. Gable of west façade dated 1562.

107E. Older sources have uncritically ascribed most or all of the major cathedrals of the Midi – Clermont-Ferrand, Limoges, Narbonne, Toulouse and Rodez – to the architect Jean Deschamps (see also above, Note 38). Davis (1979) (1981) (1986) and Freigang (1991) (1992) 191–202, have since cast proper doubt on these attributions. Jean Deschamps certainly established the main design of Clermont-Ferrand, and he may have also had a formative influence on the early parts of the choir of Limoges. But Narbonne, Toulouse and Rodez belong to a slightly different stylistic milieu, and there is little or no evidence that they owe their innovative designs to Jean Deschamps or his architectural family. Moreover, Deschamps was a common name in the Auvergne, and often refers in building accounts to prelates or administrators (e.g. a *magister de Campis* in 1287 at Clermont-Ferrand, or a Guillame Deschamps of 1355 at Rodez). For the career of Jean Deschamps, and the Deschamps dynasty see Davis (1979) 304–9, Freigang (1991) and (1992) 191–200, and Paul (1996) The following architects are worth highlighting:

Jean Deschamps I. An eighteenth-century copy of an inscription on the destroyed tomb in Clermont Cathedral, facing the north portal, records that a Jean Deschamps (*Johannes de Campis*) began the cathedral in 1248. He remained in post until *c.*1265.

Jean Deschamps II, mentioned as *magister principalis* at Narbonne in 1286. Davis, Paul and Freigang all reject the idea that he could be identical with the Jean Deschamps that began Clermont-Ferrand. Whatever his relation to the original Deschamps (son? nephew?) it is clear from his work on the Narbonne transepts, and from his tracings for the triforium and clerestorey of the choir (Freigang's campaign III) that he was closely connected to the Clermont chantier (see above, Note 107A). Freigang (1991) 288–94, and (1992) 96–112, underplays the influence of Jean Deschamps II on the design of the central ves-

sel of Narbonne in favour of Dominques de Fauran ('campaign IV'), who modified Deschamps's arcade pillar designs to their present shape and constructed the triforium. But Fauran's slight changes (he omitted four small shafts from the pillar core) were not as radical as Freigang insists, and for the upper parts of the transept and choir he followed exactly Deschamps's solutions. Bearing in mind that the transept façades were also Deschamps's contribution, this architect may well have had a profound influence on the main elevations of Narbonne. See Davis (1995).

Pierre Deschamps I, mentioned in a document given in Rodez in 1339, as a master of Clermont-Ferrand cathedral, and the father of another Pierre Deschamps. Could he be the son or nephew of Jean Deschamps I, continuing the work on Clermont after *c.*1265, during campaign 2? (see above, Note 38). This 'speculation' is advanced by Davis (1979) 309. If correct, it would rule him out on chronological grounds as the Pierre Deschamps who died in 1357 (see below); it would also exclude him from the first generation after Jean Deschamps I, since he would be in his nineties in 1339! See Freigang (1992) 199.

Pierre Deschamps II (?), mentioned in the same Rodez document as the married son of Pierre Deschamps, *magister* of Clermont. May be identical with the Pierre Deschamps, 'master of the works at Clermont', who died in 1357.

Pierre Deschamps III (?), mentioned as *obrier de peira* of Saint-Pierre de Gourdon in 1311. Identified with the architect of the westwork of Cahors Cathedral.

Bertrand Deschamps, mentioned in 1320 as 'master of the works of the churches of Bordeaux'. Despite the absence in the document of a specific reference to the cathedral, Gardelles (1963) 205ff attributes to him the upper parts of the cathedral choir.

Of these architects, the most influential were Jean Deschamps I, and Jean Deschamps II, who may have had a critical influence in the elevation of Narbonne. The influences of the Pierre Deschamps (I and II), on Clermont or perhaps Rodez, remain matters of speculation.

108. The positive changes occuring around the year 1300, which transformed 'High Gothic' into 'Late Gothic' have been analysed with exemplary subtlety by Gross (1948). Kurmann (1986) singles out for interesting discussion a few 'proto-late Gothic' buildings *c.*1300 in Germany and France.

109. On these mentions of the name and on the personality of the architect cf. Hans Kunze in Thieme-Becker, XII, under 'Erwin'. The inscription stating that 'Erwin von Steinbach began the façade in 1277' has been doubted by recent research. It no longer survives and was first recorded as late as 1508. See Will (1980). But the latest examinations of the façade by Liess, especially (1985) give greater credence to the inscription and to the sixteenth- and seventeenth-century sources which attribute the façade to Erwin. See below, notes 109a and 111.

109A. Most authorities see Plan A as the first of the series of Strasbourg west façade designs, and some identify it as an 'ideal' project, not intended for the actual west front, because its dimensions do not correspond to the widths of the aisles of the nave behind. For older literature see Wortmann (1957) 44–61, and (1969) 121–4. However Recht (1981) 237–8, and (1989) 381, who dates it to *c.*1250, argues that the plan *was* intended for the façade since its dimensions fit the cathedral's cross section. Liess (1985a) suggests that Plan A is a copy, probably by an apprentice, of Plan A1, which he attributes to Master Erwin. This is not convincing, since A's details look decidedly earlier in style than A1's; and the author of A1 shows no greater skill as a draftsman (as Liess proposes) than the maker of A, who at least understood side-placed niches at façade corners. Moreover Plan A1 has none of the skill of Plan B, which Liess also attributes to Erwin. Wortmann (1997), rightly, does not attribute A1 to Erwin; he confirms that Plan A is the original (dated *c.*1250) and A1 the copy (*c.*1290). He does not think that Plan A was intended for Strasbourg Cathedral, but was a drawing, based on Saint-Nicaise at Reims and the transept façades of Notre-Dame in Paris, by a Strasbourg mason who had travelled to northern France.

110. Georg Dehio in *K.B.*, II, 306 (footnote) rejects Adler's derivation from Troyes, saying that Saint-Urbain had probably not at that time reached much higher than ground level. This argument is in turn contradicted in Lefèvre-Pontalis, 'Jean Langlois, architecte, etc.', in *B.M.*, LXVIII (1904) 93. It was intended to consecrate the choir as early as 1266, but the ceremony had to be postponed because of quarrels and a fire. See above, chapter 3, note 100.

Liess's views on the dating and attribution of the plans are by no means shared by other authorities on Strasbourg, see below, Note 111. The sources for Strasbourg's bravura handling of Rayonnant tracery, particularly free-standing, 'harp-string' mullions in front of the façade wall, can be found not only in the free-standing tracery above the exterior clerestorey gables of the choir of Saint-Urbain at Troyes, but also in the delicate and dense traceries of the north transept front of the cathedral of Châlons-sur-Marne and in the portal storey of the west façade of Auxerre Cathedral. However Wortmann (1997) 144, stresses the unique character of the Strasbourg design, see below, Note 111.

111. Older analysis of the designs and the history of the building is that in the article by Georg Dehio in *Strassburg und seine Bauten* (Strasbourg, 1894) 182. Dehio also returned to this subject in several later works. Cf. also Maximilian Hasak, *Das Münster etc.* (Berlin, 1927), and Josef Knauth in *Strassburger Münsterblätter*, VI (1912) 7. Subtle visual analysis distinguishes the article by Werner Gross in *Marburger Jahrbuch*, VII (1933) 290.

The relationship between the medieval plans and the actual lower storeys of the façade, and the contribution of Master Erwin to both, are still controversial issues. A detailed account of the planning and construction of the façade in the later thirteenth century was given by Wortmann (1957) and (1969). He identified two architects: (1) the designer of Plan B who executed the lower courses of the façade more or less according to that Plan, and (2) Master Erwin, who took over in *c.*1284 when the work was only a few metres high. On stylistic evidence Wortmann attributed to Erwin: the design and execution of the blind rose window inside the façade above the central portal; the freestanding tracery above all three portals; the horizontal cornice terminating the portal storey; Plan D, showing the northern half of the interior of the west façade; and the design and most of the construction of the rose window and the first storey of the north and south towers (although this level may only have completed after his death in 1318.

Rosemann (1959) admitted that Erwin's role is unclear, but suggested that his appointment (he is first mentioned in 1284) may coincide with the transference of responsibility for the fabric from the bishop to the town between 1282 and 1286. This, he argued, would explain the simplifications to Plan B evident already at the height of the portal gables.

Reinhardt (1972) 71ff, tried to identify a number of masons: the designer of Plan B, the executor of Plan B, who began the façade according to Plan B but wrongly set out the buttresses and laid out the whole western block on too large a scale, and Master Erwin, who modified the details of Plan B, designed Plan D, and designed the present rose. Finally, there is Erwin's son, Johannes, who may have taken over unofficial control of the work in 1304, and may therefore have designed the first storey of the north and south towers.

According to Recht (1974) 27–54, the second architect (the follower of the designer of Plan B) did not misinterpret Plan B, but in the interests of stability consciously altered its proportions by aligning the central section of the façade and narthex with the axis of the nave arcades, thus forcing the towers to project beyond the aisles of the nave. According to Recht, foundations were still being laid in 1280, and in the 1290s it is probable that the north section of the façade had just reached above its portal, the back wall (but not all the front tracery infilling) of the central section was up to just below the first set-off of the buttresses, while progress on the south section lagged well behind, although the first storey of the south tower is earlier than that of the north. He dates Plan D to before 1290, and thinks that Plan C, showing the first storey of the towers, was designed sometime during the construction of the towers at that level (i.e. the first third of the fourteenth century). By 1343 (the installation of the new west doors) the rose storey and the central bay of the narthex was complete. Recht doubts the wisdom of attributing sections of the façade to different architects on stylistic grounds alone, thereby avoiding the problem of Erwin's precise contribution. But he attributes the rose and the first storey of the towers to different architects.

In a series of provocative articles on the west façade and its drawings, Reinhard Liess has radically questioned the consensus. He argues (especially in 1986) that Plan B represents two designs, the first, in brown ink (consisting of most of the lower parts of the plan) is by Erwin, the second, in black ink, drawn by another hand but still reflecting Erwin's ideas, shows more complex solutions (e.g. the rows of pinnacles above the rose, running between the towers, and the double-storied octagonal spire). Liess also argues that Plan B shows the inner plane of the rose window, and Plan A1 the outer plane (hence its empty centre), suggesting that Plan B envisaged a double-layered rose, like the existing one. He maintained that Plan B was an early design (some time before 1274) and was not the basis for the lowest parts of the present façade. In Liess (1985/6) he proposes that Plan C (a seventeenth-century copy), hitherto dated to the first third of the fourteenth century, was in reality drawn in *c.*1274 and was a much more likely model for the lower parts of the existing façade, although the differences between even C and the built façade suggest that a lost plan based on C, and dating much nearer to 1277 (the year of the actual foundation of the façade) was the real source. He argues that Erwin, as the inscription and the post-medieval sources state, was, from the start, the designer of the façade and its executant architect until his death in 1318. He contends, especially in (1986a) and (1986b) that during his lifetime Erwin completed the façade up to the top of the rose storey, and envisaged the general outlines of the façade up to the platform above the belfry – that is, the second storey of the towers, the Apostles' gallery and the tower-connecting belfry storey above it. He interprets the developing façade designs from A1 to D (including the so-called Kressberg fragment, which he attributes to Erwin and dates to just before 1277) as the achievements of a single intelligence (Erwin), not the contributions of different architects. He also sees the whole progress of the façade up to the platform, not as a series of *ad hoc* changes made by different master masons to the plans of their predecessors, but reflections of Erwin's master

plan, altered in detail during the fourteenth century to conform to the exigencies of fashion, but not fundamentally departing from Erwin's original conception. Some of these issues bear directly on his discussion of the spire at Freiburg, see Liess (1991) and Chapter 3, Note 123A below.

For the façade designs see Recht ed. (1989) 381–99, who does not accept Liess's position on the priority of Plan C over B, nor his dating of the Kressberg fragment – which he continues to date to *c.*1350–65 – nor his attribution of the whole conception of the façade, including the belfry, to Erwin.

Wortmann (1997) is equally sceptical of Liess's conclusions. He dismisses the notion that Plan B envisaged a double-layer rose, and still holds that the earliest work on the façade was based on Plan B, though there are real differences between the Plan and the execution, particularly in the proportions of the portals and some of the detailing. Plan C is not an indication of Master Erwin's final designs for the lower sections of the façade, but was the work of a fourteenth-century copyist (note the crude discrepancies between the plan and elevation of the buttresses). The Kressburg fragment he restores to its original dating, of the mid-fourteenth century, and attributes it to Master Gerlach or his shop, not to Erwin. He also restates his distinction between (1) the architect of Plan B and of the lowest parts of the façade, and (2) the very different stylistic character of the upper parts of the portal storey and rose, parts which he attributes to Erwin, who appears first in 1284. He dismisses as untrustworthy the reported inscription that Erwin began the work in 1277.

Wortmann also emphasizes the unique character of Plan B and its lack of any real models in French Rayonnant – the creative novelty of its decorative forms, the separation of double-layered tracery from its invariable use in wall passages, the application of free-standing tracery from limited contexts (spandrels and gables of choir windows, as in Saint-Urbain at Troyes) to the whole façade.

111A. I am following Liess's attributions of Plans B and C (a seventeenth-century copy of the *c.*1274 (?) original) to Erwin. Liess argues that Plan B was abandoned as early as *c.*1274 as too extravagant and 'ideal'. See (1985a) (1985/6) and especially (1986). Wortmann (1997) disagrees with Liess on all these points, see above, Note 111.

112. Hans Adalbert Stockhausen, 'Der erste Entwurf zum Strassburger Glockengeschoss etc.', in *Marburger Jahrbuch*, XI (1938) 579. For more up-to-date considerations of the second storey of the towers (complete by 1365) and the belfry connecting them, see Recht (1974) 69–80; Liess (see above Note 111), especially (1986a) and (1986b); and Bureš (1990) 28–9. Only Liess attributes the idea of the belfry to Erwin as part of the original design. Both Recht and Bureš (1990) 28–9 see it as an afterthought, Bureš dating it to a period 'not before the 1380s'. The various drawings for the facade are reproduced in Recht ed. (1989) 381–405.

112A. A point considered in greater detail by Hastings (1955) 184–5, and touched on by Wilson (1990) 196, who gives the best analysis of the chapel.

113. In the later composition the vertical emphasis is heightened and the structural members are slenderer, but the oculus is framed in a semicircular arch, as at Laon. The panels of the fan-shaped tracery are not drawn together towards the centre. In 1280 land belonging to the Archbishop was made available for the construction of the north transept portal, and by 1300 the portal (though not necessarily the whole transept façade) was complete. There are no firm dates for the south transept portal, though documents mention it in 1300 and 1306. See Krohm (1971) especially 40–56.

114. Paul Couteault, *La cathédrale de Bordeaux, P.M.* (Paris, 1935) 49. Cf. also Schürenberg, *op. cit.* 52ff. For the most authoritative analysis of Bordeaux Cathedral see Gardelles (1963) 244–71, and (1992) 79–85, who dates the north portal to *c.*1330.

115. Preserved in a drawing by Moller which is reproduced in Georg Dehio, *Geschichte der deutschen Kunst*, II (Berlin, Leipzig, 1923) plate 31.

Frankl is misleading in suggesting that these portals form a 'group'. Bordeaux, the latest of them, is closer, as Gardelles (1992) 83, points out, to the 'Puerta preciosa' in Pamplona Cathedral, also *c.*1330. The east doorway of the Church of Our Lady in Mainz owes more to Cologne and Strasbourg west façades than to Parisian and Rouennais patterns, though its insertion of sculpture into openwork tracery oculi is reminiscent of both the Rouen portals. For the church see Metz (1936). Only the southern portal of the west façade at Mantes, begun, according to an eighteenth-century source, in 1300, really belongs to the Rouen-Parisian circle, in fact is so close in its details to the south transept façade of Rouen, as to be probably the work of the same architect. Its sculptors also worked on the Portail de la Calende. See Krohm (1971) 51–2, 123–9. The detailed architectural similarities between the Portail de la Calende and Mantes and the Peter's portal at Cologne are discussed by Zimmermann-Deissler (1958) especially 84–5. The Cologne connexions are confirmed in the sculptural similarities between the Rouen Portail des Libraires and the Apostles cycle in the Cologne choir, see Krohm (1971) 97–102.

115A. For the precocious Rayonnant of the Saint-Germer chapel see Branner (1965) 93–6; and Kimpel and Suckale (1985) 428–31. The Lady Chapel at Rouen was far enough advanced in 1306 for its founder, Archbishop Guillame de Flavacourt, to be buried in that year on the left side of its entrance bay. See Krohm (1971) 51. Bugslag (1986) dates its glass to *c.*1310–20. Significantly, the town of Flavacourt lies just outside Beauvais, not far from Saint-Germer: see Dwyer (1997).

116. Albert Verbeek, 'Zur Baugeschichte der Kölner Minoritenkirche', in *Kölner Untersuchungen*, ed. Walter Zimmermann (Ratingen, 1950) 141. Descriptions of the church, plans, etc., can be found in *Kunstdenkmale der Rhein-provinz*, II, *Kunstdenkmäler der Stadt Köln* (Düsseldorf, 1929) plate II, and vol. II, p. 13.

Schenkluhn (1985) 214–30, traces the stylistic vocabulatory of the Cologne church, particularly the choir, to the Liebfrauenkirche in Trier; while the general concept of the design, notably the intended non-projecting transepts, to S. Francesco in Bologna. Note, however, the non-projecting south transept of Notre-Dame at Montataire (*c.*1250–60), where the whole choir shows similarities to that at Cologne; see Bideault and Lautier (1987) 218–26. Schenkluhn (2000) 114–16, repeats his (1985) identification of the choir with the Sainte-Chapelle, with cathedral clerestories, and with the upper choir of S Francesco at Assisi.

117. The dates previously accepted have been corrected in Karl Busch, 'Regensburger Kirchenbauten etc.', *Verhandlungen des historischen Vereins von Oberpfalz und Regensburg*, LXXXII (1932) 181. Cf. also Krautheimer, *op. cit.* (Note 82 to this chapter) 72, and *Die Kunstdenkmäler der Oberpfalz*, XXII, II (1933) 59.

The classic stylistic analysis of the Regensburg Dominican church, which anticipates Frankl's in many respects, is by Gross (1933) 299ff. Based on the appearance of the interior after the 1886 restoration, it fails to take account of the original medieval colouring of the vault ribs and window splays, which must have given the whole interior a less 'pure' and 'abstract' character than Gross's and Frankl's descriptions suggest. See Kobler (1980) 428. For a critique of Gross's analysis as modernist and a-historical see Schenkluhn (1985) 21–3. The important study by Kühl (1986) was not available to me. Schenkluhn (2000) 110–11, emphasizes the novelty (in 1240) of its very tall windows in the choir apse, and the 'drawing-in' of the four-bay choir into the body of the church, separating it from the flanking choir aisles by solid walls (the idea of a *chiesa interiore* borrowed from the liturgical choir of S Domenico in Bologna? See above, Chapter 3, Note 80). He also (pp. 119–22) assesses the novelty of the nave, with its simplified arch-rib system, its emphasis on linearity and wall surface, and its undermining of the independence of the arcade piers as self-sufficient supporting members by allowing the wall to emerge from them via triangular corbels.

117A. The church was begun in the second third of the thirteenth century, or, according to some sources, in 1255. As a vaulted basilica with bare wall surfaces between high clerestories and low arcades, this church follows the Dominican churches in Regensburg, and Strasbourg (destroyed in 1871). All gave the impression of 'inserted' or 'hanging' vaults by supporting them on shafts which terminated on brackets at the height of the top of the arcades (see Regensburg choir). The impression must have been enhanced at Esslingen by the wooden roof which once extended over the western bays of the nave, replaced by the present vaults in 1487. See Schenkluhn (2000) 122–4.

117B. See Konow (1954) 17ff; and Binding (1982) 434.

117C. Nothing is known of the first Dominican church here, consecrated in 1238. The new church was begun probably in about 1265, since recent dendrochronological analysis suggests that the five choir bays were roofed by 1272/3. This accords with a reference to the new choir in 1279. The choir is an open variant of the 'in-drawn' type first used in the Dominican church at Regensburg. See above, Chapter 3, Note 117. The nave chronology is uncertain. It might have been begun *c.*1280 and finished in 1352, or it may date to a shorter period, between *c.*1360–80. Its vaults were inserted as late as 1432–8. See Dehio and Eissing (1998) 337, and Schenkluhn (2000) 113, 196–7.

118. In addition to Paatz, *op. cit.* (Note 85 to this chapter), cf. also Werner Gross, *Die abendländische Architektur um 1300* (Stuttgart, 1947) 184ff.

Vasari attributed the church to Arnolfo di Cambio, architect of Florence Cathedral from 1293/4. No documentary evidence supports this claim, but the close similarities between S. Croce's nave and the archeological remains of Arnolfo's projected nave for the cathedral (unvaulted, with octagonal columns and very wide bays) goes some way to confirming it (see below, Chapter 3, Note 142) Building progress was quick. The church was begun in 1294/5; the transept and choir chapels were being roofed in 1310; by 1318 construction had reached the eastern bay of the nave, and by 1330 the nave eastern bays were complete, at least in their lower parts. Three bays of the central aisle were roofed by 1341; the western bays were built in the second half of the century and the church was consecrated in 1442. See Paatz (1940) vol. I, 511–35 Schenkluhn (1985) 178–83 and (2000) 178–82, 208, pieces together the stylistic sources, and typology, of this, the largest of all mendicant churches. It is a monumental enlargement, in basilican form, of the type of 'triple-chapel room church' inaugurated by S. Francesco at Cortona (see above, Chapter 3, Note 81). Its chapels in the transept and the saddle roofs placed over each of them suggest the influence of Cistercian architecture (Fontenay); its vast scale, tim-

ber roofs, and pilaster-like responds echo the 'archetypal' Early Christian basilicas of Rome (especially S. Maria Maggiore, with its projecting cornice/walkway half way up the elevation and its transept entrance arches rising higher than the main arcades). There are also more local debts: (a) to Franciscan architecture itself (in the staggered triple choir openings, especially close to S. Lorenzo Maggiore in Naples, and the octagonal pillars, like S. Francesco in Bologna) and (b) to the nave of Orvieto cathedral (begun in 1290), itself a version of an Early Christian basilica, and promoted by a Franciscan pope, Nicholas IV.

118A. Frankl's definition of High Gothic is misleading. He is referring in this section to buildings which we would now call Rayonnant. See Chapter 3 Note 1, above.

119. Illustration in Schürenberg, *op. cit.*, plate 80, and text, p. 172.

See now Branner (1960) 93–4, 177–8; Bony (1983) 443–5, and (1979) 60, who sees it as a key precedent for the English Perpendicular style; and, most fully, Freigang and Kurmann (1989), who argue that the apse and choir is the product, not of two phases of construction (marked by the base of the triforium), but of a homogeneous design, built slowly, and in response to the chevet of Saint-Bénigne in Dijon (though dependent for its Remois passage and double skins of tracery on the apse of Saint-Urbain at Troyes). It was thus begun soon after 1300.

119A. The lower parts of the transepts at Troyes, and the triforia in the east walls of the transept inner bays, belong to the same campaign as that of the upper choir (*c.*1230s–40s). Changes occur in the eastern triforia of the two outer bays of the transepts, and in the triforium and clerestorey of the western bays of the transepts. These were built, together with the lower parts of the three eastern bays of the nave, sometime before 1290. See Murray (1987) 14–15.

119B. For Bayonne see Lambert (1939) and Gardelles (1992) 49–59. Gardelles dates the beginning of the nave, along with the laying out of the transepts and the completion of the upper parts of the choir to soon after the fire of 1309, with benefactions towards the transept vaults from Cardinal Guillaume Peyre de Godin (died 1336). The date of 1404 decorates the transverse arch between the seventh and eighth bays of the nave.

120. Gabriel Plat, *L'église de la Trinité de Vendôme, P.M.* (Paris, 1934). The choir was built between 1306 and 1318; the Romanesque transepts of 1040 were preserved, and they were continued only in 1342 – to the design of 1306. The four westernmost bays have Late Gothic details (dating from about 1500), but the interior nevertheless gives an impression of great unity.

Lillich (1975), has shown that the conventional date of *c.*1308 for the beginning of the choir is incorrect. The glazing of the chevet clerestorey she dates to *c.*1285–90, and the beginning of the choir to *c.*1280.

120A. See Branner (1960) 157ff; and Anfray (1964) 48ff.

120B. From 1309 work began on the western walls of the transept arms, and the aisle walls of the nave. By 1359 the nave aisles were in place and vaulted, and the nave lateral chapels planned. But the nave triforium and clerestorey date from after 1359, the clerestorey of the eastern nave bays to the 1370s, and the crossing and eastern nave bays were only vaulted in the 1390s. The fullest desciption and chronology is in Titus (1984) 225–310.

121. André Masson, *L'église abbatiale Saint-Ouen de Rouen, P.M.* (Paris, 1927). The façade with diagonally set towers, which was begun about 1500, was pulled down in 1845 and replaced by a new one. Adolph Napoléon Didron, in *Annales Archéologiques*, II (1845) 320, characterized this as 'vandalisme d'achèvement'.

The extreme lincarity of Saint-Ouen was achieved at some cost to structural soundness, particularly in the pier extensions, see Mark (1982) 92–5. One of the clearest accounts of the church, and of late Rayonnant and Flamboyant architecture in Rouen generally, can be found in various publications by Neagley: (1988) 374–5, notes 1–2; (1996) and, most fully, (1998) 38, 72, 85–6, 88–9, note 3, p. 140:

1318–39, under Abbot Jean Roussel (also known as Marc d'Argent). Choir, part of transepts, first two piers of nave. The elevation is generally indebted to the thirteenth-century work at Saint-Denis, but the statues on the choir piers recall the Sainte-Chapelle, while the tall grill triforium and small balustrade may have been copied from the slightly earlier choir at Evreux. Work dramatically slowed down in the 1340s due to the outbreak of the Hundred Years War. During the English occupation of Rouen the church was used as a garrison. The sporadic progress on the transepts in the second half of the fourteenth century makes it difficult to disentangle its chronology, or the contributions of its architects. The problem is complicated by the experimental and eclectic character of the work in this area, where older geometric tracery, and recent influences from English Perpendicular architecture, are freely mixed with new curvilinear forms. The blind tracery on the inner wall of the south transept (*c.*1350?) is clearly indebted to the same composition in the cathedral's south transept, of *c.*1300. The south transept porch, the so-called Marmosets porch, was probably begun in the last years of the century by Jean de Bayeux, who is mentioned as master of the works at Saint-Ouen in 1399 and 1411. It was probably completed by his son and namesake. For Neagley (1988) 394, note 45, the blind tracery of the portal, and the porch's two storeys, its boxy shape and its pendant keystones, suggested the influence of the south porch at Prague cathedral. In her (1998) study, p. 140, note 3, she makes no mention of any German influence, and sees the real source for many of its forms – including its framing buttresses, and the transept's rose window set back above the upper storey – in the west porch of the Sainte-Chapelle in Paris. The dissimilarities with the Parisian 'model', however, still suggest to me the importance of German influences. In 1396, the north transept was vaulted.

Alexandre de Berneval took over sometime before 1422 and remained master here until his death in 1441. He was responsible for the curvilinear south transept rose (see his tombstone portrait in Saint-Ouen, showing him designing and drawing the rose), and he is probably the author of the very English-looking Perpendicular-style tracery in the south transept western chapel, since he visited England in 1413. The crossing tower was up by 1441 (when an expertise was called to advise on the buckling of the crossing piers). For Alexandre de Berneval's work for the Duke of Bedford and Henry V of England see Brown, Colvin and Taylor (1963) vol. I 460, 461, 463.

1462–83 (under Abbot/Cardinal Guillaume d'Estouteville) choir screen (destroyed in the eighteenth century). By 1492 nave piers and aisle walls up to and including sixth bay of nave (the Porte de Ciriers). 1492–1515; eastern half of nave and aisles vaulted and western piers and walls of nave built. The western nave bays remained unvaulted until 1536. The incomplete west façade, with its curious, diagonally placed towers, remained unfinished until the nineteenth century, when it was demolished and replaced by a Gothic Revival design which made little or no reference to the late Gothic original.

122. Charles Porrée, *La cathédrale d'Auxerre, P.M.* (Paris, 1926) 15.

123. Dehio, (1901) II, 179.

123A. The standard wisdom on the Freiburg steeple is summarized in Adam (1981) 18–20, 40–46. The west tower was begun *c.*1250, in a 'local' and 'solid' style, though the sculpture of its porch and portal is more 'advanced' since it depends on the west front of Strasbourg and dates therefore from the late thirteenth century. The mention of a perpetual light in 1301 in the chapel of St Michael (above the porch) tells us little or nothing about the progress of the work. A second, much more sophisticated, architect, who had worked on the west façade of Strasbourg, arrived sometime after *c.*1280 (the second bell was cast in 1281) and designed everything from the star-shaped balustrade at the base of the octagon to the top of the spire. This work is characterized by its openwork delicacy and advanced Rayonnant detailing. The spire was complete *c.*1340. For the sculpture see Münzel (1978).

Liess (1991) proposes a radically different interpretation, based largely on the two Freiburg steeple drawings now in Fribourg in Switzerland: Plan A (the so-called *Rahnsche Riss*) and Plan B. He argues that the lowest stories were begun, together with the sculpture, in the later 1270s, and the whole steeple – tower and spire – is the product of a single vision. He sees both drawings as copies of original late thirteenth-century projects for the finished steeple and attributes both to the Strasbourg lodge, and specifically to Master Erwin. He detects elements of Plan A (the first of the two) in both Plan B and the building itself. Plan A was conceived in Strasbourg in the 1270s, and Plan B, which is much closer to the finished steeple, soon thereafter. The differences between Plan B and the constructed building suggest either that Plan B was modified, or another, lost, plan intervened. In any event, the whole design process from Plan A to the finished steeple can be attributed to Erwin. Construction on the steeple began after 1277 (the beginning of the Strasbourg west front), probably about 1280. The contrasts in tone between the lower (square) parts of the steeple, and the delicate, upper, octagonal parts are not due to a change of architect but to the execution of Erwin's design: the lower sections by the team that had previously worked on the nave, the upper sections possibly by Erwin himself. Liess notes stylistic connexions with the later west towers of St George at Schlettstadt (Sélestat) and St Florentinus at Niederhaslach (the latter by Erwin's son).

124. The foundation-stone for the new work was laid in 1842. The work was under the direction of E. F. Zwirner until 1861, and was completed by K. E. Voigtel in 1880.

For the nineteenth-century completion of Cologne, and other German cathedrals, see Borger-Keweloh (1986). Credit for the invention of the 'openwork' tracery spire, an idea that was to be influential in Germany to the end of the Middle Ages, must go either to Freiburg or Cologne (Plan F), but the dates of both projects are too imprecise conclusively to establish a priority. Wolff (1986) 18, dated Plan F at Cologne to 'soon after 1300', and suggested, convincingly, that the *construction* of the Freiburg spire came after it. See also Wolff (1969) 143ff. Recent Scholarship has seen no reason for Plan F not to date to '*c.*1290–1300', see Freigang (1998). But if Liess is correct in thinking that the Fribourg Plan B for the Freiburg steeple is a copy of a *c.*1280 original, then the actual conception of the openwork spire must go to Freiburg (see above, Note 123A). Liess (1991) 47 also sees influence from 'Erwin's' Plan A at Fribourg on the Cologne Plan F. This may suggest that from 1280 Strasbourg was the

dominant influence on the Lower Rhenish cathedral. See also Kauffmann (1948) 110–13; and Kauffmann (1957).

125. Hans Kauffmann, 'Die Kölner Domfassade', in *Festschrift des Kölner Domes* (Cologne, 1948) 78. See also Zimmermann-Deissler (1958), Wolff (1969) and (1986).

125A. Wolff thought that the west façade was begun probably just before 1300 with the south wall of the south tower, laid out according to Plan A. Plan F, the work of Master Johannes, the son of Master Arnold, dated to around 1300, perhaps a few years before. See Wolff (1969) 143–58; Wolff (1980) 13–14, 23ff; Wolff (1986) 16–23. But excavations in the area of the south nave aisle and south tower in the late 1980s have shown that the oldest parts of the nave foundations were for the south aisle, begun in 1325, or a little earlier, when the old atrium was demolished. The foundations for the south tower date to shortly after 1357 and the construction of the tower above ground must therefore be put in the 1360s. See Back (1994). There is, therefore, a large chronological gap between the drawings for the façade and nave (*c.*1300 or earlier) and their faithful execution. By the end of the Middle Ages the south tower reached to the lowest parts of the second storey – the beginning, that is, of the octagon stages of the steeple.

125B. Kauffmann (1948) 80–8, dates the Vienna plan (Plan A) to *c.*1300 and the others in close sequence after it. For the dating of Plan F see above, Note 124. For Plan E see below, Note 125C. Plan F is now thought to have been conceived *c.*1290–1300.

125C. Kauffmann dated Plan E to the first decade of the fourteenth century, and put it immediatly before the great façade Plan F. But Wolff (1969) 142–58, argued that Plan E can be associated with a drawing by the same hand of the adjoining nave clerestorey (thought originally to be of the choir clerestorey) which he calles Plan E1. And both he dated to the second half of the fourteenth century, and therefore *after* Plan F. More recent research dates both designs to *c.*1300, see Freigang (1998).

126. In considering the change from two axes to one, the south tower at Chartres should be borne in mind.

127. Paul Meissner, 'Zur Baugeschichte der Katharinenkirche zu Oppenheim', in *Festschrift für Ernst Neeb* (Mainz, 1936) 64.

Schutz (1982) puts forward the following sequence for the 'façade':

1) *c.*1290s (the appearance of a Master Werner von Koldembech in Oppenheim in 1296) – early fourteenth century. Completion of the south transept and beginning of the nave in a Cologne-dominated style. Nave to have five bays entailing the demolition of the west choir.

2) 1317 **raised to collegiate status**. South side of the nave designed as a façade with broad side-aisle windows, possibly by a Mainz architect (Johannes de Oppinheim?).

3) **Under Master Johannes**, the architect of Cologne Cathedral, an 'ideal plan' was drawn up for a five-bay façade, having a larger central window and tracery windows alternating in chiastic rhythms, similar to those of the south tower in Johannes's Plan F for Cologne. Chapels inserted between the buttresses. Then came the decision to retain the west choir and reduce the nave to four bays, resulting in the shortening of the fourth, westernmost, bay. Work then proceeds from west to east. By 1328 probably everything was complete apart from the tracery of the eastern bay.

4) *c.*1328–*c.*1340. Under an architect trained in the Upper Rhine. Tracery of the eastern bay, and the two seven-light windows of the aisle. North aisle, nave and crossing tower completed.

127A. Pevsner and Metcalf (1985b) 185, date the beginning of the nave, on analogies with Westminster Abbey, to *c.*1265. Rodwell (1989) dates the high vault to the 'mid thirteenth century.'

127B. For the nave at York see Pevsner and Metcalf (1985b) 344–6; Harvey (1977) 149–60. Coldstream (1980) and Böker (1991) discuss the sources of the nave design in French and German Rayonnant. Böker in particular stresses the parallels with Cologne cathedral. For more general parallels between York and the continent see Norton (1993–4).

127C. For the French/Rhenish composition and details of the York façade see Böker (1991). Maddison (1993) dates the Lichfield west front as follows:

Phase 1 late thirteenth century, completion of last bay of nave, layout of the lower parts of the façade and construction up to the third string course above the fourth tier of statues.

Phase 2 Under Bishop Walter Langton (1296–1321), *c.*1310–14: the west window (present tracery nineteenth century, original design recorded by Hollar). The south-west tower and spire (which is slightly different in detail to its north west pair).

Phase 3 *c.*1315 to *c.*1323: north-west tower and spire, crossing tower and spire, the beginning of the new Lady Chapel and a start on the remodelling of the choir. Simeon Solomon describes the three spires complete in 1323.

127D. Frankl is grappling here with the diversity of Gothic in Europe in the second half of the thirteenth century. At the level of the great church, the French models of High Gothic/Rayonnant were rapidly transformed by local initiatives in the Rhineland, southern France and England. At the more modest level of parochial and collegiate church architecture, and the architecture of the friars, High Gothic/Rayonnant was quickly transformed and simplified, and new decorative and structural systems were grafted onto it. This process of assimilation laid the foundations for the different regional and national styles of Late Gothic which emerged in the middle of the fourteenth century.

128. About 1110 at Walderbach, a little later at Prüll near Regensburg, and in 1182 the church of St Peter at Augsburg (Dehio's dates).

Dehio dates the Cistercian church at Walderbach too early. The monastery was founded in 1143 and the church was not vaulted until the third quarter of the twelfth century. For a general discussion of early hall churches in Bavaria see Thümmler (1962) 290–2, and Schütz and Müller (1989) 520–1. Kubach and Köhler-Schommer's (1997) monumental study of Romanesque hall churches has shown that the eleventh- and twelfth century hall church, however it might be defined, was not, as Frankl put it, 'a German form', but was widespread in western and south-western Europe from the Loire to the Duero. It also spread into northern Italy and neighbouring areas of southern Europe. For their discussion of the Bavarian halls see pp. 135–8.

129. On the subject of this process within Westphalia, cf. H. R. Rosemann in *Zeitschrift für Kunstgeschichte*, I (1932) 203.

Early rib vaults may also have reached Germany, especially Westphalia and Bavaria, from northern Italy. See Thümmler (1958). For a more up-to-date treatment of Westphalian halls see Henze (1957) 165–214. A well-illustrated survey is provided by Thümmler and Badenheuer (1973). The whole problem of the origins of the Westphalian hall church is discussed by Kubach (1985).

129A. For Marburg see above Note 85A. For Paderborn, where the hall nave was begun *c.*1231, see Bauer and Hohmann (1969) 19ff. For the nave of the Münsterkirche at Herford, begun *c.*1228, see Thümmler and Badenheuer (1973) 29. Herford is now seen as having priority over Paderborn as the first in the Westphalian series of large-scale hall churches, though their traditional derivation from the west of France (Poitiers Cathedral) has been questioned, see Kubach (1985) 4–8.

129B. See Wagner-Rieger (1982) 195–211, who identifies French precedents, particularly the choir aisles of Saint-Denis and Notre-Dame in Paris, as the sources for the Lilienfeld choir aisles. Nicolai (1988) 23–37, proposed the following chronolgy for the Lilienfeld choir:

1) 1202/6–17. South transept, western crossing piers, ambulatory up to the socles of the free-standing pillars – all by a Heiligenkreuz-trained workshop using band ribs. The ground plan follows the choir of Morimond whose choir aisles and ambulatory differed from those of Cîteaux III and Ebrach in having no, or few, chapels with internal dividing walls. Instead, choir aisles and chapels formed, together, double-aisled spaces divided by virtually free-standing supports.

2) 1217 (date of the first consecration) onwards. Thinning of the ambulatory pillars, vaulting of the ambulatory and chapels with roll-moulded ribs.

3) **Up to the consecration in 1230** and the death of the founder, Leopold VI. This phase follows smoothly from phase 2. Insertion of the present polygonal apse into the sanctuary, instead of the intended straight-ended eastern choir wall. Building of the north transept and first (hall) bay of nave.

Seeger (1997) 13–53, essentially follows this relative chronology, but she convincingly dates the start of the actual construction of the church to 1206–9. Contrary to all opinion to date, she also makes out a good case for dating the polygonal apse, not to an insertion after 1217, but as an integral part of the original plan. But her claim that the apse derives from that of Magdeburg cathedral (1207–9) is, on chronological grounds alone, less convincing.

130. Dagobert Frey, 'Die Denkmale des Stiftes Heiligenkreuz', in *Österreichische Kunsttopographie*, XIX (Vienna, 1926). See also Wagner-Rieger (1967) 338–9, 378–9; and Wagner-Rieger (1979) 103–26 especially 107–9; and Brucher (1990) 69–73. Watzl (1979) gives not 1295 but 17 April 1294 as the consecration date of the choir.

131. *Ibid.* The correct date had already been given with great conviction in Franz Kugler, *Geschichte der gotischen Baukunst*, III (Stuttgart, 1859) 306.

132. *Die Kunstdenkmäler der Provinz Hannover*, IV (1907) 87ff. See also Kiesow, Hoffman *et al.* (1977) 731–5.

132A. For Nogent see Branner (1965) 66–7; Kimpel and Suckale (1985) 407, 526; Bideault and Lautier (1987) 240–5.

132B. For Montataire see Branner (1965) 115; Bideault and Lautier (1987) 218–26.

132C. See Michler (1980) 65, 67.

133. Schürenberg, *op. cit.*, 119 and plate 51 (which shows very strange piers). The nave north portal can be dated stylistically to the third quarter of the thirteenth century, its west portal to the early fourteenth. See Gardelles (1992) 203–5.

133A. For Agen see Branner (1965) 116; Gardelles (1992) 148–50. Although founded in 1249 the church was probably not built until the 1250s/60s. It shows the arms of Alphonse of Poitiers, who died in 1270. For the influence of the mendicant orders on southern French Gothic see Durliat (1974) 71–86. Schenkluhn (2000) 54–5, stresses the debt to monastic chapter houses and

refectories, – sources chosen not in order to make the church more 'profane', but to renew church architecture in response to the demands of its critical lay users.

133B. The nave was begun after the fire of 1275, and the first campaign, under Master Martin, lasted until 1304; the second until *c.*1327. See Zimmermann (1956).

133C. The choir was already underway in 1276 and the high altar consecrated in 1308, by which date the present five-aisled hall nave was probably envisaged, if not begun, and perhaps quite far advanced. See Mertens (1972) 4–7. Lehmann and Schubert (1991) 180–96, especially 181–3, consider the nave fabric to have been finished by 1332, when the *fabrica* appealed for funds for furnishings and not construction. The most exhaustive analysis of St Severus, its building history and stylistic position in Middle German Rayonnant, can now be found in Wedemeyer (1997) 465–513 (building history) and 289–95 (its relations with Thuringian and Hessian hall churches of the later thirteenth century). Wedemeyer puts the starting date for the church 1274/6, and its completion in 1327, when the nave is recorded as being in use. Its use of a transept and five-aisled nave is something of a Thuringian peculiarity (see St Mary, Mühlhausen). Its details, especially its tracery, imply a knowledge of Rhenish Rayonnant of *c.*1300–20 (Cologne, Worms, Oppenheim, Oberwesel).

133D. The importance of this early hall choir for the later development of the hall choir in Germany was first shown by Kunst (1969). The impact of Cologne and Strasbourg on its design is discussed by Kunst in (1969a).

134. Günther Rudolf, 'Mitteldeutsche Hallenkirchen und die erste Stufe der Spätgotik', in *Jahrbuch für Kunstwissenschaft*, LI (1930) 137.

Lehmann and Schubert (1968) 49–53, date the beginning of the work at Meissen, the polygonal apse of the choir, to the reign of Bishop Konrad I (1240–59). The choir seems to have progressed in two phases:
1) *c.*1250, apse and first straight bay (the so-called 'founders's bay') and
2) **begun by 1263**, on the site of the Romanesque choir. A change of design involving the western bay of the choir (with the six-part vault), the two choir-flanking towers behind it, and the ambulatory connecting it to the cloister to the south of the choir.

Lehmann and Schubert dated the decision to change the nave from a basilica to a hall during the building of the north transept, and therefore between 1287 and 1291. Their conclusions on the chronology of the whole cathedral are drawn together in more general form in Lehmann and Schubert (1970) 12–26. Their dating of the change from basilica to hall has, however, been questioned by new research undertaken during and after the restoration of the cathedral from 1992. This has made visible much of the original stone coursing and masons' marks, on the basis of which Donath (1998) has established a revised building history. He discussed the preliminary results of his research in the 1996 conference 'Gotik und Spätgotik, Kunst und Region', at the art history institute in the University of Halle-Wittenberg:
1) *c.*1250–*c.*1270. Choir, transepts (except the upper parts of the west wall of the north transept), the 'basilican bay' (the easternmost nave bay on the south side), the lower sections of the octagonal chapel (immediately to the west of the south transept) and the lowest courses of the first four bays of the north aisle of the nave. The north-west crossing pillar was constructed with arcade arches for a basilican nave. The 'advanced' intersecting tracery of the south transept end window belongs to this phase.
2) *c.*1270–**before 1293**. Change from basilica to hall. West wall of transept, vaulting of transepts, completion of first four aisle bays on the north side. Stylistically, the details of the hall – tracery, wall passages, mouldings – place it alongside the later parts of St Elizabeth at Marburg, and the Stadtkirche of Friedberg in Hesse – see Note 134A, below.

Magirius (1993a) also refines Lehmann and Schubert's sequences, and in (1994) reports on the restorations, mainly in the matter of original polichromy.

134A. See now Seeliger (1962); Auer (1983); Schenkluhn (1983).

135. Richard Kurt Donin, *Die Bettelordenskirchen in Österreich* (Baden near Vienna, 1935) 155. See also Wagner-Rieger (1967) 337, 374, who dates the nave to the 1280s; and Brucher (1990) 54–5, who considers the church must have been useable by 1289.

136. Johnny Roosval, *Die Kirchen Gotlands* (Leipzig, 1912). The author describes a series of sixteen churches, which begins (p. 141) with Wall (built some time after 1200) and reaches right into the fourteenth century. All these churches still have groin-vaults. Closer analogies with Imbach are to be found in earlier Dominican double-aisled halls in France, e.g. Paris, Agen and Toulouse. The Gotland churches are mostly centralized buildings with a single, axially placed pillar. See Götz (1968) 106–7; and Lagerlof and Svahnstrom (1973). For the wider context of two-aisled halls in Central Europe see Schenkluhn (2000) 93–5.

137. On Romanesque aisleless churches, cf. Dehio, (1901) I, 223, 326. The development of the *nef unique* in early Gothic architecture in the Languedoc is discussed by Paul (1988) and Freigang (1992) 213–22, where the type comprises both vaulted structures and wooden-roofed spaces with diaphragm arches, often with cellular chapels.

138. Schürenberg, *op. cit.* plate 37, text p. 93; *C.A.*, LXXV (1907) 44. Restored by Viollet-le-Duc. See Durliat (1973), and Paul (1988) 116–18. In 1262 the new lower town at Carcassonne was laid out, and the parishes of Saint-Michel and Saint-Vincent reconstructed. In 1283 Philip the Bold allowed the parishioners of Saint-Michel to buy houses in order to enlarge the church and cemetery.

138A. In monastic buildings, large single-aisled halls covered with wooden roofs over diaphragm arches are largely confined to Catalonia. But note no less than seven of these spaces in the Cistercian claustral buildings at Fossanova in central Italy. See Dittscheid and Berger (1988).

139. Jean Laran, *La cathédrale d'Albi, P.M.* (Paris, n.d.). See also Emile Mâle, *La cathédrale d'Albi* (Paris, 1950), which has excellent illustrations. The meagre blind gallery at the eaves line of the roof of the nave, which is picked out in different-coloured brick, dates from the restoration begun in 1834 by César Daly. This architect also began building belltowers, but in 1879, when three had been built, the population protested.

For a detailed account of the building see Biget (1982) 20–62, who reconstructs the following sequence:
1) 1277 decision to build the new church.
2) **1282** official foundation by Bishop Bernard de Castenet in 1282. From 1282/4–1300 construction of the walls of the apse and the first two straight bays. In 1298 a mention of the 'ecclesia antiqua' in contrast to the new work. In 1306 mention of a chaplain in chapel of first straight bay from east (St Croix).
3) **1310–22**: after a delay from 1301 to 1310 construction was relaunched in 1310. Vaulting of apse chapels and of the high vaults of the two easternmost straight bays. Lateral walls extended up to and including the bay opposite the south portal.
4) **1322–1335/40**: high vaulting of third and fourth bay from east. Lateral walls up to ninth bay from east.
5) **1355–1365/6**: construction of tower base; completion of nave lateral walls; high vaulting of eighth bay from east.
6) **1380–90**: high vaulting of the three westernmost bays.
7) **Under Bishop Louis d'Amboise I**, from 1474–*c.*1483, the choir screen built.
8) **In 1485** Bishop Louis's will ordered the erection of the west tower, starting at the level of, and with the construction of, the rounded arches between the cylindrical buttresses. Work finished before 1493.
9) **1503–9**: Tribunes dividing the chapels inserted under Bishop Louis d'Amboise II.

For the choir screen see also Biget, Carbonell-Lamothe, Pradalier-Schlumberger (1982) 63–91.

139A. Few would now agree with Frankl that hall churches which isolate one aisle from the other by bulky or closely spaced pillars, or by arcade arches made thicker than the transverse arches, are less 'Gothic' and more 'Romanesque' than those that emphasize spatial unity. Frankl is here coming close to the old thesis of Kurt Gerstenberg, *Deutsche Sondergotik* (Munich 1913), that German hall churches must be seen as unified spaces (*Einheitsräume*), in which all qualities associated with the basilica – separation of aisles into three parallel spaces, emphasis on longitudinal direction of space – have been replaced by a broad, 'directionless' and unified interior. In fact, a number of very 'Gothic' German hall churches, from the thirteenth to the fifteenth centuries, emphasize longitudinal movement and the separation of aisles. See Kunst (1971) 38–53; and Schenkluhn (1989).

140. Plans of the piers and a detailed analysis can be found in Pierre Lavedan, *L'architecture gothique etc.* (Paris, 1935) 146ff.

In 1298 the foundation stone was laid, and by 1329 the chevet, the side portals and the choir up to the western limit of the *trascoro* (the choir screen) had been completed. In 1317 Jaime Fabre, architect of the Dominican church in Palma de Mallorca, took over the leadership of the lodge at the request of James II, King of Aragon. Despite interruptions to the work in 1329, he was still working on the cathedral in 1356. The relics of St Eulalia were translated on 9 July 1339, by which time the transept was complete. Fabre was succeeded by Bernard Roca (Roche, Roquer) who vaulted the first nave bays, began the cloister in 1382, in 1385–9 built the two transept bells towers, and worked as far as the *trascoro*. In 1408 a Master Carli produced a design for the west front. In 1413–30 Bartolomeu Gual built the chapels inside the west front, the last vaults of the nave, the base of the octagonal lantern over the west bay, and continued the cloister up to 1423. His follower, Andres Escuder, finished the cloister in 1431. See Torres Balbás (1952) 150–2; Durán Sanpere (1959); Barral i Altet (1994) 31–62. Wilson (1990) 276–8, stresses the debts to Toledo Cathedral.

140A. The chronology of Palma Cathedral is complicated and obscure. The best account is in Durliat (1962) and (1962a) 150–67.
1306. The will of James I of Mallorca ordered the construction of the two-storey funerary chapel of the kings of Mallorca, dedicated to the Holy Trinity, which is the easternmost space of the present building. Although the chapel was far advanced enough to get a priest in 1311, it was not finished in 1313, was still mentioned in 1327 as needing completion and was not glazed until 1329.

The apsidal choir into which the Trinity Chapel opened westwards, now

called the Royal Chapel, was also planned in 1306, though it was probably not laid out until 1313–14, since in 1314 the plan of the cathedral was traced on the extended site.

Bishop William of Villanova (1304–18) and Bishop Raymond of Cortsavi (1318–21) gave funds to the fabric; and in 1322 Sardinian galley slaves donated for work on the chevet.

By 1327 work on the choir would have been substantially finished, since in that year screens were installed. Durliat sees resemblances between the choir and the palatine chapel of St Cross at Perpignan, especially in its massive rectangular basement and the polygonal plan of its upper, eastern, parts. He considers that the architect might have been Pons Descoyl, who was in Mallorca in 1311 but returned to Perpignan in that year.

*c.*1327. The beginning of the construction of the two lateral choir apscs, and probably in this period (*c.*1330?) a start was made on the first lateral chapels of the nave.

A building campaign of uncertain extent, marked by King Peter's donation in 1343 (shortly after his capture of Mallorca). The high altar was consecrated in 1346. At this stage the central vessel of the nave was to be only as high as the choir, and the nave aisles were to reach only the height of the present lateral chapels (traces of original vault springers at the end of the north aisle; thickening of the last north buttress of the nave).

In *c.*1350–60, perhaps at the beginning of the reign of Bishop Anthony Collell, who donated generously to the fabric in 1357, there occurred a decisive change of plan. The aisle vaults were raised to their present height, and their terminal eastern walls were given rose windows corresponding in level with the rose over the eastern wall of the choir apse. The central vault was raised to its present colossal height.

The second nave chapel on the north side built by 1361. The arms of Bishop Galiana (1363–75) on the buttress pinnacle of the easternmost nave bay and a mention in 1368 of the first pillar of the nave suggests that the first bay of the nave was under construction. The architect of all, or some of this work was James Mates of Mallorca, who appears in the accounts in 1368, together with the sculptor Laurent Sosquela.

Work slows down. In 1574 the north nave aisle vault, second bay from the west, was completed. In 1592 the west portal was begun, and in 1596 the western rose started. The final consecration took place in 1601. For the general stylistic characteristics of Palma, and of other great Catalan basilicas of the period see Freigang (1992) 155–71.

140B. For the dimensions and an analysis of the structure, see Mark (1982) 95–101.

140C. For Gerona see Lavedan (1935) 146ff, 198ff; Oliver (1973); Barral i Altet (1994) 63–92. The choir was begun in 1312. Freigang (1989a) sees at least two phases of construction:

1) **1312–20**. Construction of radiating chapels and apse pillars of choir up to capitals, on a ground plan, and with details, closely modelled on Barcelona Cathedral choir.

2) **1320–*c.*1330**. Under Jacques de Fauran, master mason of Narbonne Cathedral since 1309, and son of Dominique de Fauran (master of Narbonne 1295–1309): pillars of the straight bays of the choir, all arcade arches in the straight and turning bays, and perhaps the upper parts of the central vessel. This phase coincides with the appearance of Narbonne-type 'columnar' piers and moulding profiles, which also appear in Perpignan cathedral choir, where Jacques de Fauran is mentioned in 1324 as the owner of property. Freigang also attributes to Jacques de Fauran the conception of the nave at Gerona as a *nef unique*.

After *c.*1330 a Guillelmus de Cursu is mentioned as principal architect. The choir was consecrated in 1347. For an account of the arguments surrounding the future shape of the nave in the conference of masons at Gerona in 1417 see Frankl (1960) 84–6, and Freigang (1999).

140D. For S. Anastasia see Dellwing (1970) 64–81, and (1990) 29–32, where its stylistic place is situatcd some way between, on the one hand, S. Lorenzo in Vicenza and, on the other, the monumental and attenuated mendicant basilicas of S. Nicolo in Treviso and the Franciscan and Dominican churches in Venice. The Dominicans began the church around 1290, and had completed the choir and first bay of the nave by 1319, though the whole building had to wait to the early years of the fifteenth century for completion. Schenkluhn (2000) 75, 184–5, assesses its place in north Italian mendicant buildings, including its precocious use of cven-sided polygons for its chapel apses, a geometry which reappears in the Frari in Venice.

141. The chronology of the early and mid thirteenth-century cathedral at Siena has been radically, and on the whole convincingly, reassessed by Pietramellara (1980). Her conclusions have been largely accepted by Middeldorf-Kosegarten (1984) 22–7, except that the latter dates the decision to vault the choir and dome to *c.*1250 and not 1258, and argues that the dome was conceived not as an afterthought, designed in 1258/9 (the supposed time when it was decided to vault the church), but was conceived in or from 1226 (?) or from about 1247.

141A. See above, Chapter 3, Note 118.

141B. The discovery during the excavations of what were thought to be the footings for Arnolfo's octagon, and the conclusions drawn from the excavations at the west end of the nave, are discussed by Toker (1978) (where all earlier conjectural reconstructions are assessed), and Toker (1983). Kreytenberg (1974) argued for intense building activity on the nave and choir of the cathedral between 1331 and 1348. His conclusions were questioned by Toker (1978) 221–2, and Trachtenberg (1979). In turn, Toker's conclusions have been questioned by Rocchi *et al.*, (1988) and by Trachtenberg (1993) 29, note 27. Toker's hypothetical reconstructions in his 1983 study of the exterior elevation of Arnolfo's façade (fig. 11b), and the 'Arnolfian' project for the east end (fig. 22), are based largely on Pocetti's sixteenth-century drawing of the façade before its revetment was stripped off in 1588, on the view of the Duomo by Andrea Bonaiuti in the chapter house of S. Maria Novella (1366–7) and on a supposed 'realization' of Arnolfo's east end in frescoes by Taddeo Gaddi in the Baroncelli Chapel, S. Croce (*c.*1328–34). Toker's archeological evidence for an octagonal crossing may be plausible, but his evidence for domed transepts with cellular chapels, on the triconche scheme later adopted for the present east end by Talenti, is based on ambiguous archeological remains, and on his supposition that Taddeo Gaddi's image of the Temple of Jerusalem was based on Arnolfo's 'project'. Trachtenburg is agnostic about the nature of Arnolfo's project, and believes the Gaddi image is a typically medieval evocation of the Temple, which includes 'local' Florentine elements; it is not a specific rendition of the cathedral's design. There is also no consensus on Arnolfo's design for the west façade. A good survey of the earlier literature can be found in Romanini (1980). Still the best analysis of the west façade is Metz (1938). For Arnolfo's system of proportion for the west façade, based on the Baptistery, see Trachtenberg (1997) pp 55–62.

142. Martin Weinberger, 'The first Façade etc.', in *Journal of the Warburg and Courtauld Institutes*, IV (1940) 67. Saalman (1964) 472–3, 495, questioned if much of the early revetment in the side walls of the nave, built before 1342, was actually planned or executed under Arnolfo. Toker (1978) 221 and fig. 16, considered that much of the raw masonry wall – at least up to the south-west nave portal – was up by Arnolfo's death, but left open the extent of the revetment at that time. See below, Chapter 4, Note 91.

143. Keller (1937) and (1938), White (1993) 115–17, and many other authorities, were convinced that the rose story of the façade was built in the second half of the fourteenth century (1370s), and therefore could not reflect Giovanni Pisano's intentions. In addition, the awkward vertical discontinuities between the façade's wide central upper story and the much narrower central portal zone below suggested to most commentators a change of plan in the upper half of the façade. For Giovanni's 'original' project for the upper story Keller proposed a similar solution to the present façade, but with a smaller oculus and a much greater vertical continuity between the oculus story and the central portal below. White reconstructed the design as a single great gable across the whole width of the façade, in the manner of Emilian Romanesque, or a slightly stepped gable similar to Notre-Dame de la Grande in Poitiers. By 1316–17, he argued, work had stopped at the level of the top of the arcades above the lateral doors. But Middeldorf-Kosegarten (1982) 28–33, 69–103, on the basis of documentary evidence and the style of the facade's sculpture, has denied that there was any change of plan and has dated most of the existing upper parts of the façade, not to the 1370s but to *c.*1297–*c.*1310/17, that is, the period immediately after Giovanni's departure and before the beginning of the new baptistery and extended choir. This suggests that the whole façade may be more of a unified creation than has been imagined, and may even go back to Giovanni's designs. There is certainly evidence that the last bay of the nave underwent a change (it is taller than the other bays, not aligned with them, and the remains of its original clerestorey, preserved below the later aisle roofs, show a different treatment than those further east). All this is consistent with a decision by Giovanni or his successor (s) to build the present tall façade with its wide rose and to treat the bay behind it as a 'transitional' or temporary space, before the old vaults of the nave could be heightened accordingly. However, White (1985) and (1993) 621, note 117, has defended the late fourteenth-century date for the upper parts of the present façade and the vaulting of the nave behind it. The arguments, which remain evenly balanced, are briefly rehearsed in Norman, ed., (1995) 134–5, 141–2. See p. 214 and Notes 94–6.

144. On the upper storey see p. 214.

144A. See Buchowiecki (1970) 691–744; and Urban (1961/2) 75–124 especially 119ff, who qualifies the church's dependence on S. Maria Novella. The present transverse arches and ribs are post-medieval insertions; originally the groin vault had, in the Roman manner, no transverse arches. The nave vault was completed by 1474, but it is not certain if the side aisle vaults were begun in the fourteenth or fifteenth century. Unlike S. Maria Novella, the nave had no clerestorey, and was therefore a pseudo-basilica. See Palmerio and Villetti (1989) 63–5, 107–10, 112–15. The fullest account of thc church is now to be found in Kleefisch-Jobst (1991).

CHAPTER 4

1. Illustrated in John Britton, *The History and Antiquities of Wells Cathedral* (London, 1824).

1A. Not everyone would agree with Frankl's assertion, especially since the 'multiplication of tiercerons' had appeared much earlier, in the nave and Chapter House of Lincoln Cathedral, *c.*1225–35. The problem lies in defining the notion of 'Late Gothic', a style which is usually taken to start, in architecture at least, in the middle of the fourteenth century. See Bialostocki (1966). For the Chapter House at Wells, see below, Chapter 4, Note 4.

2. *Ibid.*, 86.

2A. For the Lincoln Chapter House see Pevsner-Metcalf (1985b) 227–9; for Lichfield see Pevsner-Metcalf (1985b) 181ff, and Rodwell (1993) 33, who dates the Chapter House and its vestibule to *c.*1230–40. For Westminster see Wilson (1986) 85ff. For Salisbury see Blum (1991) 22–36. She shows that the Cloister and Chapter House were envisaged and probably designed in the year 1263, when Bishop Walter de Wyle (1263–71) gave land to the Chapter for a new Cloister. But she holds to the conventional position that actual construction on the Chapter House was not begun until at least 1280, because of the pennies of Edward I, dating to that year, unearthed in nineteenth-century excavations below the Chapter House floor. In an unpublished lecture delivered at the Courtauld Institute in 1998 Dr Tim Tatton-Brown questioned the archeological evidence surrounding these coins and their discovery, and suggested a much earlier starting date for the Chapter House, perhaps in the 1260s, and therefore chronologically closer to its exact model, that at Westminster Abbey.

3. As regards not only the tracery, but also the clarity of the severies with triradial ribs without ridge-ribs.

4. For the Chapter House and its design see Draper (1981) 18–29 especially 19–20; Harvey (1982) 66–73; and Colchester (1987) 17, 151–7. A full account of the dating and iconography of the Chapter House in given in Ayers (1996) 30–87. He establishes that the main chamber was begun in *c.*1298 and was glazed by *c.*1305.

4A. See above, Chapter 2, Note 76; Chapter 3, Notes 53A, 53B.

5. Illustration of Exeter in Webb, *op. cit.* plate 112, and more complete in Martin Hürlimann and Peter Meyer, *English Cathedrals* (London and New York, 1950) plate 78.

The exact chronology, according to the surviving building accounts, is given by Erskine (1981–3), and a more detailed breakdown of the sequence of construction can be found in Jansen (1991). Rebuilding of the Norman cathedral had begun by 1279–80 in the eastern chapels and those opening off the presbytery aisles – thus the entire eastern arm had by then been planned and prepared. The stepped, straight-ended ground plan derives from Old Sarum, Winchester, Salisbury and twelfth-century Wells, its details show an understanding of Westminster Abbey and the early parts of the choir of Old St Paul's in London. Jansen attributes this first phase, lasting up to the mid-1280s, to the first architect, a court-trained master working in conjunction with Bishop Bronescombe.

A second, and most creative, architect, the real 'Master of Exeter', appears from *c.*1282–5. He, and Bishop Quinil (1280–91) are responsible for work that extended throughout the eastern chapels, the retrochoir, the upper parts of the Lady Chapel, the choir and presbytery aisles and the transepts. The Lady Chapel was roofed in 1304. By 1288–91 the four eastern bays of the central aisle of the presbytery were underway, and they were completed, with their vaults, by 1302. At this stage, the main elevation of the presbytery was to have had only two stories, like Netley, Pershore or Tintern, but with steep lower splays for the clerestorey windows. This second architect combined an up-to-date knowledge of London and court idioms in window tracery (Merton College Chapel, Oxford; St Etheldreda's, Holborn, London) with a preference for more robust and textural forms derived from the Midlands and the north-east of England. (Lincoln vaults, Yorkshire clustered piers).

By 1297 he had been replaced by the third architect, a Master Roger. He built the choir (the three western bays of the eastern arm). In contrast to the two-storey system used by the second architect in the presbytery, Roger gave the choir a three-storey elevation modelled on the slightly earlier choir of St Werburgh's at Chester, in which the two upper stories consist of a low triforium and a tall clerestorey, each with interior passages. For the wider sylistic implications of these 'superposed interior passages', and their origins in Burgundy, see Jansen (1979). The choir was structurally complete by 1311 and dedicated in 1312. In 1318 the three-storey system was extended to the four presbytery bays. A reconstruction of the original late thirteenth-century tracery of the presbytery east window is offered by Russell (1991).

6. Illustration in Hürlimann, *op. cit.* plate 40. Up-to-date accounts of the octagon at Ely, and all the fourteenth-century work there, can now be found in Coldstream (1979); Lindley (1986) and Lindley (1986a), the latter a revealing discussion of the imagery and 'programme' of the octagon. The timberwork of the octagon and lantern is also analysed by Fletcher (1979) especially 61ff, and Hewett (1985) 114–22. See also the readable Maddison (2000).

6A. Wilson (1990) 197, sees good reasons for accepting the attribution of the conception of the octagon to the sacrist.

7. In French specialist literature, ridge-ribs are called liernes; cf. discussion of Philibert de l'Orme in Frankl (1960) 296, and Viollet-le-Duc, *Dictionnaire*, under 'Lierne'. Bony (1979) 46–8, discusses the invention and development of the lierne vault in England.

8. See Pevsner, *Cambridgeshire* (*The Buildings of England*) 285; Hürlimann, *op. cit.* 18, plates 43–5. See Lindley (1986) 124–6; Coldstream (1979) 31–4. Woodman (1984) argues, unsuccessfully, that the Lady Chapel was built as an unvaulted structure, and only received its present vault in the late fifteenth century.

8A. Coldstream (1979) passim, identified two workshops at Ely, one from East Anglia/Norwich (which did the choir, octagon and Prior Crauden's Chapel) and one from Lincolnshire (which did the Lady Chapel), though both copied from each other's work and may have exchanged masons. Lindley (1986) passim sees no such division. He attributes to a 'Master John' the stone substructure of the octagon, most of the choir, Prior Crauden's Chapel and, most probably, the Lady Chapel. For John Ramsey see Harvey (1984) 240–1. Lindley also recognises the hand of a second architect, probably William Ramsey, in parts of the southern and the whole of the northern elevation of the choir, as well as its lierne vaults. See also Wilson (1980) 186–97; and Maddison (2000) 72–5.

9. Illustrated in Bond, *Introduction*, I, 43. For the remodelling of Romanesque Tewkesbury, begun shortly before 1321, see Morris (1974). Cave (1929) dates the nave roof bosses to *c.*1320 on the basis of details of costume and armour. The stylistic context for the Tewkesbury net vaults is set out by Bony (1979) 50ff; and more fully by Bock (1962) 56–67. The source for the two-bay diagonal net vaults of the English West Country discussed by Frankl in this section was probably the most simple vault of the series – the side aisle vaults of the choir of St Augustine's at Bristol, dated most recently by Morris (1997) to the 1320s/30s, though they are contemporary (or a little later?) than the miniature net vault covering the passage of the rood screen at Exeter cathedral, dated exactly 1317–25. See Morris (1991) 74, and plate XIIA. See also Bock (1961a).

10. G. H. Cook, *The Story of Gloucester Cathedral* (London, 1952) figure 17. Also Bock (1962) 64–5. For the significance of Gloucester as one of the earliest examples of the Perpendicular style, and for the chronology of the remodelling see Harvey (1978) 78–80 and 90–2; Wilson (1980) 113–17, 127–39, 164–70; and Wilson (1990) 204–8. There are three campaigns:

1) *c.*1331–6 The remodelling of the south transept.

2) **The rebuilding of the choir**, beginning with the liturgical choir under the crossing, built during the reign of Abbot Adam de Staunton (1337–51), and probably finished by *c.*1351, and then proceeding into the presbytery under Abbot Thomas de Horton (1351–77), probably 1352–67, by which latter date the whole eastern limb, including the great east window, was complete. Winston (1863) suggested that the heraldry of the glass of the east window, with its references to those who had participated in the Battle of Crécy, implies a date of soon after 1346, at least in conception. Kerr (1985), on the basis of comparisons with the glass at Tewkesbury and of heraldic evidence, dates the glass to '1350–60'.

3) **The north transept** 1367/8–73.

Harvey (1978) sees the south transept as strongly influenced by William Ramsey, Edward III's chief architect from 1337, if not actually designed by him, and suggests that John Sponlee may have worked on its construction. Wilson (1980) and (1990), more persuasively, attributes the south transept to Thomas of Canterbury, the King's Master Mason and architect in charge of the upper chapel of St Stephen's in Westminster until his death in 1335. He also points to the sources of this, probably the first Perpendicular building in England, to St Stephen's Chapel and to French Rayonnant architecture *c.*1300 (Sées, Saint-Thibault-en-Auxois). Harvey (1978) 91–2 suggests that Thomas de Cantebrugge may have been the main architect at Gloucester for some time up to 1364, and that he designed the east walk of the cloisters. He also speculates that his successor at Gloucester, and probably the designer of the north transept, was Robert of Lesyngham, who may have taken over in 1364. See also Welander (1991) 141–83, who accepts Wilson's conclusions, while still (for no clear reason) entertaining the possibility that William Ramsey was the architect of the south transept.

11. Hürlimann, *op. cit.* plate 105, and Cook, *op. cit.* figure 19. See also Bock (1962) 64–5.

12. Hürlimann, *op. cit.* plate 95, and Webb, *op. cit.* plate 124. See also Draper (1979) 22f; Harvey (1982) 85ff; Colchester (1987) 19, 79, 122ff. All attribute the choir to Master William Joy and date its completion to *c.*1337/40. Joy was Master Mason at Wells some time before 1329; new stalls were ordered in 1325; the old twelfth-century choir eastern wall was removed just before 1333, when the Dean and Chapter forecast (optimistically) at least a further three years work on the choir. The east window of the choir is dated *c.*1340. See also Ayers (1996) 224–302, who has uncovered much new primary evidence for the near-

completion of the choir by 1337 and 1338, and has dated the clerestorey glass *c.*1335–45.

13. Hürlimann, *op. cit.* visible on plate 104. See Harvey (1978) 90; Wilson (1980); and Welander (1991) 167.

13A. Few would now accept Frankl's designation of the early thirteenth-century decorative vaults in Poitu and Anjou as 'Plantagenet', since all of them were built after the loss of these territories by the English Plantagenet Kings to the Kings of France. See Mussat (1963), and also above, Chapter 2, Notes 78, 78A, 79A. Nor is it helpful to suggest that the west French vaults 'were con-tinued' in the vaulting of the Lichfield, Wesminster and Wells Chapter Houses, since it is unlikely that these chapter house vaults were in any way indebted to western France, a 'provincial' area with little or no influence on Gothic architecture beyond it. Bony (1979) 50–2, however, attempts to trace an influence from the Angevin vaults on some of the earlier West Country vaults. Wilson (1990) 202, points to the possible inspiration in the West Country of timber tunnel vaults built in Scotland and the north of England in the late twelfth and early thirteenth centuries.

14. Walter Paatz, *Die Marien Kirche in Lübeck* (Burg, 1926). The vaults at Lübeck have been discussed in some detail by Clasen (1958) 43–8, who dates the Briefkapelle to the 1330s. Ellger and Kolbe (1951) date the execution of the chapel, with the rest of the lower parts of the west façade, to 1310, the year given in the inscription in the chapel. Gąsiorowski (1977), on the basis of the mid-1970s restoration of the chapel, has reinstated the 1310 date for the beginning of the chapel. Hasse (1983) 40ff, dates the beginning of the chapel to 1310, but the construction of its vaults to 'scarcely before 1315', and the chapel's completion to not before 1320. See also Torbus (1998) 312–15, and Becker-Hounslow (1998) 227–9, and (1998a), who offers the most detailed discussion of the whole problem of Anglo-German connexions in *Backsteingotik* decorative vaulting.

15. *Die Bau und Kunstdenkmäler der Provinz Ostpreussen*, IV (Königsberg, 1894) 139ff. See also Clasen (1958) 48, 67. For Heilsberg (Lidzbark Warmiński) see Mroczko and Arszyński eds. vol. 2 (1995) 138–9. Clasen's (and most other German scholars') dating of the great refectory and its vaults to the second half of the fourteenth century has been convincingly questioned by Domańska (1968) and (1973). It now seems that none of the ingenious versions of triradial vaults employed in the refectory, chapel, and audience hall of Lidzbark Castle date before the disastrous fire of 1442 and they may even post-date 1497. Only the cloister vaults belong to the period of Bishop Heinrich III (1373–1401). For the Prussian castles generally, particularly of the Teutonic Knights, who were pioneers in decorative vaulting, see Clasen (1927) (still useful), and the wealth of post-war Polish research, especially Frycz (1980), Arszyński (1985) and (1995), Torbus (1994), Kutzner (1995) and (1996). All previous accounts have now been superseded by the monumental study of the Knights' castles by Torbus (1998).

15A. Several attempts have been made to show the influence of English vaulting, especially that of Lincoln, in the southern Baltic. See Pevsner (1959); Steinke (1974) and (1974a); Bony (1979) 64. For a critical review of this trend see Crossley (1981), and (1990), and Torbus (1998) 312–15. The whole question of English vaulting influence in north German *Backsteingotik* is treated with insight and understanding by Becker-Hounslow (1998).

16. Nikolaus Pevsner in *Architectural Review*, CXIII (1953) 91. Illustrated in G. H. Cook, *Portrait of Lincoln Cathedral* (London, 1950) plate 46, but here one cannot, of course, see the skeleton vault. For a full analysis of the Lincoln 'Easter Sepulchre' or – more accurately – 'Tomb of Christ' see Sekules (1986).

17. Pevsner, *op. cit.*, figure II. See now Morris (1997) 45, who dates it to 'no earlier than the '1320s', and possibly the 1330s, and links it to work associated with William Joy. In the same study, p. 48, Morris has also added to the list of English flying ribs mentioned by Frankl, by discovering a skeletal vault at the top of the corner staircases in the crossing tower at Wells, which Morris dates *c.*1313–*c.*1322.

18. N. Pevsner, *Nottinghamshire* (*The Buildings of England*) (Harmondsworth, 1951) 169. And Pevsner and Metcalf (1985b) 310–12. They date the screen to '*c.*1320–40' (stone for it was being carried in 1337).

19. Hermann Giesau, *Der Dom zu Magdeburg* (Burg, 1924) illustration on p. 41. See also Schubert (1975) 38, who dates it to the 1330s. Note also the now-destroyed Fountain Pavilion in the cloister of the Cistercian monastery of Zlatá Koruna in southern Bohemia, dating *c.*1360, which once contained skeletal ribs. Líbal (1978b) vol. 2, 628, attributes the building to Michael Parler, probably a brother of Peter Parler. This may help to explain Peter Parler's use of such ribs in Prague Cathedral. The connexions between the work at Magdeburg in the 1330s/40s and Prague are discussed in Crossley (1981) 91–2, including other examples of early flying ribs in Germany (Freiburg steeple; Bride's Portal at St Sebaldus, Nuremberg).

20. Hans Hahnloser, *Kritische Gesamtausgabe des Bauhüttenbuchs etc.* (Vienna, 1935) 121 and plate 41.

20A. Hahnloser (1971) 126. Bucher (1979) 125–6, saw the curious double-curved moulding next to Villard's pear-shaped moulding as a 'negative template', with the profile cut out of the wooden board.

21. See p. 123.

21A. I know of no work that deals with Gothic mouldings in Europe as a whole. The fullest studies for England (with much continental material) are the pioneering works by Morris (1978) (1979) and (1992).

21B. Note also the ogecs in the niche pedestals of the south transept at Saint-Urbain, dating to the first campaign, 1262–6. See Davis (1984) especially 852–3.

22. Lasteyrie, *op. cit.* II, 33, which also gives a bibliography on the subject of this national contest. The whole problem of the French origins of the use of ogees in England, and, in turn, the possibility of English ogee tracery influencing the beginnings of French Flamboyant, is discussed by Bony (1979) 22–5, 27–8, 67–8. Kurmann and von Winterfeld (1977) 133, noted the strange (probably unintentional) double-curved tracery in the renewed clerestorey of the choir at Sens Cathedral, dated as early as 1230–40, though there are no contemporary parallels for it elsewhere. Early examples of ogee arches in France *c.*1300, in the west façade of Auxerre cathedral, in the shrine of Saint-Gertrude in Nivelles, and in French manuscript illumination, are briefly touched on by Kurmann (1978) 170–1 and (1996a).

22A. The blind tracery in the dado of the fountain pavilion in Heiligenkreuz, dated *c.*1290, has fully developed, autonomous, ogees, see Gaumannmüller (1976). Kurmann (1975) and (1986) and Michler (1984a) 42ff, drew our attention to the development of the ogee *c.*1300–30 in an important group of 'proto-flamboyant' Cistercian churches in Swabia, (Bebenhausen, Maulbronn and Salem) and to the related work in the cloister of Konstanz Cathedral (*c.*1310–20).

23. F. Bond, *Introduction*, I, 438; and Joan Evans, *English Art, 1397–1461* (Oxford, 1949) I, plate 11. See now Brown, Colvin and Taylor (1963) vol. I, 479–85; Bony (1979) 20–23; Coldstream (1991a); Lindley (1991). The only evidence of ogee arches comes in the niche storey of the Hardingstone (Northampton) cross (see plate 198).

24. Evans, *op. cit.* 6, and plate 3. See now Gee (1979); Wilson, (1987) 339; and Binski (1995) 113–19. In window tracery ogees were first used in England by Michael of Canterbury in the undercroft of St Stephen's chapel in Westminster, from 1292 (see plate 201). See Wilson (1990) 112–15. If Hollar's engraving of the east end of Old St Paul's Cathedral in London can be trusted, they may also have appeared, at about the same time or even a little earlier, in the great eastern rose window. See Morris (1990) 88. The windows of the cloister of Westminster Abbey opposite the Chapter House, which have reticulated and curvilinear patterns, and which Wilson (1986) 82–3, dates to *c.*1300–10, and associates with Michael of Canterbury. See also below, Chapter 4, Note 104E.

25. Illustrated in John Britton, *The History and Antiquities of the Cathedral Church of Exeter* (London, 1826) plate 19; Hürlimann, *op. cit.* plate 77. For the precise dating of this part of the nave of Exeter Cathedral see Erskine (1981) and (1983).

26. H. E. Bishop and E. K. Prideaux, *The Building of the Cathedral Church of. . . Exeter* (Exeter, 1922). The chief carpenter of the Bishop's Throne was Robert de Galmeton. A 'Thomas de Winton' (whom Morris has convincingly identified as the Exeter chief architect, Thomas of Witney) gave advice on its design. See now Morris (1991); Sekules (1991) 172–9, especially 175–6. Thomas Witney advised on the throne in 1313; it was carved in 1316–17; figures were added 1317–20, and it was painted 1323–4. Changes in the design, particularly the incorporation of the present tower section as a change of plan, were revealed by the detailed investigation of the throne in 1982. See Tracy (1987) 412.

26A. For the octagon at Ely see Chapter 4, Note 6 above. Lindley (1986) 82–4 proves conclusively that the eight large niches (or tabernacles) around the octagon once contained standing figures, and are not purely architectural contrivances, as Frankl thought.

27. Webb, *op. cit.* 127.

28. Evans, *op. cit.* plate 79. See now Dawton (1983) and (1989), who demonstrates the debt to local Yorkshire workshops, and to London tombs (especially that of Aymer de Valence in Westminster Abbey), rather than to Ely.

28A. Morris (1996) 46–58 dates these strainer arches to sometime after *c.*1320 and attributes them to William Joy, the architect of the later strainer arches at Wells. See also Chapter 3, Note 21 above.

28B. The strainer arches at Wells are usually held to have been begun sometime after 1338, the year in which a chapter act described the fabric of the cathedral as 'enormiter confracta et deformata', implying the new crossing tower had begun to threaten the building below. This was the view of Harvey (1982) 87–9, who dated the strainer arches to the 1340s and 1350s, and of Colchester (1987) 111–14, who provides the most detailed account of the reinforcements. Harvey and Colchester (1974) 207–8, proved that repair work on the crossing was still going on in 1356, when a document mentions cartloads of stone for the repair of the tower. But the 1356 document is the first and only reference to the crossing tower, and such a long campaign (1338–56) has led Draper (1981) 24, to believe that the strainer arches may have been begun some

considerable time after 1338. Both Draper and Ayers (1996) 229–31, have suggested that the 1338 document referred not to the tower but to structural disruption caused by the new work in the choir. For a structural analysis of the arches see Mark (1982) 78–91.

29. A four-centred arch is called a 'Tudor arch', although the Tudor monarchs did not ascend the throne until 1485. For a full account of the four-centred arch in early Perpendicular see Harvey (1978) 16–17, 32–3, 138–9. Harvey also discussed the origins of rectilinear tracery, though he gave insufficient importance to its origins in later French Rayonnant. As a corrective see Wilson (1990) 204–7.

30. See Hastings (1955). His conclusion, that St Stephen's was a 'proto-Perpendicular' building, was challenged by Harvey (1961), who underlined the 'Decorated' aspects of the chapel. Bony (1979) 57–60, rightly argued that St Stephen's prefigures elements of both Perpendicular and Decorated styles, and anticipates the concurrent development of the two styles in England in the early fourteenth century. The chronology of St Stephen's has been the subject of bitter controversy, between Hastings (1955) (who championed an earlier dating) and Harvey (1961) (who held to a later). Brown, Colvin and Taylor (1963) vol. 1 510–27, set out the full documentary evidence. The most authoritative analysis of the chapel, its chronology and its influence on Decorated and Perpendicular architecture can be found in Wilson (1980) 34–80; Wilson, (1987) 337–9, and Wilson (1990) 192–7. Begun in 1292, the lower chapel was complete by 1297 and the upper chapel already begun. Work on the upper chapel resumed, according to Michael of Canterbury's early plan, in *c.*1320, and the crenellated cornice above the main windows was reached by 1326. Against Michael's intention, a clerestory was inserted in 1331–4, and roofed with a timber vault 1346–8.

31. Frederick Mackenzie, *The Architectural Antiquities of the Collegiate Chapel of St Stephen in Westminster, The late House of Commons* (London, 1844). The lower chapel, much restored, still survives. For illustrations see Bony (1979) plates 277–9.

32. M. Hastings, 'The Court Style', *Architectural Review*, CV (1949); *The Parliament House etc.* (London, 1950) 54ff; and *St Stephen's Chapel* (Cambridge, 1955) 28ff. The idea of a 'Court style' in English architecture in the Decorated and early Perpendicular period has been refined and amplified by Bony (1979) 9–18, 56–62. The whole notion is now, however, being challenged. See Colvin (1983); Coldstream (1994) 186–92; and Binski (1995) passim.

33. That is, a generation before the dates given by Sharpe (*Seven Periods of English Architecture*, 3rd ed., London, 1888, 8). He claimed that Rectilinear followed Curvilinear, giving the dates of the latter as 1315–60, and of the former as 1360–1550. The remodelling of the south transept at Gloucester, begun in 1331, and the building of Old St Paul's Chapter House, begun in 1332, are now recognized as the first fully-fledged examples of the Perpendicular style though their rectilinearity, was prefigured at St Stephens chapel. See Harvey (1978) 75–85; and Wilson (1980) 113–17, 127–39, 164–70.

33A. See Bond (1905) 480, and Pevsner and Sherwood (1974) 160. For the origins of reticulated tracery in the court circles of Michael of Canterbury see below, Chapter 4, Note 104E.

33B. For the Romanesque cathedral see Wilson (1985).

34. Kerr (1985) dates the east window to 1350–60; see above, Chapter 4, Note 10.

35. Illustrated in Hürlimann, *op. cit*, plates 101–5, and also in G. H. Cook, *The Story of Gloucester Cathedral* (London, 1952).

35A. The piers derive from those in the choir aisles of Cologne cathedral, see Kunst (1969a) and Chapter 3, Note 106, above.

36. Haina, Wetter, Nienburg, etc., are discussed in Wilhelm Kästner, *op. cit.* (Note 86 to Chapter 3). On Haina cf. also Oskar Schürer, 'Die Klosterkirche in Haina', *Marburger Jahrbuch*, II (1925) 91. The influence of the church of St Elizabeth in Marburg is fully considered by Kunst (1983) and (1983a); Schenkluhn (1983); Auer (1983); Jacobi and Scherf (1983) – all in *Elisabethkirche* (1983); also Crossley (1997), and Wedemeyer (1997) 294–6.

36A. Most authorities would now consider that Frankl's 'drawing of boundaries' here is precisely one of conventionality. Churches which followed the model of the nave of St Elizabeth at Marburg show clear signs, especially in their tracery, of forms that belong not to High Gothic but to Rayonnant architecture, a style which Frankl's conventions did not recognize.

37. See Creutzfeld (1953) and Kissling (1975), Kissling (1978) in vol. 1, *Die Parler*, Wortmann (1978) in vol. 1, *Die Parler*, and Lange (1988). The nave may not have been the first hall church to be planned in Swabia. The hall nave of the Frauenkirche in Esslingen was begun only in *c.*1350, but the intention to build a hall could be dated to 1321, the year the choir was begun. See Koepf (1980) 1–46. The collegiate church at Herrenberg, the nave dated *c.*1300–28, was begun as a basilica but perhaps changed to a hall in that period, though it may have been altered only as late as 1470, see Koepf (1952). Wortmann (1978) in vol. 1, *Die Parler* 315, points to the hall nave of St Martin at Westhofen in Alsace, dated *c.*1300, as a precedent for the Gmünd nave.

38. For a biography of Heinrich see Schock-Werner (1978) in vol. 3, *Die Parler* 7–12, who points out that the Prague inscription is ambiguous as to whether he was a foreman in Cologne or simply a worker or resident there. Since his son, Peter, was born in Gmünd, in 1333, Heinrich must have worked on the nave of the Gmünd church.

39. Creutzfeld (1953) tried to find influences from Cologne's Plan F on the west façade of Gmünd, but Wortmann (1980) in vol. 4, *Die Parler* convincingly demonstrated the exclusive dependence on Upper Rhenish and Cistercian precedents.

40. See below, pp. 200ff; and Schmitt (1951) 6; Kissling (1975) and Kissling (1978) in vol. 1, *Die Parler* 320. The problems of attributing the nave and choir to Heinrich Parler or his son Peter, still remain. Schmitt (1951) 10, attributed the choir and not the nave to Heinrich Parler on the grounds that he is referred to in the inscription over Peter Parler's bust in Prague as 'architect of Gmünd' (*magistri de gemunden*) when Peter left Gmünd to come to Prague in 1356, that is, when the choir, founded in 1351, was in building. But since 'a different world of architectural experience' separates the choir from the earlier nave, Schmitt attributed the nave to a different, unknown, architect. Clasen (1952) 54ff, attributed the choir to Peter Parler on the basis of stylistic similarities with Peter's work in Prague Cathedral, particularly the prefiguration of the Prague zig-zagging triforium and clerestory in the large triangular projections of the ambulatory stringcourse. Wortmann (1978) in vol. 1, *Die Parler* 317, attributed the choir to Heinrich, but opted for a large advisory contribution from the young Peter, who may have spent some time in Paris. Certainly the choir of Gmünd is sometimes attributed to Peter Parler on the grounds that he must have had some exceptional work to his credit before he was called to Prague in 1356. However, Bräutigam (1961) and (1965) and others have complicated the problem by showing that Peter Parler probably contributed to the architecture, or the sculpture, or both, of the Frauenkirche in Nuremberg, in building a few years before 1356. As the foundation of the Emperor Charles IV, the patron of the new cathedral in Prague, the Nuremberg church was the most likely location for the young architect to catch the Emperor's attention. See below, Chapter 4, Note 64A. The spatial implications of the new hall choir at Gmünd, and their relations to later medieval concepts of 'space' and 'subjectivity', are fully discussed by Lange (1988). Wundram (1988) pointed to the spatial function of the horizontal cornice dividing the chapels and the windows in the ambulatory, and suggested (without evidence) that Peter Parler was born not in 1333 but in 1323, making him an architect in his late 20s when he worked on (designed?) the Gmünd choir. The bust inscription, however, clearly gives his age as twenty-three years in 1356. Many of the problems surrounding the choir of the Holy Cross church and its ancestry are untangled by Nussbaum (2000) 112–21. Nussbaum's sensible synthesis of German Gothic can be read with profit for most of the German buildings cited by Frankl, but for that reason I have not cited him in every individual case.

41. See Schwartz (1979) 27–56; and Schenkluhn (1983) 86–8.

42. The inscription in the choir is photographically reproduced in *St Maria zur Wiese, Denkschrift etc.* (Soest, 1950) 32. Stopp's philological analysis of the inscription suggests that the date can only be read as 1331. The only error in this article is the translation of the word 'tenet' by 'lasts'. A day cannot last longer than twenty-four hours. 'Tenet' here means something like 'contains'.

But see Lohr (1975), who dates the middle choir to sometime before 1340 and its sculpture to 1350–60, and agrees with the latest interpretation of the choir foundation inscription, placing it not in 1331 (the traditional starting date), but in 1313. See Eickermann (1972). For the church in general see Schwartz (1979) 85ff; and Hoppe-Sailer (1983).

43. The date of 1376 refers, not to the completion of the whole east end as many authorities have supposed, but only to the central and south choir. See Lohr (1975) 94.

44. R. K. Donin, *Die Bettelordenskirchen in Österreich* (Vienna, 1935) 225, plate 255. The piers and the capitals date from the Baroque. Although the church was consecrated in 1349 the nave was not complete until after 1366. See Perger and Brauneis (1977) 157; and also Brucher (1990) 79, where it is wrongly stated that the church was begun in 1320.

45. Sigrid Thurm, *Norddeutscher Backsteinbau etc.* (Berlin, 1935) 15 and plate 6. See Zaske (1958) 86–7, who dates the choir to 1325–*c.*1340, the nave to *c.*1350–60 and the eastern gable, for which he rejects any direct Strasbourg influence, to 'after *c.*1360'. Schwatz (1957) has more correctly dated the nave *c.*1325–39 and the choir and gable following it. The demolition of the previous church in 1325 implies construction had already begun in the new building. The stylistic analogies between the gable and German freestone architecture – including Parlerian Late Gothic – are discussed at length by Liess (1988) and (1990).

46. Werner Burmeister and Albert Renger-Patzsch, *Norddeutsche Backsteindome* (Berlin, 1938) plates 16 and 77 (also plates 11, 17, etc.). Cf. also the bridging of the re-entrants between the chapels of the cathedral at Schwerin, illustrated *ibid.*, plate 57. The corbels in the main arcades may not be an English feature, but a local Cistercian practice, see the nave of Chorin in

Brandenburg. The church of St Mary at Wismar was destroyed in the Second World War and only the west tower survives. The previous church was a hall, possibly like the hall church of St Nicholas at Stralsund (*c.*1260), which was also replaced by a large basilica. See Zaske (1969) 375. For the position of St Mary in Wismar brick gothic, especially in the 15th century, see Ludwig (1998) pp 37, 117, 130, 140.

47. Hans Tintelnot, *Die mittelalterliche Baukunst Schlesiens*, 1 (Kitzingen, 1951) 120. Before its destruction in the Second World War, this building, through the harmony between its Baroque decoration and its Late Gothic spatial form, offered a magnificent impression of concordance.

For a fuller discussion of 'jumping vaults' see Hanulanka (1971) 45–64. The chronology of St Mary-on-the Sands has been obscure. Although there is general agreement that the new building was begun soon after 1334, the direction of the work, east–west or west–east, has remained unclear. Older authorities such as Burgemeister and Grundmann (1930) and Tintelnot (1951) argued for the precedence of the nave over the choir, later Polish scholars for an east-west priority. Mroczko and Arszyński, eds., (1995) vol. 2 271–2, summarize the arguments. They quote the unpublished dissertation of Stulin (1982) who established the following sequence:

1334 **Abbot Konrad** (1329–63) demolishes the old church and begins the new one with the lower parts of the façade and the south nave aisle.

Under Abbot Jan of Krosna (1364–72) and Abbot Jan of Prague (1375–86) the north aisle of the nave was built and some vaults erected. 1371, 1372 burials in front of the high altar. Abbot Henryk Gallici (1386–95) vaulted the aisles and decorated the church. The work of decoration and furnishing was still going on under Abbot Mikołaj Herdon (1395–1412). Stulin identifies the sources of St Mary in the nave of St Cross in Wrocław (the disposition of the interior space), St Elizabeth in Wrocław (the pillar forms), and south-west Germany (tracery, portals etc), though forms from this quarter are traceable in Silesia earlier, in the ducal chapel at Legnica.

48. Tintelnot, *op. cit.* 90 and plate 32.

The origins of this typically Silesian basilican form are to be found, not in mendicant but in Cistercian architecture, principally from Bohemia (Zlatá Koruna), see Kutzner (1975) (1995a) and (1998). The chronology of St Elizabeth can be found in Mroczko and Arszyński, eds., (1995) vol. 2 266.

After 1309–*c.*1318: outer walls of western bay of nave, planned as a basilica or pseudo-basilica, with similarities to Sts Peter and Paul at Legnica, but uncompleted.

1319(?) – *c.*1340: nave, with aisle vaults.

***c.*1340–1387**: choir, vaulting of central aisle of nave, chapel additions, beginning of the tower.

To 1482: completion of the tower.

See also Kutzner (1996a).

49. The choir was consecrated in 1383. Cf. Dehio-Ginhart, *Handbuch der Kunstdenkmäler der Ostmark*, 1 (Vienna, 1941) 518.

There are now convincing reasons for doubting Zwettl's status as the first hall choir of this polygonal kind, with ambulatory and radiating chapels. The foundation of the chapel ring in 1343 and the consecration in 1348 concerned only the choir chapels, and the plague stopped the work in that year. Only in 1360 did work resume under Master Jans (probably from St Stephen's in Vienna), at a level just above the chapels. It is now accepted that the original plan of 1343 envisaged a basilican choir (similar to Pontigny or, even closer, to Sedlec in Bohemia) and that only later, under the influence of the new choir at Schwäbisch Gmünd (begun in 1351) was the design changed to a hall. See Buberl (1940) 39–42; Wagner-Rieger (1967) 341, 379–80. Brucher (1990) 102–6, sees the break between the 1348 and the post-1360 campaign in the abrupt change at the base of the ambulatory windows between single thick responds flanking the chapel openings and delicate vault shafts framing the windows. This, he deduces, is evidence that the first plan envisaged a basilican section. The arguments are rehearsed, without any clear conclusion, by Wundram (1988). For a full discussion of the origins of the hall choir with polygonal ambulatory see Kunst (1969), who considers the Zwettl choir to precede, and be the model for, the choir at Schwäbisch Gmünd, although he traces the first example of the type back to the hall choir of the cathedral of Verden an der Aller, *c.*1300. See above Chapter 3, Note 133D.

A hall choir with an ambulatory running north-south behind the high altar must have been anticipated by the (destroyed) flat-ended choir of Zbraslav in northern Bohemia, founded in 1297 by King Wenceslas II on the plan of Morimond and Cîteaux III, but having a hall section based on the choir of Heiligenkreuz, and tall cellular chapels the same height as the side aisles. See Crossley (1995) and Benešovská (1996) and Kuthan (1994) pp 475–482.

49A. See above, pp. 196 and Note 40. The smooth chapel walls of the Gmünd choir and their alternation of blind tracery and windows owe an obvious debt to the new chapels constructed in the chevet of Notre-Dame in Paris 1296–*c.*1315. This was recognized in the 1930s by Kletzl (1938/9). For the remodelling of the Parisian choir see Davis (1998).

50. On both these buildings, cf. Donin, *op. cit.* 187ff. Donin dated Pöllauberg to 1339, and made it the source for Enns. This is too early, because Pöllauberg belongs stylistically to the third quarter of the fourteenth century, and was obviously dependent on the earlier chapel at Enns, which was up by the consecration of its altar to St John in 1343. There are references to a chaplain in Pöllauberg in 1374 and to donations for windows in 1384. See Wagner-Rieger (1967) 342–3, 383, 396. Brucher (1990) 109–16, dates the conception of the Wallsee chapel to the 1330s. He considers (unconvincingly) that Pöllauberg could have been begun in 1339 (with the donation of Katharina von Stubenberg to the church in that year), and, with its elaborate sculptural decoration, could have taken over forty years to build and complete.

51. Donin, *op. cit.* 195. The church of St Lambrecht has not yet been precisely dated; it was probably begun before 1350. The nave was begun in 1327, and the choir started *c.*1386; but we are not certain when the whole church was complete. The nave was consecrated in 1421, though it may have been vaulted by 1393. See Wagner-Rieger (1967) 378; and Brucher (1990) 116–20.

52. Donin, *op. cit.* 337ff. Hall choirs without ambulatories, that is choirs whose central aisle continues right up to the eastern wall, form a special category in German Late Gothic, see Philipp (1989B). They include the Cistercian churches of Heiligenkreuz and Neuberg, Enns and Pöllauberg, St Lambrecht, Mühlbach in Hungary and Nördlingen in Swabia.

53. The Frauenkirche at Munich may be dependent on the choir at Augsburg; see below, p. 229. Augsburg is a curiosity because it has a conventional 'cathedral gothic' chevet plan, with double choir aisles in the straight bays and radiating chapels; but it has no real ambulatory, since the inner apse of the choir marches right across the ambulatory space, cutting it in two, and supporting the arches of its apse arcade on the responds of the eastern radiating chapel. The high altar therefore stands over what should have been the centre of the ambulatory. For a plan see Nussbaum (2000) 120, figs. 126, 127. This odd planning, in which the radiating chapels seem to be compressed back into the main body of the choir, was almost certainly due to the restrictions of the site, since the new choir projected across a main public highway, the Reichstrasse; and this was a source of increasing tension between the town and the cathedral authorities in the second half of the fourteenth century, a tension which contributed to the slow progress on the choir. The awkwardness in the junction of the polygonal and the straight parts of the choir led Anstett (1965) and Wortmann (1967) to suggest the existence of plans for 'original' eastern terminations, different from the present chevet, the first (soon after 1343) flat-ended (like the Cistercian choirs of Heiligenkreuz and Salem), the second (according to Wortmann) with a chevet (like that of the Cistercian church at Sedlec) but to be built further to the east, so as to ensure a proper ambulatory. Böker (1983) Hufnagel (1987) and Chevalley (1995) rightly question the existence of any 'early' choir scheme. The real changes in the design are not in plan, between the straight and turning bays, but in elevation. Chevalley's detailed analysis (1995), incorparates Hufnagel's and Böker's conclusions, and adds new chronological information from the restorations of the early 1990s. They distinguish a number of phases in the choir construction, to which the earlier remodelling of the nave and the building of the north choir portal are indirectly related.

Nave remodelling, *c.*1335–43, under Bishop Konrad von Randegg (1337–48). Vaults of western transept, vaults of central aisle of nave, nave double-aisles, north choir portal. All this renovation work, possibly by Heinrich I Parler, was not undertaken as a prelude to the building of the new eastern choir, since the iconographic sequences of the keystones of the nave vault 'turn their back' on the choir by running from east to west.

Choir phase one: begun ?1348, or 1356–?1365, under Bishop Markwart von Randegg (1348–65), nephew of Bishop Konrad and friend and advisor of the Emperor Charles IV. South choir portal (in its first form) south choir aisle. 1356 foundations laid for the radiating chapel ring to a design clearly derived from Cologne cathedral. Chapels constructed up to about window sill height, but dividing wall between southernmost chapel and south choir aisle, and the chapel/ambulatory respond that belongs to it, built up to vault springer height. This respond indicates that the free-standing choir aisle pillars to its west were to be capital-less columns into which the arch mouldings would 'die', in the manner of the ambulatory columns of the Cistercian church at Kaisheim (see Hufnagel [1987]) or the nave pillars of mendicant churches in the upper Rhine, such as the Franciscan church at Freiburg (see plate 174). At this stage, the choir was planned as a basilica, with equal-height double choir aisles and a clerestorey supported by flyers. Work more advanced on south side than on north.

Choir phase two: begun ?1365, under Bishop Walter von Hochschlitz (1365–9). Choir aisle supports, on south and north sides, changed from intended columns to the present bundle-piers. Construction of choir main piers and arches. Heightening of choir aisles – on north side both aisles, on south side only inner aisle, since earlier, outer aisle was already too far advanced to be raised. Chevalley (1995) 110–17, thinks this phase can be connected to a change from a basilican to a hall choir format, similar in plan to the choir of Schwäbisch Gmünd. But this presupposes that a bishop would want to give up a 'cathedral' basilica in favour of a hall choir hitherto associated with 'middle

class' patronage, and it involves problems of reconstructing an ambulatory vault like Gmünd's in a Cologne-type chevet, especially when the evidence for the projected ambulatory vaulting at Augsburg suggests a system differing from Gmünd's. Phase two is connected with strong Parler influences.

Choir phase three: begun ?1376 (the year of Eberhard Randegg's installation as provost, and certainly after the interregnum of 1369–71)–1413. Vaulting of straight bays of choir aisles *c.*1377 (date of 1377 found on dividing arch in western bay of north choir aisle). 1394 choir roof erected. In 1396/7 erection of high walls of choir. High vaults complete by 1410 and all structural work finished by 1413.

54. Paul Deschamps, *La Chaise-Dieu* (Paris, 1946), which has excellent illustrations. See now Erlande-Brandenburg (1975), who has established the very rapid progress in the construction, thanks largely to the pope's generosity. Construction on the choir started in 1344 and the apse and first straight bay to its west were finished by 1346, by which date work was going on on the rest of the monks's choir up to the jubé, (fifth bay from east) and on the nave. Previous research had assumed that at Clement's death in 1352 the three western bays of the nave were unfinished, and that Gregory IX, from 1370, completed them and the western towers. But it now seems that the whole of the nave was vaulted under Clement VI, or at least by 1355. In 1352 the relics of St Robert were translated to the high altar in the apse. Only the façade and towers clearly postdate the founder's death. In 1358 statues were placed in the west portals. Clement's tomb, placed in the centre of the choir (second straight bay from the east), was executed between 1346 and 1351, but its conception is undoubtedly earlier. For the original appearance of the now mutilated tomb, placed in the centre of the choir, see Gardner (1992) 143–6. A detailed analysis of the coherent iconographical 'programme' of Clement VI in the Chambre du Cerf at Avignon and at La Chaise-Dieu (particularly the sculpture of the tomb and the architectural sculpture) can be found in de Merindol (1993), who sees the themes as personal and institutional, royal (French) and papal.

54A. Frankl's definition of the church as a hall is misleading. It is really a vaulted *nef unique* with cellular chapels typical of southern and central France – see Paul (1988) and Freigang (1992) 211–19 – in which the walls dividing its side chapels are pierced with large arches in such a way as to create side-aisle-like spaces, while the inner sections of the dividing walls are transformed into large pier-like responds, which resemble the free-standing piers of a hall church.

54B. Clement's tomb, mutilated in the sixteenth century, was executed between 1349 and 1351. For a reconstruction of its original appearance see Gardner (1992) 143–6, who underlines the novelty of the abbey church as a building constructed directly around the tomb, placed in the centre of the choir.

54C. In fact, the use of an interior clerestorey passage, the balustrade above the arcade zone and the hanging mouchettes at the top of the (blind) tracery panels flanking each clerestorey window recall the elevation of Prague Cathedral. The origins of the Antwerp elevation still need clarification. The tracery panels decorating the arcade spandrels suggest the influence of the choir of St Rombout at Mechelen (begun possibly after 1342), the archetype of the fourteenth-century Brabantine basilica; but the lack of triforium, and the interior clerestorey passage, point to a Norman derivation (Bayeux Cathedral nave?, Coutances choir?).

55. Richard Graul, *Alt Flandern* (Munich, 1918). The choir at Antwerp was vaulted in *c.*1391 but was not fully in use until 1415. Jakob van Tienen (1396?–1403?) worked on the later stages of the choir. Under Peter Appelmans (1419–34) the nave was begun in 1419 and the foundations of the northern of the two west towers in *c.*1420–22. The foundations of the south tower followed in 1430, and the construction of the double aisles of the nave began a year later. The nave as a whole is attributed to the designs of Everaert Spoorwater (1439–74), under whose direction most of the work was completed. By 1470 the nave arcades and the vaults of the double aisles either side were finished. In the middle of the fifteenth century it was decided to widen the nave with an outer, seventh, set of aisles (for altars), the southern consecrated in 1469, its northern counterpart begun later. Matthiijs Keldermanns directed work on the completion and vaulting of the transept 1481–95. The octagonal lantern over the crossing was inserted in 1497–8. The central aisle of the nave was roofed in 1500, but it remained unvaulted until 1612, though the bay between the towers was vaulted in 1508. See Lemaire (1946), van Brabant (1972), Vroom (1983) (for a full discussion of the rich documentation surrounding the fifteenth-century funding), and Boyazis (1985).

55A. The literature on Prague cathedral has been copious since 1962. The handiest guides are still the relevant articles in the four-volume catalogue, *Die Parler* (1978), see particularly: Homolka vol. 2 (1978) 607–18; Líbal, vol. 2 (1978A, B) 619–23; Libal (1980); and various articles on vaulting, tracery, and the history of the Parler family in vol. 3 by Fehr, Czymmek, Müller and Schock-Werner. For a more modern summary of the German and 'western' scholarship on the building see the monograph on the cathedral choir by Baumüller (1994) Baumüller's concentration on 'structural' and 'spatial' analysis to the detriment of historical or symbolic associations, and her ignorance of the Czech literature, provoked a damning review from Benešovská (1994a). The best recent analysis, with many new insights, comes from Benešovská (1994) and (1999), the latter in English. A useful general history of the art and architecture of Charles IV (useful partly because it is in English) can be found in Stejskal (1978), and also in Dvořaková, Krása, Merhautová, Stejskal eds., (1964). Much of the latest Czech research on the meaning and history of the cathedral, particularly on its Wenceslas Chapel, is incorporated by Ormrod (1997). The Bohemian iconography of Prague Cathedral, and its relations to the coronation liturgy, are underlined by Crossley (1999), who also (2000) discusses the symbolic themes in Charles IV's architecture and monumental decoration as a whole, particularly its scenic character. Apart from Klara Benešovská's contributions to the literature, important recent evaluations of Prague Cathedral have come from Homolka's (1999) perceptive observations on the general character of Peter Parler's creativity, and Freigang's (1998) detailed analysis of the southern French sources of Matthias of Arras's work, and the inspiration of Cologne Cathedral in Prague under Peter Parler.

56. The diagonal position of buttresses at the corners of façades, as at Gmünd and La Chaise-Dieu, is a direct continuation outwards of the direction of the ribs. Such buttresses follow the direction of the thrust, and can therefore be rationally explained: but why had buttresses not been built like this at Chartres, Laon, Paris, and Amiens?

56A. As the inscription above Matthias of Arras's portrait bust in the triforium of Prague cathedral stated, Charles IV 'drew him from Avignon'. (. . . *in Avinione abinde adduxit* . . .) See Benešovská (1994) 28ff and note 17. The sources of his style are to be found principally in late Rayonnant architecture in Burgundy, Lower Languedoc (especially Toulouse and Narbonne Cathedrals) and perhaps Avignon (though no traces of his style or work have been found in Clement VI's extensions to the papal palace at Avignon, where Charles IV encountered the architect). See Héliot and Mencl (1974), Héliot (1975), and Baumüller (1994) 57–63. Mencl (1971) attempted, not always convincingly, to plot a wider network of connexions between southern French Rayonnant, Swabia and Bohemia, in the second quarter of the fourteenth century. Freigang (1998) finds precedents for Matthias's moulding profiles in Notre-Dame at Villeneuve-lès-Avignon, and the cathedral of Montpellier, and he stresses the very close links with the recently completed choir of Narbonne, the most modern archiepiscopal cathedral in France in 1344. Matthias's work, so long overshadowed by Peter Parler's, has been enjoying something of a re-evaluation among Czech scholars, see particularly Benešovská (1994) 34–8, and notes 53–5 and (1999a), who attributes to him not only the design of the star vault of the eastern bay of the sacristy of Prague Cathedral (hitherto usually attributed to Peter Parler), but also of its pendant boss and skeletal ribs, which, she argues, were partly or wholly begun under Matthias, or under his lodge after his death in 1352, and dismantled and re-assembled by Peter Parler from 1356. Her arguments for this complex building history in the sacristy are set out more fully in Benešovská (1996a). Under her maiden name of Fischerová, Benešovská plotted the profound impact of Matthias and his 'workshop' in Bohemia in the fourteenth century, and set it in the context of French imports under Archbishop Jan IV Dražice of Prague, see Fischerová (1974).

56B. Kotrba (1971) (with German resumé) convincingly demonstrated that Peter Parler arrived in Prague in 1356, not in 1353 as the older literature had maintained. Therefore he was born in 1333 and not in 1330, since the inscription over the architect's portrait bust in the triforium of Prague Cathedral stated that he was twenty-three years old when he first came to Prague. Wundram's (1988) suggestion that the inscription should read '33' and not '23' years old, simply on the grounds that it is the copyist's error of a long-illegible text, is special pleading, and does not take into account the detailed evidence advanced by Kotrba in 1971. See also Benešovská (1999) 152–3.

56C. Matthias (or his workshop immediately after his death) had almost certainly intended this chapel-like space to be a sacristy, had begun its eastern, northern and southern walls, and had inserted the capitals and rib springers for its eastern (star) vault. See Benčsovská (1994) 37–8; (1996a) and (1999a) where she also assesses Parler's other debts to Matthias, in Prague and Kolín.

56D. The 'innovations' of the sacristy vault which Frankl attributes to Peter Parler may be the work of Matthias, see above, Chapter 4, Notes 56A, 56C. The flying rib also has its precedents in southern Germany, see Crossley (1981) 91–2. A pendant boss hangs above the portal (at the end of the principal entrance passage) into the main courtyard of Clement VI's new palace at Avignon, dated to after 1342. see Gagnière (1977) 69–70.

56E. Peter Parler must have begun the space now occupied by the chapel of St Sigismund some time before 1362, since its original altar, dedicated to St Urban and St Cecilia, is mentioned in that year. The altar was removed soon after 1365 to its present position one bay to the west, when Charles IV replaced it with the altar of St Sigismund, transforming the chapel into the centre of the cult of the Burgundian king-saint, whose relics he had acquired after his coronation as King of the Arelat in 1365. See Benešovská (1994) 40.

57. The corners of the chapter house which Villard de Honnecourt drew in

his lodge-book about 1235 should be visualized like this, and not in the way in which Viollet-le-Duc, in the *Dictionaire*, VIII (1875) 95 and others after him (K. H. Clasen, *Deutschlands Auteil am Gewölbebau der Spätgotik*, Berlin, 1937, 163) reconstructed them.

57A. The chronology and iconography of the Wenceslas Chapel have been carefully analyzed by Kotrba (1960) (with German resumé) and especially Ormrod (1997). The south porch was finished in 1368, the year the *sacristia nova*, which runs above it, was consecrated. Líbal, in a series of articles in *Die Parler* (1978) – see Líbal (1978A) (1978B) (1980) argued that Matthias of Arras actually designed the Wenceslas Chapel (including its profiles and architectural details) and that before his death he had laid out its overall plan and its exterior walls. This has been convincingly disproved by Vítovský (1990), and by Ormrod (1997) 132–68, who both attribute the style and conception of the chapel to Charles IV and Peter Parler. Benešovská (1999a) however, points to the continuing influence of Matthias's style in Parler's design for the chapel, and to the certainty that Matthias had drawn up plans for the chapel *c.*1348 which Parler must have consulted.

57B. Matthias would, almost certainly, have built a blind triforium linked to the clerestorey in the manner of Narbonne; but Paul (1991) 36, interestingly suggests that the triforium at Prague, which projects both on the inside and the outside, might have been influenced by the idiosyncratic exterior projections of the triforium at Limoges and Narbonne. This rare solution avoids the traditional method of piercing the high walls at the structurally vulnerable bay divisions with a triforium passage. Instead it keeps the high walls, at the bay divisions, solid and unpierced, and projects the passage behind and around them so that it sits over the aisle and ambulatory vaults.

57C. For a geometrical analysis of all the decorative vaults used by Peter Parler in the cathedral see Kotrba (1959), and Fehr, in vol. 3, *Die Parler* (1978) 45–8. For the techniques of their construction see Muk (1977), and Müller, in vol. 3, *Die Parler* (1978) 48–9.

57D. The case for English influence on Peter Parler in Prague was first made by Bock (1961), followed (for the sculpture) by Haussherr (1971), by Bony (1979) 66–7, and, most recently, by Wilson (1990) 227–32, who gives the best account in English of the cathedral and its genesis. Some of these views are qualified by Crossley (1981) especially 85–104, and the whole issue of English contacts is rehearsed by Baumüller (1994) 95–106. The connexion is not discussed in Philipp (1985).

57E. Plinths with sloping upper ends, interpenetrating either with smaller separate plinths or with the shafts themselves, are to be found earlier than Peter Parler's work in Prague: in the responds of the dividing walls of the radiating chapels at Sées Cathedral, in the ground floor of the south-west tower of Cologne Cathedral, in the aisle responds and free-standing piers of the straight bays on the south side of the choir of Utrecht Cathedral, in the Great Audience Hall of the Papal Palace at Avignon, in bases of the choir pillars in Kraków cathedral, and in Matthias of Arras's piers in Prague. They also make a rare appearance, *c.*1320, in the hall choir of St Augustine's at Bristol. Sloping plinths, often with shafts or mouldings 'dying' into them, also appear frequently in portals from *c.*1300 onwards, from the Upper Rhine to northern Bohemia – see, for example, the west portal of St Catharine's Chapel in Strasbourg (*c.*1340–5). Recht (1970) and (1974) 54–69, 227–32, has argued for the close dependence of the interior elevation of the St Wenceslas Chapel on the Strasbourg Chapel, whose original vaults, using triradials and pendant bosses, may also have influenced Parler's vaults in the sacristy. For a critical look at the Strasbourg connexion in Prague see Ormrod (1997) 168–71. Parler's plinths and respond mouldings in Prague are usually closer to Cologne Cathedral choir, or its offshoots (e.g. Xanten). See Freigang (1998) and Crossley (1981).

58. On composition by contrasts, cf. Karl M. Swoboda, *Peter Parler*, 4th ed. (Vienna, 1943). Burěs (1983), has speculated that Peter Parler's original design for the south transept front was to have had no tower, and to have been more symmetrical, with another openwork staircase to the west repeating that on the east buttress of the façade. The present tower he sees as a re-use of one of the towers intended for an aborted two-tower western façade, which was planned to terminate a five-aisled nave, hence the tower's size. His over-complex argument does not carry conviction. For the south tower see Benešovská (1999) 125–33; and see below, Chapter 4, Note 74.

59. The tracery in the windows of the transepts dates from the nineteenth century, as does the bottom window in the tower. These concave gables are, however, original. They are shown in the drawing of the lower storey of the tower, dated to the last decade of the fourteenth century, now in the Vienna Akademie der Künste, Inv. Nr 16817. See Koepf (1970), catalogue nr 2. For these arches, and other details of the south tower and its influence see Bureš (1975) and Benešovská (1999) 125–33.

60. Frankl (1960) 187. Kotrba (1960) considered the main source for the shape and decoration of the chapel to be St John's vision of the Heavenly Jerusalem in Revelations 21:10–21. This is confirmed by Ormrod (1997) 208–36. For the biblical, literary and material sources of the chunky semi-precious stone decoration of the chapel, and its counterparts in the Holy Cross and St Catharine Chapels in Charles IV's contemporary Karlštejn (Karlstein) Castle see Legner in vol. 3, *Die Parler*, (1978) 169–82; Meier, in vol. 3, *Die Parler* (1978) 185–7; Möseneder (1981), and Fajt and Royt (1998).

60A. The question of Peter Parler's 'personal style', and its adaptability to the demands of the commission, especially to the idiosyncratic taste of the Emperor Charles IV, is interestingly discussed by Suckale in vol. 4, *Die Parler* (1980) 175–83. See also the question of innovation versus traditionalism in Peter's work, discussed perceptively by Homolka (1999), who sees the cathedral as the product of a creative dialogue between Charles IV and Peter Parler, and relates Peter's empirical and heterogeneous approach to design to contemporary philosophical nominalism.

61. Swoboda, *op. cit.* 19ff., and, on the castle chapel, p. 18. The choir at Kolín was begun in 1360 and consecrated in 1378, although building was still going on in 1400. See Bureš (1989), who identifies the presence there of Master Michael of Cologne and his brother Hans of Cologne from at least 1384. Kutná Hora was started in 1388 and work continued until 1401, having reached only up to the level of the choir arcades and ambulatory and chapels. From 1404 to 1420 the nave was extended into a five-aisled basilica. It is now suggested that the choir may have been conceived and begun, not by Peter Parler, but by his eldest son, Johann, who was married at Kutná Hora in 1383; or it may have been Johann who directed the campaign after 1404. See Líbal, in vol. 2, *Die Parler* (1978) 639; and Schock-Werner, in vol. 2, *Die Parler* (1978) 8.

62. Hans Reinhardt, *Das Münster zu Basel* (Burg, 1928), and, by the same author, *Das Basler Münster* (Basel, *c.*1939). Gantner, *op. cit.* (Note 73 to Chapter 3) 141. The relationship between Peter Parler and Johannes of Gmünd is not altogether clear, though it seems likely that they were about the same age and the latter may have been Peter's older brother. See Schock-Werner, in vol. 3, *Die Parler* (1978) 9. For Johannes's work at Freiburg see Adam (1968) 22–4, 96–100. When work on the choir stopped in *c.*1370/80 the chapels were built only up to half their full height. For Johannes's contribution to Basel see Reinhardt (1941) and (1961).

63. Thurm, *op. cit.* plan, p. 20, exterior, plate 9. For variations on the three-apse east end of the Gransee type in a group of fourteenth-century north German brick hall choirs see Jaaks (1971). The diagonality and 'irregularity' of choirs with even-sided polygonal planning are discussed by Nussbaum (2000) 117–18, 120, 134. He refers to von Ledebur's analysis of this type of planning (especially in connexion with the use of single, axially placed pillars in the early fifteenth-century hall choirs of Hans von Burghausen), but this thesis has not been available to me.

64. Dehio (1901) II, 351.

64A. The Frauenkirche in Nuremberg, founded by Charles IV as a parish church-chapel, was built by a Parler workshop. Bräutigam (1961) and (1965), Kotrba (1971) and Schmidt (1970), all attribute the church or parts of the church and its sculpture to Peter Parler himself. For the church in its urban and political context see Maué (1986) 34–5. Leyh's monograph on the church (1992) has not been available to me. The connexions between this church and St Stephen in Prague are: both are built at about the same time (St Stephen at least before 1351); both are connected to Charles IV (he obtained relics of St Stephen for the Prague church) and both have naves laid out on a short, square plan. St Stephen, however, is a basilica. For further literature on St Stephen see Líbal, in *Die Parler* (1978) vol. 2, 629–30; and Líbal (1983) 229–32.

65. K. Faymonville, *Das Münster zu Aachen* (Düsseldorf, 1916). On the restorations, see pp. 63 and 90. The tracery originally had six lights to each opening; the division into five lights dates from 1860. The choir, perhaps begun a little before the official foundation in 1355, is traditionally attributed to a *magister Johannes de Aquis*, the second architect of the Aachen town hall, who appeared in a document of 1358/9 as an advisor on the buildings of the church of St Mary at Tienen, in Brabant. However, as Winands (1989) 85, has pointed out, neither Johannes's work at Aachen, nor the church at Tienen show conclusive similarities to the Aachen choir. The chapter was responsible for the new project and there is no evidence that Charles IV contributed financially to the work, though he must have taken a keen interest in its progress. The imperial connotations of the new choir, as the site of German coronations and the shrine of Charlemagne, are discussed by Hilger (1978) and (1978a) especially 354–6. For a technical analysis of the choir see Kreusch (1974).

66. Not counting chapter houses and baptisteries. The Gothic centralized church is more common than Frankl supposed. See Götz (1968) and Untermann (1989).

67. Dehio (1901) contains a longitudinal section on p. 346, and a plan on plate 455. The Karlov church was begun in 1351. The consecration of 1371 may refer only to the choir, or it may include the nave. Mencl (1948) 72ff, reconstructed the original fourteenth-century nave spacc as a four-pillar hall, but Bachmann, in a series of studies, has convincingly shown that the nave had a triradial 'umbrella' vault supported on a single central column, a solution inspired by Louis the Bavarian's slightly earlier church at Ettal. For the literature see Bachmann (1969) especially 96–7.

68. The dates have now been clarified for both buildings. For the Karlov church see above, Note 67. St Catherine's chapel was complete by 1396/8.

69. A definitive work on the history of the building of the church of St Stephen is Hans Tietze, *Geschichte und Beschreibung etc.* (*Österreichische Kunsttopographie*, XXIII) (Vienna, 1931). Compare also R. K. Donin, *Der Wiener Stephansdom und seine Geschichte*, 2nd ed. (Vienna, 1952). The best general history of the buildings of St Stephen's in Vienna is still Zykan (1981). See also Brucher (1990) 125–30.

70. Tietze (p. 414) says that the figures themselves date from 1440, but the corbels and the canopies must have been erected at the same time as the piers, that is, some time after 1420.

Grimschitz (1947) 17–18, dated the nave canopies to the 1430s on analogy with the Puchheim altar baldachine of 1434, which he attributed to Hans Puchspaum. Zykan (1967) 410, attributed the canopies to the same same architect. However, Zykan (1981) 276, note 198, attributed the Puchheim baldachine to Puchspaum's predecessor, Hans von Prachatitz. By analogy, therefore, the pillar canopies may also be Prachatitz's. Certainly the pillars were up by 1440, the earliest known date for the roof installation, and therefore before Puchspaum assumed control of the lodge in 1446. The progress of the nave in the fifteenth century, and Puchspaum's contribution is also discussed by Brucher (1990) 181–4, who attributes the Pucheim baldachine to Puchspaum.

71. For the north tower see Zykan (1981) 102–8. A foundation stone was laid in 1450, but work above ground did not begin until 1467 under Master Lawrence Spenyng. See also Perger (1970) 97–8.

72. This account of the south tower is based on the authoritative study by Zykan (1970). Perger (1970) adds to, or modifies, Zykan's conclusions on the following points:

1) **Master Chunradus** (active at least from 1372–92/4) worked on the nave and built the lower parts of the south tower and St Catherine's Chapel. His plan for a south steeple, lower than the present one, envisaged an octagonal belfry rising from the level of the nave gables. See Riss 16819R, Vienna Akademie der bildenden Künste.

2) **After his death** there was a break in the work on the tower. His successor, Ulrich Helbling, works only on the nave.

3) **Work resumed** on the south tower under Wenczla in *c.*1400, when it was decided to heighten the tower with the insertion of a tall square belfry between the base of the lower gables and the octagon

4) **Work on the tower** was interruped in 1408 and probably the 'demolition' took place in 1409.

Brucher (1990) 124–30, doubts the attribution of much of the lower parts of the nave and south tower to Chunradus, and instead goes back to the position of a much older generation of Viennese scholars in attributing these parts of the cathedral to Michael Chnab, the ducal architect working simultaneously in Wiener-Neustadt. Brucher attributes to Chnab the never-realized design of the Freiburg-like south steeple of *c.*1370 (16819R) and the south porch and St Catherine's Chapel. He left the lodge, according to Brucher, in 1395, when the initiative for the building of the tower passed to the citizens, and he was replaced by Ulrich Helbling. He believes that it was under Helbling, not Wenczla, that the decision was taken to heighten the tower. He attributes the demolitions of 1407 to the mistakes of Master Wenczla.

73. For a detailed description, see Tietze, *op. cit.* 166, and Zykan (1970).

74. Kletzl (1934), was the first to identify the Master 'Wenczla' in the St Stephen's accounts as Peter Parler's son, Wenzel. He and Bureš (1975) 22–7, identified the very close dependence of the details of the Vienna steeple, especially in the gable storey, on the south tower in Prague. The latest possible date for the layout and conception of the south tower in Prague must be 1392, the year the foundations of the nave were laid. But the tower must have been planned, at least in general outline, some years earlier and laid out together with its directly adjacent south porch, which was finished in 1367. In fact the lower storey of the tower up to the balustrade is no different in style to the rest of the south transept. In 1397, two years before Peter Parler's death, his eldest son, Wenzel, took over the workshop, but in that year, or the next, he left for Vienna where he took over from Ulrich Helbling the mastership of the works of the south tower of St Stephen's. Johannes, Peter's second son, assumed control of the Prague lodge in 1398 to his death in 1406. The clear change of style in the Prague tower above the balustrade, and the close similarities between these upper parts and St Stephen's south tower, indicate close contacts between the lodges. See Benešovská (1994) 54–5, and (1999) 125–33.

74A. For the Týn church, begun *c.*1350, and its Parlerian forms, see Líbal, in *Die Parler* (1978) vol. 2, 633, and Líbal (1983) 286–90.

75. For the older literature cf. Eberhard Lutze, *Die Nürnberger Pfarrkirchen etc.* (Berlin, 1939) 15. For a more detailed study, cf. F. W. Hoffmann, *Die Sebalduskirche etc.* (Vienna, 1912).

76. The Gothic upper storeys date from 1481. Fehling and Ress (1961) 115–18, attempt to distinguish two workshops at St Sebaldus in the thirteenth century, one using specifically Bamberg forms, the other more up-to-date Cistercian ideas from Ebrach.

77. The church of St Lawrence at Nuremberg and the Franciscan church at Salzburg.

77A. The church was severely bombed in the Second World War and these friezes of arches were not, unfortunately, replaced when the vaults were rebuilt. Appearing only in the central vessel, they distinguished the holiest, most central, spaces of the sanctuary, where the shrine of St Sebaldus was set up, from the aisles and ambulatory. See Seeger (1992) 42–5.

78. Dehio's *Handb. d. deutschen Kunstd.*, III (1925) 366.

78A. The plan of the choir, at least in its alternating triradial and four-part vaults in the ambulatory, may derive from Zwettl, the elevation from the nave of the Frauenkirche in Esslingen (begun *c.*1350), so much so that Fehling and Ress (1961) 121, suggest that both might be by the same architect. The decorative details of the choir's exterior depend on the west front of Cologne (and behind Cologne, the west portal at Mantes and the south transept portal at Rouen cathedral). The tracery-decorated exterior can be connected to a group of later choirs in Saxony and Thuringia, see Gross (1967). A useful collection of essays on every aspect of the east choir appeared in Baier, ed., (1979). Seeger (1992) examines the correspondence between symbolic form and cult function in the choir, discusses its role as a pilgrimage church housing the relics of St Sebaldus, and stresses its similarities to single-aisled choirs and reliquary chapels – characteristics which mark it off strongly from the basilican-like exterior profile of the choir of the Holy Cross at Sehwäbisch Gmünd.

79. The mouchettes in the Rats Window and the Kramer Window belong no doubt to the remodelling of the windows for the stained glass of 1480 (made by a colleague of Peter Hemmel); Frankl, *Peter Hemmel etc.* (Berlin, 1956) 74. The first architect was Heinrich II Parler, who was succeeded, probably in 1383, by Michael II Parler. See Wortmann (1969) and (1977) especially 101, note 1.

80. In stereometry plans with these properties are called saddle-shaped surfaces. There are many varieties of them. The best study of fan vaulting is now Leedy (1980).

80A. Leedy (1980) 7–9, 166–8, identifies the earliest fans over the Gloucester cloister east walk as those in its northern half, from the chapter house entrance to the north east corner of the cloister. He also dates them to '*c.*1400', suggesting that they were never intended by Abbot Horton (1351–77) and only inserted by Abbot Froucester (1381–1412). Neither argument has been accepted. See reviews by Crossley (1981a) and Wilson (1981). It is still generally assumed that the first fans of the east walk were built not in the northern but in the southern half of the east walk, that is between the church and the chapter house entrance. Wilson (1990) 210, dates these fans to the Horton abbacy, and specifically to *c.*1351–64. Leedy (1980) 172–3, and Harvey (1978) 90–2, underline the close similarities between the Horton work in the Gloucester cloisters and the now-destroyed fan-vault and tracery of the Chapter House at Hereford Cathedral (in building from before 1364 to 1371). Harvey therefore attributes the Gloucester work to the Hereford architect, who may have been John of Evesham or Thomas de Canteburgge, the latter possibly leaving Gloucester in 1364, for in that year he contraeted to complete the Hereford Chapter House. For the Perpendicular remodelling at Gloucester see above, Chapter 4, Note 10.

80B. An illuminating interpretation of Italian Gothic is offered by Trachtenberg (1991). He sees its defining traits as specifically opposed to the 'purist', 'modernist' Gothic style of the north, especially of France. Italian Gothic was historicist and, above all, creatively ecleetic; its stylistic diversity and its lack of clear stylistic development were fuelled by the rivalries of city-states, and the social diversity within each city. He underlines its intelligence rather than its provincialism. He identifies three categories of Gothic reception: a) the 'pure' 'spiritual' Gothic of the mendicant orders, coming closest to the modernity of the north, b) the flashy eelecticism of the civic cathedrals and important non-mendieant churches, which ineorporated both Gothic, Romanesque and Early Christian forms, and c) secular buildings – civic or seigneurial – which were particularly resistant to all strains of Gothic. See also Sauerländer (1995a). Cadei (1991a) attributes Italian 'resistance' to Gothie to the developed culture of the city state and its anti-monarchical ideologies.

80C. The first Dominican church was begun soon after 1226 and continued under construction into the second half of the thirteenth century. The construction of the present choir and transept, beginning with its supporting lower church, was underway from 1306, and a city statute of 1308 points out that donations are given 'to make the church more spacious so that a greater amount of people can be accommodated'. The lower church was probably complete before the outbreak of the plague in 1348, and certainly by 1360. Work on the transept above continued into the 1380s, and a transept altar is mentioned in 1390, but progress was so slow that the transept was finally opened into the nave only in *c.*1480. See Riedl and Seidl (1992) 451–98. See also Schenkluhn (2000) 177–9, who relates it to the 'monumentalisation' of the 'triple-chapel room church' type occuring at the same time at S. Croce in Florence (see above, Chapter 3, Note 118) and S. Francesco in Siena (see below, Chapter 4, Note 80D).

80D. The architect of the new church was Agostino di Agnolo. Schenkluhn (2000) 177–8 notes that its interior choir wall, with an oculus over the high altar arch, is a copy of that at S. Croce in Florence.

81. Giotto's project has been preserved in a drawing in the cathedral archives at Siena, which is reproduced in Dehio (1901) II, 257. Still the most authoritative history of the tower is by Trachtenberg (1971).

81A. For the German Rayonnant influence on the Siena plan see Klotz (1966). Trachtenberg's (1971) conclusions on the campanile and its drawing are as follows: a) The Siena plan is Giotto's design for the campanile, b) at Giotto's death in 1337 only the lowest socle zone was complete, c) Andrea Pisano, mentioned in 1340, designed the upper socle zone and then the next two stories ('zone two', up to the height of the nave aisles). The 'Venetian' verticality of 'zone two' broke with Giotto's 'Florentine' tradition of horizontal storyes and increasing fenestration as the tower ascends, d) *c.*1343, the year of Pisano's expulsion from the city, Francesco Talenti took over, returned to Giotto's horizontality, and completed the top three stories by *c.*1360 in an uninterrupted campaign. The two bifora stories were complete by *c.*1350, the trifora storey was begun *c.*1351, substantially complete by 1357, and finished in 1359/60. Some kind of crowning spire was projected but never built. It was roofed in 1387. Much of Trachtenberg's analysis rests on the assumption that the Siena drawing is Giotto's. But Degenhart and Schmitt (1968) vol. 1, cat. 38 89ff, have put forward convincing reasons for associating it with the rebuilding of Siena cathedral *c.*1340, a view which has had much critical support.

Kreytenberg's important study (1978) came to very different conclusions. He attributed to Giotto the design of the whole lower third of the tower up to the cathedral's aisle height, which includes both socle zones (which he identified as 'zone one' and the more vertical 'zone two', which Trachtenberg had attributed to Pisano). Probably only zone one was completed at Giotto's death in 1337. Kreytenberg successfully disproved Trachtenberg's argument that Andrea Pisano doubled the thickness of Giotto's walls in the lower storey: Giotto built them in their present form from the beginning. He considered that Pisano, who probably took over in 1337, continued Giotto's design through the lower two zones, only 'correcting' the upper parts of Giotto's design by planning, or even building, a tall vertical storey in the upper half of zone two, shown in the famous Bigallo fresco of 1342. It may have been for this miscalulated design that Pisano was dismissed, in 1341. Kreytenberg also argued that construction was interrupted between 1341 and *c.*1348, when attention was allegedly switched to the marble veneering of the south aisle at the western end of the nave of the cathedral. In 1347 Giotto's project was abandoned and Talenti's accepted, with work resuming in 1348. The bifora storeys were built with great speed between 1348/9–52/3, and the trifora between *c.*1351/2–9. Kreytenberg follows Degenhart and Schmitt (1968) in identifying the Siena drawing as a project for the new cathedral there, made in *c.*1340, and not by Giotto. His chronology for the Florence campanile is partly based on his chronologies for the marble cladding of the cathedral nave, which have been questioned vigorously by Trachtenberg (1979). For a resumé of the literature on the Siena plan see Ascani (1989) 266–8. Zervas's (1987) discovery of the account books for the total cost of the campanile between 1333 and 1359 provides new insights into the fluctuating finances of the Opera del Duomo and confirms Trachtenberg's and not Kreytenberg's chronology of the bell tower. It also excludes any pre-Talentian campaign of marble revetment on the cathedral *c.*1341–8.

82. In Jakob Burckhardt's works, the term originally applied to the baptistery at Florence and the church of S. Miniato al Monte – that is, to Romanesque buildings.

83. The interior of Or San Michele has semicircular transverse arches, and the Loggia dei Priori ('dei Lanzi'), which was not built until 1376, but is supposed to have been executed to a design by Orcagna, also has round arches.

There is a full description of the tabernacle and its sculpture in Fabbri and Rutenburg (1981). Cassidy (1992) stresses the devotional functions of the tabernacle and its precedents in the ciboria of the early churches of Rome. But all previous scholarship has now been superseded in the monumental study by Zervas *et al.*, 2 vols (1996), with contributions on all aspects of the building and its tabernacle. See particularly 79–98.

83A. These conclusions are based on Saalman (1980) especially chapter 2; Toker (1979) (1983); Rocchi *et al.*, (1988), and White (1993) 495–502. The maverick in the historiography of the cathedral is Kreytenberg (1974). He thought that work resumed on the nave in 1331 and not 1355, with the two nave portals (in their 'earliest' form) dating from 1331–41, and the western aisle wall marble revetments from *c.*1341–8. The choir, he suggested, was remodelled at this time. He also promoted Andrea Orcagna to a critical position in the design of the nave, and attributed to the building committees much of the design of the choir in 1366–7. His reconstruction of the choir as a Cistercian type with flat-ended chapels has been disproved by the excavations. Trachtenberg (1979) went some way to reinstate Talenti as the guiding spirit of critical aspects of the nave: its vaults, its interior cornice and its exterior revetments. He proposed that Talenti started the continuation of the nave with the building of the western portal to the north aisle (the Porta dei Comachinni) in *c.*1350, followed by further aisle revetments (*c.*1355–8) and the south aisle portal (Porta del Campanile) in 1359–62.

84. Dehio (1901) II, 494.

84A. The excavations of the late 1960s and early 1970s showed that the footings for the piers separating the crossing from the nave were octagonal. These, together with the inferred wide bays, small clerestorey, and wooden roofs throughout, approximate very closely to S. Croce. See Toker (1983) 118–19 figs. 23, 25.

85. The corbels of the balcony stand directly on the line of the springing, and are classical in form. However, the wooden parapet consists of alternating flat piers and panels with circular openings, which again strike a Gothic note.

86. There is, in fact, a small mosaic on the inside of the west wall.

87. The organ lofts over the doors of the sacristy are neo-Gothic and probably date from the beginning of the nineteenth century.

88. There are 'ribs', in the mechanical sense, between the two shells of the dome.

89. After Arnolfo, perhaps for the first time in the Maestà by Duccio (1308). Cf. B. Garrison, *Italian Romanesque Panel Painting* (Florence, 1949) 136.

90. The present façade was built by Emilio de Fabris between 1875 and 1887.

91. A reconstruction is offered by Martin Weinberger in 'The first Façade etc.', *Journal of the Warburg and Courtauld Institutes*, IV (1940) 67 and plate 16.

There is still no firm agreement as to Arnolfo's design for the west front of the cathedral, nor the exact sculptural contribution of his workshop to the façade. He certainly produced the Marian sculpture in the three tympana over the portals, but in September 1359 Alberto Arnoldi was commissioned in consultation with Francesco Talenti to complete the arch over the main doorway, and many of the details shown in the upper parts of Poccetti's sixteenth-century drawing of the façade have a richness attributable less to Arnolfo than to Talenti and his generation. See Romanini (1980) 103–43, and White (1993) 107–12, 496–7. The unpublished dissertation of Christian (1989) has not been available to me. Toker (1978) 221–4, and (1983) 112 and fig. 11b surmises that the façade, and the western aisle walls, had reached a height of 25 metres, but this tells us nothing of the revetments and details, only the core structure. For the doubts voiced over Toker's reconstructions of 'Arnolfo's project' by Rocchi *et al.* (1988) and Trachtenberg (1993) see above, Chapter 3, Note 141B.

92. One is reminded of St Gilles and also of Donatello's later Cantoria.

93. The former opinion appears in Schnaase, *Geschichte der bildenden Künste*, V (Düsseldorf, 1876) 157, and the latter in T. G. Jackson, *Gothic Architecture etc.* (Cambridge, 1915) II, 222.

94. The semicircular form of the transverse arches should be understood to derive from the form on the north-east wall. For the whole project, cf. Vittorio Lusini, *Il duomo di Siena* (Siena, 1911) 151ff.

For the abortive Duomo Nuovo, and the structural difficulties which led to its partial demolition and complete abandonment in 1357 see White (1993) 234–40. The conception may go back to the first architect, Lando di Pietro, who took over in 1339, but Carli (1987) 7–44, has cast doubt on his short-lived role (he died in 1340) and instead attributed the idea of turning the cathedral 180 degrees and transforming its nave and choir into transepts to Giovanni d'Agostino and his circle, to whom he attributed the second of the two plans for the new cathedral now in the Opera in Siena. For these plans, and their literature, see Ascani (1989) 268–70. The urbanistic relations of the cathedral to the Campo and the Palazzo Pubblico are discussed by Braunfels (1979) 159–67, who was among the first to see the eastward and southward extensions of the church as motivated by the new civic centre taking shape to the south east. After the decision to abandon construction on the new cathedral in 1357 attention turned again to the extension to the choir, which proceeded from 1358 into the 1360s.

95. Vittorio Lusini, *Il San Giovanni etc.* (Florence, 1901). For the connexions between the baptistery façade and the west front of Strasbourg see Klotz (1966) 186–8. The drawing, its literature, and its varied dating (ranging from 1317 to 1339), is discussed in Ascani (1989) 270–2.

96. Harald Keller, 'Die Risse der Orvietaner Domopera', *Festschrift Wilhelm Pinder* (Leipzig, 1938) 201. For the possible character of Giovanni Pisano's design, and the dating of the upper parts of the west façade, see above, Chapter 3, Note 143.

97. The cathedral at Cefalù has mosaics combined with rib-vaults. The vaults date from 1263 and the mosaics from 1267. Cf. Giuseppe Samonà, *Il duomo di Cefalù* (Rome, 1939), section 5. The mosaics in the dome of the baptistery at Florence were executed between 1225 and 1300. However, one must be clear in one's own mind whether such cases are combinations of Gothic and Byzantine elements and principles, whether one can speak of 'Gothic artistry' within the sphere of mosaics, and, if so, when and where. This problem has remained unsolved to this day.

Still fundamental for the west façade of Orvieto is White (1959) and also

White (1993) 452–64. More recent studies of the façade can be found in Ricetti, ed. (1988), including Gillerman (1988) 81–100. Ricetti (1996) deals with matters of workshop organization under Lorenzo Maitani. See also, for the rest of the cathedral, Gillerman (1994) and the still useful Bonelli (1972). The two drawings for the façade (in the Museo dell'Opera del Duomo) are discussed in relation to those for Siena by Middeldorf-Kosegarten (1984) 147–59, and more fully by her in (1994) and (1996) where she dates them to before or around the year 1300. Ascani (1989) 275–7 reviews the literature on the drawings.

97A. The complex building history of this church has been settled by Saalman (1962) and (1966). The earliest parts are the late thirteenth- and early fourteenth-century chapels on the north side of the nave. The nave itself, with its Duomo-like piers, was underway in 1360–70, though the eastern nave bays, and the parts of the choir chapels, were still in building in the 1390 and the whole church was not complete until *c.*1405.

98. Enrico Ridolfi, *L'arte in Lucca* (Lucca, 1882). This author's description of the piers as octagonal, which has been repeated elsewhere, is not accurate. They are cruciform with shafts in the re-entrant angles. Ridolfi in fact illustrates them in his book, on p. 34. From 1372 to the early fifteenth century the Romanesque cathedral was internally reconstructed with new arcades, galleries and vaults.

98A. The tracery of the gallery openings is closely related to the clerestorey windows of the nave of Siena cathedral, see Klotz (1966) 194–5, though, with this particular kind of tracery (intersecting), he exaggerates the Sienese and Luccan connexions to Strasbourg.

99. The well-documented history of Milan Cathedral falls under two main (and interrelated) areas of interest: firstly, the debates on its design and on its geometric and constructional procedures, vividly revealed in the contemporary annals of the *fabbrica* and in a series of contemporary drawings; and secondly, the milieu in which those design decisions were taken – the fabric of the cathedral itself, the chronology of its construction and the contributions of its workforce, the latter ultimately impossible to disentangle since the cathedral was a collective effort and not the conception of a single architect. The first set of problems is set forth in two classic studies by Frankl (1945) and by Ackermann (1949), to which Frankl added supplementary comments in his discussion of the Milan controversy in (1960) 63–83. Ackerman's polarization between 'northern advisors' and 'Italians' is refined by White (1993) 517–31. See also Wilson (1990) 268–76. The drawings are discussed by Ascani (1989) and (1991) and Cadei (1991), the latter following Ackerman's distinction between the northern architects' commitment to geometrical figures and the Italians' preference for numerical systems. Kidson (1999) rehabilitates Gabriele Stornaloco as a good mathematician (his mathematics are clearly of a higher order than the mathematics of the masons), and discusses his report in relation to Milanese and Bolognese metrology.

The second aspect of Milan, the fabric itself and its building history, is partly covered by Welch (1995), whose close reading of the published annals, and of much unpublished contemporary documentation, reconstructs the institutional history of the enterprise, and the factional intrigues of its workforce. It does not attempt, however, to clarify the detailed impact of these events on the design or final appearance of the building, or relate them to the drawings. The work which gathers together all these approaches is the magisterial study by Romanini (1973), on which much of the following chronology is based.

Phase One 1386–92: Cathedral begun in 1386 under the main executant architect *(ingegnere generale)*, Simone da Orsenigo (first mentioned in 1387), a specialist in brick work and foundations. Welch (1995) 49–69 has raised serious doubts about the contribution – financial and ideological – of Duke Gian Galeazzo Visconti to the new enterprise, stressing instead the responsibilities of Milan's city government in initiating and financing the work. It was laid out as a five-aisled Lombard brick basilica whose outer aisles were to be divided into cellular chapels in the manner of S. Maria del Carmine in Pavia (begun *c.*1370). Excavations from 1965–73 revealed an elaborate terracotta decoration under the stone cladding of the northern sacristy, continuing into the apse. Romanini (1973) 102ff, 166ff, maintained that this early project was quickly superseded by one based on the latest northern Gothic styles, and that the cellular chapels had precedents in Prague Cathedral. Certainly a German goldsmith in Milan, Anechino de Alemania, made a lead model of the lantern tower in February 1387, by which date the main outlines of the project were established: a three-sided apse with no radiating chapels, flanked by rectangular sacristies (a very un-northern choir plan), three-aisled transepts, a lantern tower and the equivalent of a five-aisled nave. However, in May 1387 it was decided to construct the cathedral in marble and demolish all work up to that point. From then onwards the annals record the increasing influence of the sub-Alpine marble workers, Giacomo, Marco and Zeno da Campione. Simone da Orsenigo was dismissed in 1389. To the Campionesi, therefore, we can probably attribute the elaborate 'northern' design of the exterior sacristies, and of the plan and profile of the choir and transept pillars, under discussion since 1388, and energetically under construction in 1389. (For the history of the pillars, their changing designs and their curious capitals, see Cadei (1969)). The contribution of the Parisian architect, Nicholas de Bonaventura, to these design decisions is still uncertain. From his arrival in 1389 to his departure in July/August 1390 he made drawings, e.g. of portals and the central window of the choir apse. Two drawings (in the Bologna Archivio della Fabbricieria di San Petronio), of the ground plan and cross section of the cathedral, and of its sacristy elevation, made in Milan by Antonio di Vincenzo in 1390, reflect the state of Giacomo da Campione's and Nicholas de Bonaventura's designs at that time. Certainly the greater size of the crossing piers in the first drawing reflects the decision of July 1390 to increase their diameter, but it does not register the (later) eventual enlargement of all the piers to be identical to the crossing's. See Ascani (1989) 256–60. The drawn transepts (one bay wider than the actual ones) suggested to Romanini (1973) 166, parallels with Cologne cathedral, while Cadei (1991) and especially Ascani (1991) saw the incomplete section as betraying a simple use of *ad quadratum* proportions, based on whole numbers, a system also prefigured in Cologne and used by Antonio for the almost identical dimensions of his new nave of S. Petronio in Bologna, begun in 1390. Ascani (1991) gives a full metrological analysis of the drawing in Bolognese feet and Milanese braccia.

In January 1391 a German, Giovanni of Frieburg, who may have designed the Parlerian frieze of round-arched trefoils crowning the plinth section of the choir buttresses, was promoted to chief engineer. He may have been the first to introduce the idea of conceiving the height of the high vault *ad triangulam*. His dismissal in June 1391, to be replaced by the painter Giovanni dei Grassi (who carved the 'Christ and the Samaritan woman' in the south sacristy in that year) did not assuage the doubts of the deputies about the 'apse window, the doors and staircases, the height of the pillars and the height of the church'. In late September 1391 a mathematician from Piacenza, Gabriele Stornaloco, recommended fitting the main dimensions of the cross section of the church into a grid of equilateral triangles, and rounding up the real (incommensurable) height of its high vaults from 83.138 to 84 braccia – for the drawing see Ascani (1989) 260–2, and Cadei (1991) 89–91. In October a wooden model, based on Stornaloco's project, was begun by Simone de Placentia in the house of Simone da Cavagnera, to illustrate the 'doubts . . . that had arisen among the engineers concerning the said fabric'. Heinrich Parler of Ulm's arrival in Milan in November 1391 did not resolve the difficulties. He seems to have recommended two geometric schemes to determine the height of the church, one based on equilateral triangles, the second based on the square which entailed a tall central vessel of 96 braccia, buttressed with flyers, not unlike Cologne. Two drawings in Milan have been associated with his stay, both showing close affinities to Parler architecture and metalwork in Prague: the so-called Carelli pinnacle at the corner of the north sacristy (built in 1401), and a cross section for the outer and inner aisles of the cathedral, showing a complete disregard for the structure already built. See Romanini (1973) 174–7; Ascani (1989) 262–4, and Cadei (1991).

Phase Two 1392–9: The conference of May 1392 rejected Heinrich Parler's proposals. The dividing walls of the outer, lateral chapels were suppressed; the triforium of the main elevation (envisaged in Antonio di Vincenzo's cross section) was also ruled out. Giovanni dei Grassi and Giacomo da Campione, chief engineers from March 1392, now assume control of the building for the next six years. It was this partnership, more than anything else, which was responsible for the final form of the cathedral. They began to implement, and may have devised, a new proportional system, in which the elevation rises from the height of the outer aisle capitals in a series of Pythagorean and not equilateral triangles, thus reducing the height of the central vessel from 84 to 76 braccia. Certainly dei Grassi is the author of the axial, and probably the side, windows of the apse, under construction in 1395–6; of designs for the stained glass of the sacristy windows; and of the influential wooden model of the cathedral (now lost) which must have reflected the decisions of May 1392, but which remained unfinished in 1398. He may also have designed the lavabos, the capitals and the window frames of the apse and sacristies, as well as the strange tabernacle-like capitals of the main piers(?), one of which, on the south side of the choir, was constructed before 1393. Certainly the similarities between the architectural forms in the *Visconti Hours* and those in the cathedral led Borchert (1995) to attribute the capitals to dei Grassi. The influence of micro-architecture, in metalwork and manuscript painting, on dei Grassi's designs is underlined by Caddei (1991). The German, specifically Parlerian, character of the drawings for the Milan capitals (Bianconi collection, Museo Civico, t. II), is also stressed by Sanvito (1996). For the German parallels for dei Grassi's gigantic tracery in the apse see Wiener (1993) especially 43–8. Ulrich von Ensingen, the designer of the steeples at Ulm and later Strasbourg, arrived in Milan in December 1394, and was paid exceptionally highly, probably for his advice on the stability of the prospective lantern tower. His exact contribution is, however, unknown, but he was evidently not prepared to abide by any previous plans, and he left in 1395. Borchert (1995) suggests that his refusal to implement dei Grassi's capitals probably ensured his departure. Clearly the final design for the lantern tower had not been settled, although what appears to be a copy of Stornaloco's cross section, an (early sixteenth-century?) *ad triangulam* design in the

Bianconi collection in the Museo Civico in Milan, does include the crossing tower in the grid; see Ascani (1989) 260–2 and Caddei (1991).

Phase Three 1399 to the end of the Middle Ages: The double death of Giovanni dei Grassi and Giacomo da Campione in 1398 coincided with a vulnerable moment in the cathedral's construction – at the level of the vault springers for aisles and central vessel – and at a time when no final design for the structurally dangerous crossing tower had been established. Jean Mignot, a French architect, arrived in 1399 and presented his criticisms of the design in January 1400. He clearly wanted radically to alter the whole project by rebuilding the apse buttresses and almost certainly returning to the 84 braccia vault height by reviving Stornaloco's system of equilateral triangles. Cadei (1991) attributes to him the cross section in the Bianconi collection (see above), or at least a lost drawing on which it is based. In 1400 Mignot actually began to implement some of his changes, but he was eventually overruled, and dismissed in October 1401. During his tenure he was responsible for some of the capitals of the choir pillars (e.g. pillar 81), and may have been the author of a geometrically intricate plan for one of them (Museo Civico, Bianconi collection), see Cadei (1991), though the dynamism of this plan has close parallels in the work of the Parlers and, later, the Roriczers – see Sanvito (1996). Mignot's comments on the stability of the structure, and the defence put up by his detractors on the committees, amount to some of the most revealing insights into the uses of geometry, and the understanding of statics, in medieval building. The eastern apse window was finally finished in 1403, and work began on the stained glass in 1416. Construction of the lantern tower did not begin seriously until the 1480s. For the latter see Schofield (1989).

99A. For the tracery in its European context see Wiener (1993) 43–8.

99B. The sixteenth-century controversies are discussed by Booz (1956) 54ff, and Matteucci (1983–4). For medieval S. Petronio, see generally see White (1993) 533–7; and Lorenzoni (1983–4). The church was begun in 1390 by the architect Antonio di Vincenzo on a colossal scale, using Tuscan (pillars based on those of Florence cathedral) and Lombard models (brick, and nave cellular chapels like S. Maria del Carmine in Pavia). When worked stopped in the third quarter of the seventeenth century only the six-bay nave had been completed. The contract for the model in 1400 suggests that the nave was to have been 183 metres long with transepts 137 metres in width. It is not clear what Antonio's design for the choir looked like.

100. Frankl (1960) 299–312. There have been many studies on the use of geometric ratios and metrology in the history of medieval architecture. A comprehensive discussion can be found in Hecht (1969) (1970) and (1971), and with pertinent remarks on measures in Binding (1985) (1993) 171–206. There is also a rich literature in English, see Bucher (1968) and (1972); Shelby (1972), and Fernie (1990). Many of these questions will be dealt with in Kidson's forthcoming study on classical and medieval systems of proportion.

101. Artur Gusmão, *La real abadia de Alcobaça* (Lisbon, 1948). See also Dias (1986) and Cocherill (1989) 19–41. The monastery was founded in 1153, work was under way in 1178, and the monks were able to occupy their choir in 1223.

101A. Especially the pointed tunnel vaults with two-bay diagonal net patterns over the choir.

102. Restored in 1775, after the earthquake.

103. Albrecht Haupt, *Die Baukunst der Renaissance in Portugal*, II (Frankfurt, 1895) 13ff. However, since some of the outstanding Late Gothic Portuguese architects contributed to Batalha from the late fourteenth to the early sixteenth century (Alfonso Domingues, Huguet, Mateus Fernandes I) the monastery can be seen as one of the foundations of Portugucse Late Gothic. See Chicó (1968) 107ff; and Guimarês de Andrade (1989).

104. Andreas Lindblom, *Sveriges Kunsthistoria*, I (Stockholm, 1944) 204. Plan in Dehio (1901) plate 504. The church was begun after a fire in 1388 and consecrated in 1430. See also Andersson (1972) and (1991), who describes the special liturgical arrangements, specifically ordained by St Bridget, for what was a double convent of nuns and monks.

The church, a simple rectangular hall, had a monks's choir at the west end with its own altar facing west, while the nuns controlled the eastern half of the space and had their own altar of the Virgin at the east end of the nave. Long galleries ran along both sides of the nave, the southern for the monks, the northern for the nuns. Nothing of this arrangement survives, but it became the model for numerous other Brigittine buildings. An analysis of the order and its architecture can be found in Berthelson (1947), Lindblom (1964) and Cnattingius (1963).

104A. The Gothic cathedral of Uppsala was begun *c.*1270. It has an apse, ambulatory and radiating chapels, flying buttresses, and the remains of an intended two-tower west façade. Most of these French aspects are attributed to the architect Etienne de Bonneuil, who is documented as being present in Uppsala in 1287, and who may have stayed on the site to *c.*1300. The radiating chapels were finished by *c.*1310, the choir and transepts vaulted by *c.*1320. Master Etienne may also have been responsible for the French-looking composition of the north transept façade (with large rose), and for its portal. The fullest account can still be found in Boethius and Romdahl (1935). Zeitler (1971) underplays the French influences and emphasizes the local *Backsteingotik* sources, from Westphlia (or Westphalian patterns in the Baltic) and from the Dominican foundation at Sigtuna. Certainly the simplicity of the brick exterior, the later fourteenth-century nave and the two-tower west façade (completed in *c.*1450–65) give the building the appearance of a German, southern Baltic, basilica.

104B. Frankl may be referring to both the hall nave, and the later hall choir. The first campaign on the hall nave lasted from 1250 to 1296, the second, which added two western bays, was underway between 1308 and 1360. In c.1408–20 the Cologne architect, Gierlach, began the present hall choir with ambulatory and three chapels, which was completed in a second campaign (1487–1500). Among the architects of this later work was Adam van Duren, who carved the boss in the south chapel. See Cnattingius *et al.* (1987).

104C. See Deshoulières (1921). The foundation stone was laid in 1364, that of the tower in 1373.

104D. In confining the novelties of Flamboyant to tracery Frankl is stating a commonly held belief, stemming from the nineteenth-century definition of the style as a new form of window design, that Flamboyant added nothing spatially or structurally new to the inheritance of Rayonnant: it simply replaced geometric with curvilinear tracery. In reality, Flamboyant represents a radical departure from the structural and spatial regularities of Rayonnant architecture. Wilson (1990) 248–57 sees its central principle as 'the fragmentation of the Rayonnant system through the contrary yet complementary processes of elision and disjunction'. Murray (1996a) points to new kinds of east end planning (with interlocking hexagonal spaces, trapezoidal bays or rectangular ambulatories, or combinations of all three); to the fusion of hitherto separate elements (capital-less arches and piers); to the mannered contrasts between elements (simple piers and complex moulded stonework); to the use of staircase turrets to give a three-dimensional dynamism and fusion to façades; to a preference for illusionism (bases 'growing' out of pillar socles at different heights and depths, suggesting an almost organic sense of hierarchy).

104E. Ogee arches appear in the windows of the lower chapel of St Stephen's chapel as early as the 1290s (from 1292), by Michael of Canterbury. Wilson (1986) 82–3, suggests that one of the earliest examples of curvilinear tracery in England might have been the two windows with reticulated tracery in the bays of the cloister opposite the Chapter House at Westminster Abbey, which he dates (contrary to the usual '*c.*1340' period) to *c.*1300–10. The Kentish tracery in one of the bays can be associated with the contemporary work of Michael of Canterbury.

104F. For the Beverley reredos see Dawton (1983) 124–5, 128, 143; and (1989).

105. Durand, *op. cit.* (Note 18 to Chapter 3) I, 50. La Grange became a cardinal in 1375 and left Amiens. He then lived in Rome until 1402. For the north chapels at Amiens see Ringshausen (1973) 72–3, who points to parallels with Prague rather than England. This article provides a useful short survey of the origins of French Flamboyant. Short but incisive observations on the influence of England on early flowing tracery on the continent can be found in Bony (1979) 22–5, 27–8, 67–9. Adelman (1973) has not been available to me. Sanfaçon (1971), still the only survey of French Flamboyant, hardly touches on the origins of flowing tracery in France. Kurmann (1975) and (1986) points to double-curved tracery forms in southern Germany in the early part of the fourteenth century. See above, Chapter 4, Note 22A.

106. De Lasteyrie, *op. cit.* (Note 77 to Chapter 2) II, 33ff. Tamir (1946) saw English Decorated and French Flamboyant as 'diametrically opposed'.

107. The tracery in the Chapelles de la Grange is illustrated in Schürenberg, *op. cit.* plate 90. Trombetta (1972) pointed to an early example of double-curved tracery, datable to 1303–10, in the former hospital of Saint-Louis at Senlis. But – like the double curves in the thirteenth-century clerestorey of Sens cathedral (see above, Chapter 4, Note 22), the ogees here are probably the result of the accidental merging of curves. Frankl only mentions in Part 2, p. 288, a key example of early Flamboyant, the tracery above the fireplace of Jean de Berry's great hall at the ducal palace at Poitiers, built in the late 1380s and 1390s. See below, Part 2, Note 52.

108. Behling, *op. cit.* (Note 106 to Chapter 3) 32. Also illustrated in Bond, *Introduction*, 611–40.

109. However, falchions rarely have double curves.

109A. Frankl is referring to the 'mouchette wheels' in the nave clerestorey, in the western bay and in the third bay from the west. The nave at Exeter was designed and largely constructed under the architect Thomas of Witney, to whom these windows can be attributed. For documented references to his presence at Exeter see Erskine (1983) xx–xxi; and for the work on choir and nave done under his control see Erskine (1983) xxx–xxxiii. An authoritative account of his contribution to Exeter is provided by Morris (1991) 71–8 (specifically on the nave and its windows). Morris (1991) 83, note 66, mentions other early examples of 'mouchette wheels' in England and on the continent, notably in the nave aisle windows at Beverley Minster and in the second storey windows of the west towers of York Minster.

109B. Murray (1996) 74, dates the crossing vault to the last of the vaults of the eastern end repaired after the fire of 1258, and finished sometime before 1269. He notes that the profiles of its ribs is different from the other bays.

110. *C.A.* (1916; session of 1913) 155. See also Champeaux and Gauchery (1894) 10, 53; Hacker-Sück (1962) 248–9. The accounts for the building of the palace and the chapel are published by Teyssot (1992). This evidence, and the dendrochronology of the roof, shows that the chapel was built essentially between 1395 and 1403. Froissart's mention of Jean de Berry and Jeanne de Boulogne being married in June 1389 'en sa chapelle' refers to the old palace chapel. See Delmiot, Kurmann-Schwarz *et al.* (1999) 6–14. Its tracery is very close to the tower windows of the clerestorey level of the west front of York minister, dated *c.*1338.

111. C. Enlart, 'Origine anglaise du style flamboyant', *B.M.*, LXX (1906) 79. The west façade is analysed in detail by Allinne (1912) 73–97, and Lanfry (1963). An authoritative account of the contributions of the various late Gothic architects to the west front can be found in Bottineau-Fuchs (1986) (1992) and Bottineau-Fuchs in: Baylé, dir, (1997) vol. 1 316–19. Neagley (1998), the first concerted study of Rouennais Flamboyant for many years, includes many valuable comments on the west façade and its architects, see pp. 36–8, 72–5, 87–94. The first campaign of Late Gothic remodelling took place under Jean Perier (fl. 1362–88), and consisted of a new rose window to replace the previous triple lancets, and a veneer of late Rayonnant gabled forms laid in front of the thirteenth-century façade at portal and rose level. Neagely argues, on the basis of two remaining shafts and their vault springers in each of the side portals, that Jean Perier began (but never finished?) a triple, gabled, porch in front of the three portals, intended to complement the gabled screens he was beginning to insert either side of the rose window. She connects Perier's re-facing of the façade in the 1370s and 1380s with preparations underway in 1368 to house the heart burial of King Charles V, for which Perier (with Hennequin of Liège) worked on a marble and alabaster tomb. She rightly points to the blind tracery of the inner south transept wall of the cathedral (*c.*1300) as a critical source for the screens, and she is equally correct in her reluctance to admit the influence of English Perpendicular architecture in their rectilinear layout – see pp. 87–8. The second architect of the remodelling, Jean de Bayeux (fl. 1387–98) seems to have been the first to introduce curvilinear tracery to the cathedral, in the outer panel above the Saint-Etienne portal and (?) in the panel directly adjoining the Tour Saint-Romain. His successor, Jenson Salvart (fl. 1398–1447), designed the almost fully curvilinear panels of tracery in the two central panels above the Saint-Jean portal and from 1430 enlarged the choir clerestorey with flowing tracery. For the cathedral's later generation of Flamboyant architects – Guillaume Pontifs, the Le Roux – and their contributions to the façade, see also below, Chapter 4, Note 175.

112. See Aubert (1935).

112A. The transepts at Auxerre, and their sculpture, deserve a detailed study. Vallery-Radot's (1958) 46–7, dating of the south transept as complete by *c.*1358 (the date of the burial in it of Pierre de Dicy) is too early, despite the similarities he points to with the transepts of Saint-Germain at Auxerre, going up under Abbot Gaucher Dignon de Cheu (1313–34). Titus (1984) 363–5, and 396–8, more plausibly connects payments and donations in wills to the fabric in the 1390s with the completion of the south transept and the building of the eastern bays of the nave. The upper zones of the south transept were referred to as 'new' in 1401. The north transept front and lateral walls, underway in the second decade of the fifteenth century, had, according to Titus, pp. 365–6, 398–9, reached the springing of the portal arch and up to the level of the fourth string course on the exterior before work stopped in the early 1420s. Jean de Molins, who gave money towards the northern arm, died in 1422. Building probably re-started in the 1470s. The arms of Bishop Jean Baillet (1477–1513) on the high vault of the northern arm indicate the fitful progress of the work.

113. Illustrated in Mâle, *La cathédrale d'Albi* (Paris, 1951) plates 8 and 9. The statues are nineteenth-century additions; only fragments remain of the medieval sculpture of the portal. See Biget (1982) 31.

114. *C.A.*, XCIX (1935) illustration facing p. 466. There is a cast in the Musée Trocadéro, Paris. For the church and the *Recevresse* see now Burnand (1989) 53–67, who discusses the possible functions of the latter: as cemetery lantern, or as housing for an altar or a miraculous image of the Virgin, or all three.

114A. The Vendôme chapel was begun in 1417 for Louis of Bourbon, Count of Vendôme, by the architect Geoffroy Sevestre. Sevestre is documented as working on the church of Saint-Yves in Paris with Pierre Robin, the supposed architect of Saint-Maclou in Rouen, and the keystones of the chapel, and its fluid, curvilinear tracery, anticipate the choir at Saint-Maclou. See Bauchal (1887) 532, and Neagley (1998) 82–3.

115. Luc-Benoit, *Notre Dame le l'Epine*, *P.M.* (Paris, 1933). Here the similarities with Reims are enumerated. The best analysis is by Villes (1977a). The church was begun in the eastern bays of the nave sometime before 1440, perhaps as early as 1400–10, with the intention of terminating the nave at the end of the fourth bay from the east. Work proceeded on the two straight bays of the choir and the bays of the nave through the last two decades of the fifteenth century. In *c.*1470 the façade was laid out in its present position two bays further west than originally intended, and was completed by *c.*1500. The radiating chapels and ambulatory of the choir were begun in 1509 by the architect Remy (or Regny) Gouveau, and finished by 1524. See also below, Chapter 4, Note 148A.

116. Villes (1977a) 853, note 2, emphasizes the debt to Saint-Nicaise in Reims and the cathedral of Châlons-sur-Marne.

117. Heinrich Parler III was called to Milan in 1391 as an adviser, but was finally rudely dismissed. For the Parler contribution to the choir see above, Chapter 4, Note 79.

118. For theories about his apprenticeship, see A. W. F. Carstanjen's detailed biography, *Ulrich von Ensingen etc.* (Munich, 1893). For Ulrich von Ensingen generally see now Conradt (1959). The Parler contribution to Ulm is analyzed by Wortmann (1977), and in *Die Parler* (1978) vol. 1 325.

119. Traces of the Parlers' arch for the aisles of the hall church have been preserved on the east wall of the northern pair of aisles, and the remnants of the wall arch built by Matthäus Ensinger can still be seen above the present vault (built by Engelberg). See Wortmann (1977) 101–6.

119A. For Ulrich's tower design (Plan A, Ulm Stadtarchiv, inv. nr 1), its sources in Prague, Strasbourg and Swabia, and its relations to other tower projects in southern Germany, see Friederich (1962), Koepf (1977) 16–19, 26–31, Schock-Werner (1983) 120–41, and Nussbaum (2000) 146–8.

119B. For the Vienna steeple see Chapter 4, pp. 207–8 above, and Notes 69–74.

120. Matthäus's successor. Matthäus Böblinger, took the work as far as the octagon. At the time of the Reformation the work stopped, and it was not until between 1880 and 1890 that August von Bayer completed the towar to Böblinger's design. Ulrich's Plan A in the Ulm Stadtarchiv, dating probably to 1392, formed the basis for the construction of the present steeple long after his death in 1419. By then construction had reached only just above the portal storey, but his design was followed, with minor variations, under Hans Kun, Caspar Kun and Matthäus Ensinger. The first significant modifications are evident in Plan C (Ulm Stadtarchiv) of Matthäus Böblinger (1477–83). They occur in the belfry storey and in the octagon and spire above it. It was to Böblinger's design that the octagon and spire, left unfinished in the Middle Ages, were completed in 1885–90. The history of the steeple under Ulrich's successors, the modifications to Ulrich's Plan A, and the post-Ulrich drawings of the steeple, are fully set out in Koepf (1977) 20–69, and Wortmann (1972) 11–22. Vrijs in Recht ed., (1989) 409–11, discusses Plans A and B. Matthäus Ensinger's career, and his contribution at Ulm, are also intelligently analyzed by Mojon (1967) especially pp. 70ff. For the nineteenth-century history of the steeple see Borger-Keweloh (1986) 80–5, 98–104.

121. See Recht (1974) 69–80. Recht also discussed the dating and figure style of the belfry drawing and its connexions with Bohemian painting in *Die Parler* (1980) vol. 4 106–17. However, Liess (1986a) argued that the famous Riss nr 5, showing the central portal, the rose and the belfry, does not date, as many authorities have held, to *c.*1360–5, but from the early fourteenth century. It was, he contended, the product of the regime, or at least conceived under the influence, of Master Erwin. He argued that the 'Bohemian' figures of the Apostles and the Last Judgment were added to the earlier architectural drawing later in the century, and that all its architectural forms were already present in Upper Rhenish architecture of the late thirteenth and early fourteenth century. The belfry was therefore intended from an early period, and was not an *ad hoc* insertion. He suggests that the south tower may even have been constructed up to the level of the parapet by 1339 under Johannes, Erwin's son. Liess's contrived separation between the drawing's figures and its architecture is problematic, and Recht ed. (1989) 393–4 has convincingly re-iterated his early 1360s dating for the belfry and the drawing, pointing to the similarities between the tripartite tracery crest of the drawing and the chapel of St Catherine at Strasbourg (*c.*1340–5). An elevation drawing of the façade (inv. nr. 6 in the Musée de l'Oeuvre, Notre-Dame in Strasbourg) has been attributed to Klaus von Lohre (the leading architect at Strasbourg 1388–99) and is the only one to show the belfry in relation to the towers. The form and detailing of its belfry is much closer to the existing building than drawing nr. 5. See Recht ed. (1989) 398–9. Part of Liess's argument rests on his assumption that the 'Kressberger fragment', which shows the upper stories of the north tower, dates from the Erwin period, and therefore proves that provision for the towers up to platform height was being made then. Wortmann (1997) 149–50, has however convincingly re-dated this drawing to the mid-fourteenth century. Bureš (1990) 28–9, also reviews some of the arguments, agrees with Liess that the architectural vocabulary of the belfry is not 'Parlerian' in the Prague or Gmünd sense, but recognizes that its details (by analogy with the exterior of the choir of St Sebaldus in Nuremberg, begun *c.*1361–2) belong to the second, and not the first half of the fourteenth century. The actual execution of the belfry he assigns to the 1380s.

122. Illustrated in Carstanjen, *op. cit.*, plate XII, where it is juxtaposed with the design for the tower at Ulm. See Berne, Historisches Museum, inv. nr.

1962. Still useful for the steeple is Reinhardt (1939) and (1972) 83–5. See also Mojon (1967) 25–8, Koepf (1977) 20–2, 33–7, and Recht in *Die Parler* (1978) vol. 1 282. The most authoritative recent discussion of Ulrich's work at Strasbourg and of the Berne drawing is provided by Schock-Werner (1983) 142–5, 291–7. She pinpoints the changes from Ensingen's to Hültz's work, and attributes the Berne elevation to the young Matthäus Ensinger, drawn as a studio piece and not for a competition, and executed while he was still in Strasbourg, but after his father's death in 1419. He therefore took it with him when he was called to Berne in the late summer of 1420. The plan's accurate copy of Ulrich's design for the spire for Ulm (or perhaps of his lost design for Strasbourg?) suggests that Johann Hültz's spire had not yet been started. Recht (1989) 402–3, cites all previous literature on the Berne drawing and rehearses the arguments for its attribution either to Ulrich or Matthäus, arguments which, he thinks, are so evenly balanced as to allow no clear attribution. He is not convinced that the Ulm-type spire is a *terminus ante quem* for dating the drawing, since it might be a filial tribute to his father's design for Strasbourg, made at any time after 1419/20.

122A. For Johannes Hültz's contribution see pp. 224–5, and Schock-Werner (1983) 146–57.

123. Wells, *c.* 1220; Salisbury, some time before 1260; Lichfield, *c.* 1280.

123A. The complex history of the west front can be summarized as follows:
1) 1341 the south-west tower and the adjoining sections of the central bay of the façade (its southernmost walls) were begun. By 1350–60 the western bay of the south aisle of the nave had reached vault height and the lower storey of the tower completed. The first and second storey were complete by 1380. The design of the façade at this stage was indebted to Strasbourg, particularly Plan B (harp strung tracery of the second storey).
2) **In 1381** the beginning of the demolition of the collegiate church of St John which covered the northern sector of the present façade. In 1398 altar of St Florinus and Lawrence erected in the north nave aisle, third bay from west, indicating that the temporary dividing wall at the second bay, still up by 1380, had been demolished and that the nave was moving westwards on the north side. From *c.*1385 beginning of work on structure and sculpture of central west portal (complete in *c.*1410/15). 1395 first mention of a Liebhart der Mynnaer as architect.
3) *c.*1390–5 at level of the springing points of the central portal it was decided to add the present triangular porch to an originally intended flat portal, and to transfer the figures of the Apostles from the outer jambs of the portal to the central pillar of the porch.
4) **1415** Master Wenzel Roriczer first mentioned. He may have been of Bohemian parentage and his family may have worked on St Bartholomew at Kolín – see Kotrba (1963) – or (more likely) he was Upper Rhenish – see Dietheuer (1961) and (1976). He constructed the lower sections of the ground floor of the north tower, to just above portal height; possibly completed the central portal and its porch (by *c.*1410) and the double spiral staircases and gallery on the inner west wall. He designed the Birth of Christ altar, donated by 1417, and now in the south choir apse. Succeeded by Andreas Engel (1419–56).
5) **In** *c.*1420 the building stone changes from chalk to a greenish sandstone at just above the level of the north tower portal. By *c.*1430 the whole of the north nave aisle was vaulted, the central section of the façade, including the porch and its sculpture, was complete, and the lowest storey of the north tower (heraldic evidence of 1426 at the level of the tripartite windows) was finished, up to the balustrade. A provisional roof was placed over the three western bays of the nave at triforium height. In 1436 bells installed in south tower. By 1442 (according to dendrochronlogical evidence) the first storey of the north tower, the central section of the façade over the porch and the roof of the nave had been installed, though how much of the detailing of the central, 'rose' section can be attributed to Engel or to his successor, Konrad Roriczer (1456–77) is uncertain. Hubel (1989) attributes the sculpture of this section to Konrad. The latter designed the Albertus Magnus altar baldachine of 1473, now in the north transept.
6) **In 1477–95** Matthäus Roriczer, son of Konrad, is *Dombaumeister*. Contrary to most received opinion, his date of 1482 carved on the triforium-like passage beneath the double windows of the central section of the façade does not imply that he was responsible for this section, nor the adjoining storey of the north tower (these sections belong to Engel and Konrad Roriczer). The date refers only to the triforium-like passage on which it is carved, which Matthäus inserted in that year in front of the lower portions of the long-completed central windows. He also built the west gable, the pulpit and the lower parts of the sacrament house, and he began the upper storey of the north tower.
7) **Wolfgang Roriczer, Matthäus's younger brother, succeeded him in 1495.** He completed the sacrament house and the upper storey of the north tower (inscription of 1496) relinquishing the harp-string motifs of the corresponding storey of the south tower (but inserted in the nineteenth century for reasons of symmetry). He also designed the font (1500). He was executed in 1514.

Two medieval plans of the façade are preserved in the city archive. Their dating and function (were they real plans or utopian fantasies?) are still matters of conjecture and disagreement. The first, a two-tower design, which corresponds to the general proportions and dispositions of the actual façade, may date to *c.*1410, and has been attributed to Liebhart der Mynnear. Its decorative vocabulary shows an admixture of influences, from Prague Cathedral, from the west front of St Lawrence at Nuremberg, and from contemporary steeple projects, notably Peter von Prachatitiz's Vienna and Ulrich von Ensingen's Ulm. For a detailed stylistic analysis see Bureš (1986). The second drawing, for a single-towered façade, is now almost universally recognized as an 'ideal' plan, though its dating is controversial, ranging from *c.*1400 – Fuchs (1981) and (1990) and Hubel and Schuller (1995) – to the later 1450s, under Konrad Roriczer. Some of its features – the side portals and the window composition above them, and particularly the triangular porch – reappear in simplified form in the actual façade. Fuchs suggested that the triangular porch was built as a reliquary tribune and pointed to precedents and sources in Boniface VIII's loggia in the Lateran and the westwork of the Frauenkirche in Nuremberg.

For the west front and its drawings see Altmann (1976) 106–9, Hubel and Schuller (1995) 95–150, Fuchs (1990), and Hubel (1989).

124. Max Säume, 'Hinrich von Brunsberg', *Baltische Studien*, N.F. XXVIII (1926) 215. Zaske (1957) and (1980); Lohman (1982).

124A. A chapel is mentioned in 1388. A discussion of the choir, its dating and sources of inspiration, can be found in Clasen (1952) and Zaske (1957) especially 50–1. All the evidence for the building history, and a discussion of the literature, is presented in Mroczko and Arszyński, eds., (1995) vol. 2, 213. Neither they, nor Lohman (1982) 63–87, find any evidence to support Clasen's and Zaske's suggestion that the choir was begun as a hall and changed later to the present basilican form. Zaske (1957) attributes the choir to Brunsberg, but others have seen it as the work of a pupil.

125. The similar arrangements at Albi and Toulouse are the result of later divisions, made in the fifteenth century. By the 'progressive gallery' Frankl is referring to a system used in the choirs of Stargard and of Brunsberg's church in Chojna (see below) and in the choir of St James in Szczecin (Stettin) (another building associated with, but not definitely attributed to, Brunsberg). It consists of full-height in-drawn buttresses whose lower sections contain chapels, and above the chapels a gallery runs through the pierced buttress faces. A similar system is found in the hall choir of St Martin in Amberg. Clasen (1952) 49, suggested the choir of St Mary at Stralsund, begun in 1384, as a possible source for Stargard. Zaske (1957) especially 50–4, and (1980), rejected the idea of Parler influence on Brunsberg's work, tracing his sources exclusively to north-east German *Backsteingotik*. He pointed to the early use of hall choirs with polygonal ambulatories and triradial vaults in St Mary at Frankfurt an der Oder, begun *c.*1350, and St Nicholas in Berlin, in building in 1379. For the Berlin church see Schade (1966). Wochnik (1983) supports the Swabian–Franconian inspiration, that is, the influence of the Parlerian hall choir, behind Frankfurt and the other ambulatoried hall choirs in Brandenburg.

125A. This church, now in north-west Poland, was badly damaged in the Second World War, and is now a ruin. It was begun at the east end in *c.*1390, and the three eastern bays were complete by the consecration in 1407. The Lady Chapel, on the south side of bays 2 and 3, was finished some time before 1440, and the three western bays by 1459. See Mroczko and Arszyński, eds., (1995) vol. 2 46–7. Gruszewski and Widawski (1965) date the start of the work to 1399.

125B. The chronology of St Catherine in Brandenburg is not clear. In 1395 an unspecified disaster struck the old church, and rebuilding was necessary. But a row of indulgences, some of them for building work, starting in 1381 and increasing from 1385, implies that at least preparations for rebuilding had begun earlier. Work under Brunsberg began in the nave, which was complete (apart from the vaults) by 1401, together with the Lady Chapel at least up to its portal height (see the inscription here of 1401, attributing the church to Brunsberg). The Lady Chapel was consecrated in 1434. The choir, built by Heinrich Reinstorp probably to Brunsberg's designs, was completed by 1456. Reinstorp may have also finished the Lady Chapel (also to Brunsberg's plans) and designed and built the gables over the south chapel. The net vault over the central aisle may not reflect Brunsberg's design, see Zaske (1957) 54–5, though Nussbaum (2000) 247, note 592 sees no reason to doubt that it was built to Brunsberg's design. For a full discussion of the architects and building history there is the unpublished Lohman (1982) 14–37, and the short article by Lohman (1996). For the church and its dating see, briefly, Böker (1988) 227.

125C. Zaske (1957) 57–60, 66–7, rejects Parler influence and suggests sources for these typically 'Brunsberg' gables and panels of tracery in the castles of the Teutonic Knights (Lochstedt, Marienburg) and in the eastern gables of Brandenburg and Mecklenburg hall churches (Neubrandenburg, Prenzlau). His arguments, however, are weakened by his mistaken identification of the tracery panels in the cloister of the upper castle at Marienburg as key medieval sources for Brunsberg's exterior buttress tracery. In fact, they are purely nine-

teenth-century fabrications, reconstructed 1881–93 after the Baroque re-shaping of the cloister under Polish occupation. See Boockmann (1982) plate 49, and Górski (1973) 178, and Torbus (1998) 494.

125D. Zaske (1957) 50 note 11, and p. 71, attributes the town hall of Chojna to Claus Brunsberg, who may have been Hinrich's son. The relevant extensions to this late thirteenth-century town hall belong, it seems, to the mid fifteenth century, and have no documented connexion with any member of the Brunsberg family, see Mroczko and Arszyński, eds., (1995) vol. 2 46. For Tangermünde Town Hall see Kohlmann (1955). Its gables are close to those over the south (Corpus Christi) chapel of St Catherine at Brandenburg, dated after 1434 and attributed to Heinrich Reinstorp.

126. Peter Baldass, 'Hans Stetheimer's wahrer Name', in *Wiener Jahrbuch für Kunstgeschichte*, XIV (1950) 47. Georg Lill's article in Thieme-Becker should be corrected in the light of this later article, but otherwise it gives a good summary of the older literature on the subject: Eberhard Hanfstaengl, *Hans Stetheimer* (Leipzig, 1911); *Inventar von Niederbayern*, XVI (1927). The basic authority on Hans von Burghausen as an historical figure is still Herzog (1958) and (1969). More recently, biographies are provided in Cook (1975) and Nussbaum (1982). A useful survey of the literature is given in Kobler (1985). For a supplement to Herzog's researches into the history of the Stethaimer and von Burghausen family see Liedke (1983–4).

126A. Herzog's (1969) chronology of the nave and choir, much of it based on dendrochronological evidence, still stands. The choir was begun by 1389; the chapel of St Mary Magdalene was up by c.1390. Work had reached the choir window sills by 1392 and the roof levels by 1394/6 (though he wrongly thinks that the choir vaults were finished as late as *c.*1430 or even 1470). The foundations of the west tower were not laid before 1441, and therefore the west portal, normally dated 1432, must now be put in the 1440s or after. See Kobler, in *Die Parler* (1978) vol. 1 387, who, along with most other scholars, dates the choir vaults to 1398. The design of the nave is undoubtedly by Hans von Burghausen, but some scholars have argued that Hans Krumenauer was the architect of the choir: see Puchta (1968) and (1975), Kobler in *Die Parler* (1978) vol. 1 387, and Cook (1976). Herzog (1969A) 65, doubted this attribution, and the full account of the building by Kurmann and Kurmann-Schwarz (1985) 19–51, convincingly argues for the whole project being von Burghausen's design of *c.*1385, carefully adhered to by his successors. He substantially agrees with Herzog's dating, though he thinks the choir vaults were up by *c.*1400, the nave chapels had been completed as far as the two west nave portals by 1445, the tower begun in 1444 and the west portal in the late 1450s. The nave pillars did not reach their full height, and the vaults were not built, until *c.*1475–80. For a resumé see Kurmann (1996).

126B. The vaults were probably part of Hans von Burghausen's original design. But if not, then their late construction in *c.*1480 makes it possible that they reflect the influence of the identical net vaults in the comparable hall nave of St Vitus at Český Krumlov (Krumau) (1402–39) in southern Bohemia, or a host of earlier Bohemian examples. See Nussbaum (1983–4) 96–7.

126C. Frankl is here restating the view, exemplified particularly by Gerstenberg (1913), of the hall church as a unified space. In fact, there is little spatial unity between side and central aisles in the nave of St Martin at Landshut, because the pillars are closely spaced, the side aisles are narrow, and the interior is organized around a strong longitudinal west–east axis. See Kurmann and Kurmann-Schwarz (1985) 15, 32–6, 47–8. For a general criticism of the 'ideology' of the German hall church as an *Einheitsraum* see Kunst (1971), and Nussbaum (2000) 157–61. For its origins in German nineteenth-century romanticism see Schenkluhn (1989).

126D. Kurmann and Kurmann-Schwarz (1985) 92–5, dates the style of the portal's tympanum sculpture to the late 1450s/early 1460s, and believes its 1432 inscription is a modern forgery.

126E. This form of arch can already be seen in gables of the triangular porch of the Regensburg single-tower façade plan (*c.*1400?), and on the inner west façade of the cathedral (*c.*1410), probably by Wenzel Roriczer. See Hubel and Schuller (1995), plates 104, 112, 114. Fischer (1964) 35, note 58, sees an English source for the motif.

126F. See Dambeck (1957) 15–18. Nussbaum (1982) 153, and (2000) 246, note 569, points out that the vaults were only installed in 1461 and may not reflect the original design. Nussbaum (1983–4) 98–9, discusses the dating and origins of its vault patterns. For the important vaults with double-curved ribs in St Catherine's chapel (1411) and the sacristy (*c.*1432), perhaps the earliest examples on the continent, see Fehr (1961) 98–9. The origins of the axially placed column of the apse, a hallmark of Hans von Burghausen's work, and an indication of his Bohemian training, are discussed in von Ledebur (1977) (not available to me).

127. It was originally a parish church, and was transferred to the Franciscans only in 1583. See van der Meulen (1957); Fuhrmann (1967) (over-interpretative mathematical analysis); Nussbaum (1983–4) 108ff.

127A. It seems that Hans von Burghausen at first intended to replace the old nave, but it was later decided to retain it, perhaps before his death in 1432, certainly after the choir columns had been shifted eastwards out of axis with the buttress responds, and before the construction of the western responds of the west bay of the choir and the chancel arch. The latter was turned before 1446. Altars in the side chapels were endowed from 1449 onwards and the year 1456 on the fresco of stone masons on the eastern choir pillar on the south side gives a *terminus ante quem* for the vaults. Stephan Krumenauer, Hans's successor, built the high vaults, probably with modifications to the original design. The height of the pillars may also be Krumenauer's decision. The present contrast between the dark nave and the light choir has been enhanced by the Baroque alterations. Originally the nave was lighter and the choir probably darker. See van der Meulen (1957) 52ff, and Nussbaum (1982) 164–71, and (1983–4) 108–16, where the choir is seen as the critical influence on the hospital church at Braunau and the Bavarian group of 'three-pillar' hall churches. Brucher (1990) 144–6, adds nothing new.

127B. See Nussbaum (1983–4) 100–1; and Huttner (1981).

127C. In his epitaph in St Martin at Landshut Hans von Burghausen is credited with an unspecified church in Straubing. In the first edition of this book Frankl followed some authorities in identifying this as the Carmelite church, the choir of which was begun in *c.*1368/78 and finished in the 1390s. The nave was begun *c.*1400. Some authorities have argued that this church was not by Hans von Burghausen but (at least as far as the choir is concerned) possibly by Hans Krumenauer, the architect of the choir of Passau cathedral. See Stahleder (1971), and Puchta (1968) and (1975). As far as St Jakob at Straubing is concerned, most scholars attribute it to Hans von Burghausen as the 'Straubing' church of the epitaph, but its chronology is controversial. Cook (1976) 98ff, is alone in arguing that it was one of Hans von Burghausen's *first* works, beginning in *c.*1395. Puchta (1975) 43, and Liedke (1983/4) put its beginning to after 1415. Dehio, HDK, *Bayern II: Niederbayern*, (1988) 682–3, dates its start to *c.*1400. By 1423 the choir was useable. For the historical relations (as well as the stylistic) between this church and Augsburg see Puchta (1975) 44–5, and Liedke (1983/4) 11.

128. Cf. Lill in Thieme-Becker, XXXII, 14. Lill's attributions must be treated with caution.

129. For a full analysis of Berne see Mojon (1960). The whole career of Matthäus Ensinger is discussed in Mojon (1967).

130. Martin Coppens, *Thoughts in Stone* (Amsterdam, etc., 1948). See also Coppens (1941). For the exterior sculpture see Zeeuwe and De Vries (1978). The fullest account of the collegiate church can be found in Peeters (1985), a work which provides the basis for Kolman *et al.*, (1997) 202–7, to put together the following chronology:

1) *c.*1380–*c.*1400: radiating chapels, outer aisle walls on south side.
2) *c.*1400–*c.*1425: free-standing piers of apse and choir.
3) *c.*1425–*c.*1445: outer north choir aisle, eastern crossing piers and east wall of transepts; vaulting of choir, under the architect Willem van Boelre from Utrecht.
4) *c.*1445–*c.*1460: western crossing piers, transepts (south ahead of north) and first two aisle bays of nave on north and south sides.
5) *c.*1460–*c.*1478: vaulting of nave north aisle and south transept porch, under Master Cornelis de Wael (1469–76) from Utrecht.
6) *c.*1478–*c.*1497: under Master Alart van Hameel: north elevation of nave.
7) *c.*1502–17: vaulting of south nave aisles and completion of nave.

Wilson (1990) 242–3, revises this chronology for the completion of the transepts and their façades, 1469–78 (Peeters, pp. 389–91), to a period from *c.*1430–40 (the design) and 1461 (the completion). He convincingly relates the decorative vocabulary of the south transept façade to the south transept of Prague Cathedral, and to other Parlerian precedents, particularly Ulrich von Ensingen's work at Ulm and Strasbourg.

130A. Frankl is here referring to the Berne drawing of the west front and spire of Strasbourg (Berne, Historisches Museum inv. nr. 1962). Its attribution to Ulrich is still contested, and it may be by his son Matthäus Ensinger. Schock-Werner (1983) 142–5, 291–7 considers that it probably reflects Ulrich's design, but small technical uncertainties suggest that it was a study drawing, perhaps by the young Matthäus. She also suggests that after his father's death in 1419 Matthäus worked at Strasbourg, possibly as a foreman, under Johann Hültz. See above, Chapter 4, Note 122.

130B. For a full discussion of Hültz's spire see Reinhardt (1939) 29–37, and Schock-Werner (1983) 146–57. For the surviving drawings of Hültz's spire in London and Ulm see Koepf (1977) 71–6.

131. *Die Kunstdenkmäler von Bayern*, *Kreis Oberpfalz*, XVI, *Stadt Amberg* (Munich, 1909). See also Schmidt (1962) and (1977).

132. The west tower rises out of the great pitched roof, but is half embedded in it.

132A. Baldass (1946) attributed the choir to Hans von Burghausen but no firm evidence confirms this. Certainly the hall choir, its in-drawn buttresses and its chapels within them are close to the Franciscan church at Salzburg which may have been its inspiration, see Nussbaum (2000) 173.

133. Cf. the biographies in Thieme-Becker, and also those of the Böblinger

family. For more up-to-date biographies see *Neue Deutsche Biographie* (Berlin, 1953 onwards); for Hans Felber see Gümbel (1911). For Konrad Roriczer see Dietheuer (1961) and (1976). Short biographies on some of these architects can also be found in Turner, ed. (1996).

134. Hans Kun was mentioned as *Kirchenmeister* in 1427, Hans Felber was *Kirchenmeister* at Nördlingen from 1427 to his death in 1439, Konrad Heinzelmann appears there as his foreman in 1429 and remains there until 1438. In 1439 Niclaus Eseler the Elder took over, and the high altar was consecrated in 1451. After much criticism for absences, Eseler relinquished his position in 1461, and in that year Konrad Roriczer first appeared as the new *Werkmeister*. He con-tinued to be involved with the church until at least 1464. He contributed a design for the west tower, and he may have employed as foreman his son Matthäus, and certainly Hans Zanckel, another mason working at Regensburg cathedral. Wilhelm Kreglinger took over as *Kirchenmeister* in 1464, Heinrich Escher (called Kugler) completed the tower in 1481–90 and built all the remaining sections of the choir pillars. Stephan Weyrer vaulted the whole church 1495–1505 according to the designs of Burkhard Engelberg. See Dietheuer (1961) 169ff, Schmidt (1972) and Bischoff (1999) 150ff. The most authoritative account of the church's history, incorporating new archival material, can be found in Schmid (1977). He nicely suggests the church's position at the cross-roads of southern German late Gothic in the fifteenth century, absorbing advanced ideas from Ulm, Lower Bavaria and Lower Austria. The biographies of many of these masons, particularly Hans Felber and Konrad Heinzelmann, were brought to light by the pioneering archival research of Gümbel (1911). See also the good summary by Jansen (1996).

134A. Schultz's (1943) impressive study of the choir laid the foundations of all future work on the late Gothic church. He contended that Konrad Heinzelmann, *Werkmeister*, 1430–55, started work at the east end, with the radiating chapels, and planned four straight bays in the choir and lateral cellular chapels in continuation of those in the apse. Under Konrad Roriczer, *Werkmeister* for 1456–66, and his foremen Hans Pauer (1458–62) and Matthäus Roriczer (1462–6) (Konrad's son), Heinzelmann's scheme for the straight bays of the choir was altered, the bays were reduced to three, and the cellular chapels were given up in favour of wider aisles. Rosemann (1961) proposed an opposite sequence, with Heinzelmann beginning in the straight bays and working eastwards, and laying out the foundations (and perhaps the lower parts) of the apse and radiating chapels by his death. The clerestorey was built under Roriczer, but no substantial changes to Heinzelmann's plans were made. Rosemann's position found some support in Funk's and Linke's (1977) analysis of the geometry of the ground plan, which suggested that a three-bay choir was intended from the start. Stolz (1977) did not exclude a change of plan of the kind proposed by Schulz, but confirmed that the straight bays were substantially complete in the mid-1450s (some lower windows of their aisles were glazed in 1456/7), and therefore must be attributed to Heinzelmann and not his successors. Under Jacob Grimm, who took over in 1466, the central aisle vault was built. Choir altars were consecrated in 1472, the great west gable was going up in 1476, and the whole choir was complete in 1477. See also Shelby (1977) 8–14. Klein (1990) accepts the Schulz change of plan, but attributes it to Heinzelmann, and locates its origins in political, financial and liturgical interests. Klein's analysis of the role of the urban patriciate in the shaping of the choir is amplified in the masterly study of artistic patronage at St Lorenz by Schleif (1990). For the relation of altars, sculpture and space in the choir see Crossley (1998).

135. On Dinkelsbühl, cf. *Die Kunstdenkmäler von Bayern*, IV, *Mittelfranken* (Munich, 1931). See also Lergen (1940) (unavailable to me) and Helmberger (1984) and (1988).

135A. The fullest work on the Ingolstadt church is by Fischer (1974), where the parallels with St Ouen are discussed on p. 334, and p. 353, note 53.

136. *Die Kunstdenkmäler der Provinz Sachsen, Die Stadt Erfurt* (Burg, 1929), 135. See also Mertens (1975) and Lehmann and Schubert (1991) 22–3. The aisles are in fact wider than the central vessel.

137. These capitals are blocks. They are certainly undecorated, but their carefully moulded profiles do not suggest unfinished work. The whole design of the pillars, from bases to abaci, is treated with a deliberate austerity, see Lehmann and Schubert (1991) plates 73, 74, 79, 80.

138. *Die Kunstdenkmäler des K. Bayern, Niederbayern*, I (Munich, 1912). See also Dambeck (1957) 107. The main difference between this church and Hans von Burghausen's churches is its vaulting, especially in the central aisle. Liedke (1983/4) 52–4, attributes the church, on stylistic grounds, to Stefan Purghauser, son of Hans von Burghausen.

138A. The tall inner chapels developed out of Hans von Burghausen's in-drawn buttresses (hospital church Landshut) some divided by low chapels (Franciscan church, Salzburg), and from the cellular chapels used by Stephan Krumenauer in his parish church in Braunau. See Büchner (1964) especially 20–30.

138B. Since the foundation stone of the church was laid in 1468 and Jorg went to Augsburg and Ulm in 1469 it is doubtful whether his journey had any influence on the planning of the choir. Besides, the easternmost choir bay does not 'penetrate' the ambulatory in the way it does in Augsburg or St Lamprecht or Nördlingen, since the thicker arcade arches do not continue across the ambulatory to join with the responds of the easternmost chapel. In fact, the solution in Munich is much closer to the choir of St Jacob in Straubing (begun *c.*1400–10?). In a comprehensive analysis of Jorg von Halspach's design, Kurmann (1994) has shown that the Munich church, as the mausoleum for the Munich branch of the Wittelsbach dukes, and the beneficiary of Duke Sigismund's and Albrecht IV's patronage, consciously modelled itself on the brick hall churches in the other three Wittelsbach capitals: Straubing, Landshut and Ingolstadt. The detailed building history of the church is set out in Pfister and Ramisch (1983) and (1987), and Altmann (1994). The legend of the devil may only go back to the seventeenth century, when a Baroque high altar made all windows invisible, see Kurmann (1994) 42, note 20.

139. Frankl, 'The Early Works of Erasmus Grasser', *The Art Quarterly*, V (1942) 242.

139A. The Wittelsbach dukes would have objected to Frankl's emphasis on the patronage of the Munich middle classes, and the apparently subordinate role of the dukes of Bavaria. Even though the main responsibility for building lay with the town council, the Wittelsbachs were closely involved in the construction. Duke Sigismund laid the foundation stone and envisaged the new church as his mausoleum, inspired no doubt by the presence since 1322 of the grave of Beatrix, wife of Ludwig the Bavarian, in the old church. The completion of so large a structure in twenty years (the vaults were probably going up 1483–7, and the towers were completed up to and including the belfry in 1487) must have owed something to Wittelsbach generosity. See Pfister and Ramisch (1983) 54–5; Suckale (1993) 27, 140, 147, 184, 186, 195, 234; and above, Note 138B.

140. There is a detailed description and an illustration in Hans Tietze, *Die Denkmale des Stiftes Nonnberg in Salzburg* (*Österreichische Kunsttopographie*, VII) (Vienna, 1911) 23, 24. For the history of this church and its position in the so-called Melk reform, see Wagner-Rieger (1967) 386–7, and Brucher (1990) 288–9. The crypt was begun under Master Sigmund Maurer in 1463 and was consecrated, with the choir above, in 1475. The nave begun in 1485 under a Master Hans (who died in 1493). From 1493–1503 Wolfgang Wiesinger was in charge of the work, the south portal under construction in 1497–9 and the nave vault completed according to his designs in 1506/7.

141. The term *Deutsche Sondergotik* is the title of a book by Kurt Gerstenberg (Munich, 1913), which is full of excellent observations and ideas. Gerstenberg's term was already criticized for its nationalist implications by, among others, Jantzen (1962) 151ff, and Fischer (1964) 7, note 1. For a general discussion of the meaning of the term 'Late Gothic' see Białostocki (1966). For the impact of Gerstenberg's concept on German definitions of Late Gothic in the Empire see Nussbaum (2000) 136–9.

142. Interior view and plan in Lasteyrie, *op. cit.* I, 172 and 200. Caudebec is near Rouen; the building was not finished until the beginning of the sixteenth century. Cf. *Restauration de la flèche de Caudebec 1883–1886* (Rouen, 1888) (anonymous), which has good illustrations of the exterior.

See also Sanfaçon (1971) 28–30, 160, 173–4, Thiebaut (1975) 8, Bottineau-Fuchs in: Baylé, dir., (1997) vol. 2 143–9. Steinke's doctoral thesis (1982), was unfortunately not available to me. Work began on the present church in 1426. Because it had to incorporate two earlier structures, the south tower of 1382, and the north portal (both by the architect Robinchon Vernier) the work started in the nave, perhaps in the third bay from the west (adjacent to the south tower). There are indications at the join between the last chapel of the straight bays on the north side and the beginning of the radiating chapels that an earlier architect had intended a smaller chevet. In *c.*1450 Guillaume le Tellier took over the building until his death in 1484. His epitaph credits him with the chapels and the vaults of the third bay from the west. Clearly the church is indebted to the Late Gothic of Rouen: Le Tellier's choir apse, with its two diagonal sides and its axial pillar, and the three-sided, convex, western façade, are based on Saint-Maclou; while the pendant keystone in the easternmost chapel (the Lady Chapel) is an echo of the south transept porch (the so-called Marmosets portal) of Saint-Ouen. The octagon storey and spire of the south steeple were begun in 1491. The two westernmost bays of the nave and the portal storey of the west façade were begun in 1523, but the sections of the façade above the portals were not finished until the very late sixteenth century. The geometry of the kind of two-sided apse employed first at Saint-Maclou and later at Caudebec is discussed by Neagley (1992) passim, and (1998) 48–54, 94–5. In her (1992) study she admitted to some influence from German – specifically Parlerian – axial apse piers at Saint-Maclou (e.g. St Bartholomew's at Kolín, and the hospital chuch at Landshut) but in her (1998) book she attributes the apse solely to the ingenuity and structural logic of its designer-architect, Pierre Robin. Certainly Saint-Maclou's apse influenced not only Caudebec but the axial pillars in the apses of Saint-Pierre at Caen, Saint-Paul at Le Neubourg, and Saint-Germain at Argentan. See also below, Chapter 4, Notes 143, 186.

143. Plan in Lasteyrie, *op. cit.* I, 213; *C.A.*, LXXXIX (1927) 126.

See also Bottineau-Fuchs, in: Baylé, dir., (1997) vol. I 323–5, and especially Neagley (1988) (1992) and (1998) who provides the best analysis of the history and stylistic affiliations of the church. She isolates the following sequence of construction:

1) **1432–7.** Decision taken to rebuild the thirteenth-century parish church. In 1436–7, Pierre Robin, master of the King's works for Charles VI and of Notre-Dame in Paris, was paid a large sum for, among other services, a parchment in which the church 'is drawn completely'. This, according to Neagley, suggests that Pierre was primarily an architect designer (he vanished from Rouen after this date) who must have left a comprehensive and precise set of drawings of the church, which, partly at the insistence of the church treasurers (many of them drawn from the dominant merchant families of the parish) were faithfully followed over the next half century by the executant architects and *appareilleurs* who succeeded him. Foundations of choir. Lower courses of the radiating chapels and apse. Chapels in first straight bays of choir up to summit of arches.

2) **1437–50.** Primarily under the architect Simon le Noir. Some radiating chapels vaulted, others completed only up to vault springing. Upper parts of choir, which, however, remained unvaulted in 1446. Thirteenth-century nave still used for services. In 1448 land purchases for new transepts and nave.

3) **1450–60.** Much of this phase under the architect Jehan Chauvin (who takes over the lodge in 1454). Accelerating construction after return of Rouen to Charles VII in 1449. Generous funding from parishioners in 1448, and indulgences in 1452. Completion of radiating chapels and vaulting of choir; construction of transepts to just below rose level; setting out of nave foundations (?).

4) **1460–90.** Much of this phase under the architect Ambroise Harel (first recorded as working on Saint-Maclou in 1467). Completion of transepts. 1465 completion of some nave chapels on south side. 1476–9 nave roofing. 1487 donation of tracery for the west rose, which implies the completion of most of the nave high vaults.

5) **1490–1521.** Lantern tower begun under Jacques Le Roux (mentioned as master of Saint-Maclou in 1492) and Jehan Le Boucher (latter mentioned as master mason of the church in 1508). Completion of lantern under Pierre Gregoire in 1514, and construction of its wooden spire in 1517. Final dedication of the church in 1521.

Neagley points out that Saint-Maclou differs strongly from the contemporary Flamboyant architecture of Rouen practiced by Jean de Bayeux, Jenson Salvart and Alexandre de Berneval in the cathedral and Saint-Ouen (see above, Chapter 3, Note 121 and Chapter 4, Note 111. Its flat-nosed fillet mouldings, concave pier socles, capital-less arcades and fluid tracery are closer to contemporary churches in the Norman Vexin; while the design of its north transept façade, western porch, lantern tower and interior elevation looks back to the much older Rayonnant additions to the cathedral, probably in a spirit of nostalgia on the part of the church's merchant patrons for the achievements of Rouennais architecture before the outbreak of the Hundred Years War. Saint-Maclou's new style had a profound and immediate impact on Flamboyant architecture in Rouen and Normandy up to the early sixteenth century. Many of the leading architects of late Flamboyant architecture in Rouen made their first appearance at Saint-Maclou (e.g. Ambroise Harel, Guillaume Pontifs, Jacques Le Roux). See above, Chapter 4, Note 142, and below, Notes 148, 186.

144. J. B. Russon and D. Duret, *La cathédrale de Nantes* (Savenay, 1933). The long history of Nantes, the only comprehensive rebuilding undertaken at any French cathedral in the fifteenth century, is analysed in Leniaud *et al.* (1991). A number of phases can be isolated:

1) *c.*1434–*c.*1470. Foundation stone laid on 14 April 1434 by Duke Jean V of Brittany and Bishop Jean de Malestroit (1417–43). West façade and tower bay. South aisle of nave and its cellular chapels, and south arcade pillars, whose bases suggest a knowledge of the pillar bases of the choir of Mont-Saint-Michel, begun after 1444. Arms of Duke Jean (died 1442) in staircase to balcony above the (ducal) portal on the south side of the southern tower bay. Vaults in the belfry of that tower with arms of Bishop Guillaume de Malestroit (1443–62). Triforium of tower bay to an earlier, and different design (flamboyant, reticulated tracery) than in the nave proper. 1482, mention of bronze decoration for the doors of the central portal.

2) *c.*1470–*c.*1490. Nave north aisle and its chapels, completed by 1485 or a little thereafter. West wall of north transept and north-west crossing pier probably up to capital height.

3) *c.*1500–16. Installation of glass in great west window in 1498, as a gift of Queen Anne. 1500 vaulting of first bay of the nave. From 1508 to 1516, financially supported by Bishop Guillaume Guegen, directed by the architect Jacques Drouet, the eastern bay of the south aisle of the nave, and its chapel, was completed and vaulted, and the south transept begun, finishing most of the upper parts of its western wall by 1519/20.

4) **Post-medieval work:**

*c.*1626–30 completion of nave high vaulting (four eastern bays) and construction of nave flyers.

1631–7 or later, completion of south transept.

1840–91. Rest of north transept and the choir.

145. Amédée Charles Léon Boinet, *Les richesses d'art etc.* (Paris, 1910) 102. See Sanfaçon (1971) 99–100, 105, 115, also Lesort and Verlet (1974). The west porch is attributed to Jean Gaussel and dated to the 1430s. Murray (1989) 137, note 79, thinks the central bays of the porch were added at a time closer to 1500; they certainly show a vocabulary close to that of Martin Chambiges. Gaussel's work may also include the nave and its aisles, the transept and north chapels of the nave.

146. *C.A.*, LXXX (1916) 233; and Lucien Bégule, *Les vitraux etc.* (Paris, 1911), which also has illustrations of the architecture. See also Brosse, ed., (1966) vol. IIB 3–4.

146A. These dates for the later parts of the choir are based on Freigang (1992) 176. Undulating profiles already, however, distinguish the piers in the apse and first straight bays of the choir, built after 1277. For the growth of these undulating and simplified pier forms in non-mainstream French architecture of the thirteenth century see Davis (1984) 882, and note 60.

147. There is a detailed analysis in G. Hoeltje, *Zeitliche und begriffliche Abgrenzung der Spätgotik* (Diss. Halle a. S., 1930) 108. See also Brosse, ed., (1967) vol. III D 61–3, and Sanfaçon (1971) 85–7, and the unpublished research on the church by Mayra Vanessa Rodríguez. Rodríguez establishes the following sequence of construction:

Campaign one, *c.*1429–49: Construction began, almost certainly with the support of the newly crowned Charles VII, on the four eastern nave bays (preserving the fourteenth-century west façade of the old church which formed their western limit). Lower half of north transept façade and lower courses of eastern crossing piers.

Campaign two, *c.*1449–75: First securely documented donations from Charles VII, extending into the mid-1480s. Chevet, vaulting of north transept; building of south transept.

Campaign three, *c.*1482–5. Demolition of the old façade, three western bays of the nave, new west façade.

Rodriguez established that most of the funding of the church came from interventions by Charles VII rather than his son, Louis XI; although Louis's generosity was itself remarkable (he gave a total of 41, 264 livres tournois). Much of this money may have been spent on the canons' domestic quarters. In 1467 Louis XI promoted the college to the status of a royal chapel, marked by the donation of a relic from the Sainte-Chapelle in Paris. In 1471 he also chose the church as his mausoleum. Rodriguez finds the models for Cléry's austere style not in Paris (as earlier research has located them) but in local Orléanais architecture going back to the twelfth century. I would like to thank Dr Rodríguez for kindly sending me unpublished material from her thesis.

148. C. H. Bernard, *Le Mont Saint-Michel, P.M.* (Paris, n.d.). See also Germain Bazin, *Le Mont Saint-Michel* (Paris, 1933), and André Ludois (pseudonym for Georges Monmarché), *Le Mont Saint-Michel* (Paris, 1949), which has good illustrations. Vallery-Radot's (1966) remarks on the fifteenth-century choir are useful, even if only in the context of a study devoted to its Norman predecessor. After the collapse of the old choir in 1421, down to 'the stalls of the choir', work proceeded in three campaigns:

1) **1446–52,** under Cardinal d'Estouteville, first 'abbé commendataire' of Mont-Saint-Michel. Lower parts of choir, including radiating chapels, ambulatory, aisle walls and free-standing pillars up to springing of vaults.

2) **1499–1510,** under Abbot Guillaume de Lamps. Vaulting of aisles, chapels and ambulatory and construction up to base of clerestorey.

3) **1513–23,** under Abbot Jean de Lamps, clerestorey, high vault and buttresses.

The elevation, with its multi-based piers, capital-less arcades and tall triforium articulated with a lower arcade and framed with continuous mouldings from the clerestorey, is a follower of Saint-Maclou at Rouen. See Neagley (1998) 94–5.

148A. Villes (1977a) isolates a number of phases in the building of the façade:

1) ***c.*1470 onwards:** portal storey.

2) **first storey** of west towers and horizontal wall strip above the portals.

3) ***c.*1480/85 onwards:** Openwork balustrade above all three portals; gables over portals; rose window; completion of first and second stories of north tower up to its pinnacles. Many of the elements of this phase (the rose, the large gables, the horizontal divisions in the form of openwork tracery balustrades, made up of repeating reticulated units) show the influence of the second phase of the façade of Toul Cathedral, dated *c.*1480–5.

4) **Up to 1509.** Completion of south steeple, including its spire; triple gables over rose storey, termination of north steeple.

149. The Heathen Towers on the cathedral of St Stephen in Vienna. They are intended as a gallery, not as crowns. These spires were placed on the old twelfth-century towers in the fifteenth century, see Zykan (1981) 30. For a fruitless attempt to derive this 'crow's nest' motif from Netherlandish town halls see Paatz (1967) 75–6.

150. The distance between Châlons-sur-Marne and Strasbourg is about 160 miles. Villes (1977a) 851, suggests, more plausibly, the inspiration of the spire

of the 'Mutte' tower at Metz cathedral, of 1478–82. Villes also analyses the style and chronolgy of the façade in detail, though dates have to be based on stylistic evidence alone. The real inspiration for the large openwork gable, the rose and the balustrade above all three portals at l'Epine is the west façade of Toul, where these elements date from 1480–5. See also above, Chapter 4, Notes 115 and 148a, and Note 151 below.

151. Illustrated in Benoist, Luc, *Notre-Dame-de-L'Epine*, *P.M.* (Paris, 1933) 11. See now Villes (1977b) and (1983). For the comparison with Notre-Dame de l'Epine see Villes (1977a) 825–6, and above, Chapter 4, Notes 115 and 148A. Villes isolates two campaigns at the west end of Toul:
1) **1460–*c.*1475**. Façade portal storey up to level of big string course just above central portal, and first west bay of nave up to aisle height. Architect of the façade at its inception is Tristan d'Hâttonchâtel, though he was soon succeeded by Jacquemin de Lenoncourt, who executed his projects.
2) **1475–96/1500**. Completion of westernmost nave bay and building of the next two bays to its east (thus joining the façade, and its supporting nave bay immediately to its east, to the fourteenth-century nave), and the vaulting of all of them. *c.*1480/5 continuation of the façade from the first string course upwards, with changes to the buttress structure. Southern belfry constructed in 1500.

152. G. Clanché, *Guide-expresse à la cathédrale de Toul* (Nancy, 1918) 22; also *C.A.*, XCVII (1934) 229ff. See Villes (1977b) 53.

153. See Marot (1933). It is by no means certain that Jacquemin de Lenoncourt built the whole façade, though the lower stories of the towers do not look much earlier than the upper. The epitaph of Thierry Surlier, commander of the order of St Anthony, to which the church belonged, states that he built and completed the nave, the choir screen, the tower, the portal, the cloister and the communal cellar. Sulier died in 1469. In 1468 an agreement was entered into between Thierry Surlier and an unknown architect to build (or complete?) a tower. The arms of Surlier on the western gable, as well an inscription on the gable mentioning Abbot Benoît de Montferrant (1459–71) suggests that the upper parts of the façade and the construction of the octagonal stages of the towers date from the 1460s. An ordinance of 1460 issued at Toul Cathedral mentions masters Jacquemin de Lenoncourt and Mengin Chemot de Vicherey as the authors of the 'clocher' at Saint-Martin at Pont-à-Mousson. See also Burnand (1989) 265–8.

154. See Morris (1997).

155. Illustrated in Lasteyrie, *op. cit.* II, 29. It has low, dark chapels attached to the aisles, like southern French aisleless churches. The date appears in *B.M.*, VI (1840) 380. The choir was restored in 1676. See also Brosse, ed., (1967) vol. IIIC 33, where the dates of 1460–77 are given. The tower porch and sacristy were built under Abbé Mathurin Joubert de la Bastide (1494–1514). The church was radically rebuilt in the later seventeenth century by François Ledue, so any discussion of its original medieval appearance has to proceed with caution.

156. Nenno (1988) 89, 131, who identifies twenty-seven churches that are 'pure' halls, i.e. have aisles of equal height, and another twenty-two which have slightly higher central vessels (*Stufenhalle*). See also Nenno's (1988a) study of Les Grandes Chapelles in southern Champagne.

157. For the Pont-à-Mousson and the Saint-Mihiel choirs see Burnand (1989) 269–71 and 292–5 respectively.

157A. See Torres Balbás (1952) 314ff, and de Azcárate (1953) 119ff.

158. F. Adama von Scheltema, *Die Kunst der Vorzeit* (Stuttgart, 1950) 118ff.; Victor Chapot, *La colonne torse etc.* (Paris, 1907), with observations on the central altar; F. Mayenne, three articles in *Le Bulletin des Musées etc.* (Brussels, 1932 and 1933), on the subject of the Porticus of Apamea in Syria; Picco Marconi, *Verona romana* (Bergamo, 1937) 55, on the subject of the Porta Borsari, *c.*260–8. There is a single thirteenth-century spiral column in the chapter house at Silvacane, *C.A.*, XCV (1933) 138. (Aubert, *L'arch. cist.*, II, 60.) There are countless examples in the work of the Cosmati and in Italian church doorways. This form is repeated in Raphael's tapestry 'The Healing of the Lame', in Giulio Romano's Cavallerizza in the Palazzo Ducale at Mantua, which dates from 1540, in Bernini's Tabernacle in St Peter's in Rome, and so on. The Christian prototypes for the spiral or 'Solomonic' column are those in the crypt of Old St Peter's in Rome. For its early diffusion in the West see Rosenbaum (1955); for its impact on English Romanesque see Fernie (1977).

159. At Palma, the contour, which is sometimes visible, lies on a vertical plane. At Braunschweig, parts of it move backwards from the nearest point, and, although it gives an optical illusion of continuity, it actually is a wave moving upwards, to and fro – a refinement which is automatically produced if rolls or shafts are twisted round a column.

159A. For the derivation of these columns from local Romanesque examples (e.g. the cloister at Königslutter), and the possible influence of this aisle on the architect Arnold von Westfalen, see Radová-Štiková (1974) and (1988). She also noted another Spanish parallel: the spiral choir pillars of Santiago de Villena, *c.*1500. Böker (1987) sees the aisle as a 'hall of fame' for the dukes of Braunschweig, in particular its patron Duke Wilhelm the Elder. His attempt to date its beginning to the 1450s is not convincing.

160. Illustrated in F. Mader, *Die Kunstdenkmäler von Niederbayern*, XVI, *Stadt Landshut* (Munich, 1927) figure 33. See Kurmann and Kurmann-Schwarz (1985) 96–7. She dated the portal sculpture of this porch to the 1450s, but the pinnacles could be later additions to the porch.

161. See Koepf (1977) 109–13.

162. K. T. Parker, *Alsatian Drawings etc.* (London, 1928) plate II/5.

163. Orlando Grosso, *Genova* (Bergamo, 1926) 39.

164. Frankl, *Der Glasmaler Peter Hemmel von Andlau* (Berlin, 1956). At Tübingen, Duke Eberhard the Bearded ordered him to put a framework of palm-leaves round his portrait, as a reminder of the patron's pilgrimage to Jerusalem, that is, the earthly Jerusalem. It is not known whether this was also an allusion to the Heavenly Jerusalem, but on no account should every framework of branches or tree-trunks be regarded as a symbol of the Heavenly Jerusalem or of paradise. There were, of course, trees in paradise (Moses 1, 2:9), but in the Heavenly Jerusalem there was only a single tree (Revelation 22:2).

164A. Full accounts of the origins and growth of this 'vegetal' Late Gothic can be found in Braun-Reichenbacher (1966) and Börsch-Supan (1967). The appearance of vegetal forms in vaults, painted and sculpted, is fully discussed by Büchner (1967). The first serious symbolic interpretation (the church as the Virgin's *hortus conclusus*) was advanced by Oettinger (1962). Kutzner (1980) set these 'natural' forms againts the background of theological and devotional trends in fifteenth-century Germany, finding particular connexions with sermons on the dedication of churches. However, Horie's incisive study (1998) of German dedication sermons finds no references in them to vegetal imagery. Crossley (1993) saw the phenomenon as a manifestation of contemporary German literary humanism. All attempts to find a single, guiding meaning behind such forms are probably misplaced.

164B. The continuation of the south transept at Sens is the first documented work of the architect Martin Chambiges. For his career, and the 'Chambiges school', see two doctoral dissertations: Nelson (1973) and Murray (1973). A more concise discussion is given in Murray (1987) 101–9, and (1989) 134–42. For a Parisian prototype of the Sens south portal, perhaps designed by Chambiges before 1490 see Nelson (1974).

165. Cf., for example, Joseph Neuwirth, *Prag* (Leipzig, 1912) 40. Neuwirth had an outstanding knowledge of the Gothic style, but is representative of his whole generation in his lack of understanding of the Late Gothic style.

165A. See now Fehr (1961) 21–3, and Kotrba (1972), who attributed the design and the structure of the oratory to Benedict Ried, but its decorative details to Hanns Spiess of Frankfurt, an attribution followed by all later authorities.

165B. See Mojon (1960) 14, 32, 55f, 86.

165C. Still the best account of the history of double-curved ribs in Central Europe is by Fehr (1961) especially 94–118. For the Basel cloister see Fischer (1962) 61–2, who tentatively attributed the vault to Johannes Dotzinger; and Julier (1978) 154–82, who thinks a more likely candidate is Jodok Dotzinger, the author of the Strasbourg font of 1453.

165D. See Fehr (1961) especially 25–33; also Kotrba (1968) and Hořejší (1973). For the construction and geometry of the vault see Muk (1977).

166. The Romanesque two-naved building had no influence on the Late Gothic one. See the reconstructed plan in M. Hartig, *Das Benediktiner Reichsstift Sankt Ulrich und Afra etc.* (Augsburg, 1923) plate 73. See also Lieb (1984), and Bischoff (1999), 220, who notes that he was mentioned only as *parlier* (warden) at the church in 1477.

167. Dehio overlooked this and, in his *Handbuch d. d. K.*, III (1925) 42, he wrote of the vault at Augsburg that it was 'a petty bourgeois design' ('spiessbürgerlich'), but, on p. 164, he wrote of the same pattern of the vault at Gmünd: 'The beautiful divisions of the net-vault . . .'. This amusing inconsistency does not of course reduce our gratefulness for his life work.

168. He was active at Heilbronn, Ulm, Bozen, Nördlingen, and Berne. See Lieb (1954), and Koepf (1958) 33–4, 84, and (1959). For Engelberg's contribution to the choir of Freiburg im Breisgau see Julier (1978) 136ff. The date of *c.*1507 for the Schwäbisch Gmünd nave vault is given by Kissling in vol. 1, *Die Parler*, p. 320, who attributes it to Engelberg. Bischoff (1999) 356, sees it as a product of the direct influence of the Augsburg Lodge, perhaps the work of a colleague or pupil of Engelberg.

169. The original effect has been weakened by the straight screen, which dates from the beginning of the seventeenth century. Although an elective affinity has rightly been observed between the Gothic style and the Baroque, here the two styles are almost intolerably incompatible. For the Simpertus arch (which served as the abbot's gallery) and its influence in south-west Germany see Fischer (1966) especially 28 and notes 58–63 and Bischoff (1999) 221, 340ff. It was begun in *c.*1493 and finished in 1496.

169A. For Jakob von Landshut see Fischer (1962) 149–50, Julier (1978) 151, 223, and note 387. Schock-Werner (1983) 173–4, 200–13, discusses his training in Bavaria and the Middle Rhine. He seems to have come to Strasbourg via Worms. Toursel-Harster (1976) was not available to me.

170. The church was founded in 1481 with the encouragement of King René II of Anjou, to stimulate the pilgrimage to St Nicholas. Its three-apsidal choir and certain details of the central choir elevation (the Remois passages) can be considered Late Gothic versions of Toul cathedral. Frankl's description of the transepts as 'double-naved' is strictly correct but misleading. In effect, the pillars of the arcades are continued across the transept arms to form one pillar in front of each transept opening, each pillar rising, hall-like, to the full height of the transept. The system recalls the transepts of the earlier Cistercian church at Doberan or of Strasbourg Cathedral. André (1933) dated the start of the work to 1481, and noted the death of the first master of the fabric in 1495. The transepts were, he suggested, finished in 1508, and most of the central vessel by 1514. Some windows in the north aisle of the nave were glazed in 1518. Work then slowed down. The staircase tower of the north portal has inscribed 1543 at its summit, while the window of the west façade has glass dating 1539–44. Revenues were still being directed to the west façade in 1549, 1550 and 1551. A Master Robin is mentioned in 1505, and a Master Hanns de Meneuvre in 1518. Burnand (1989) 296–308, considers that the choir, the beginnings of the transept, and the sacristies were begun in 1481 and finished in 1515, while the nave and the façade were constructed slowly between 1515 and 1560.

170A. Though there are closer analogies in the capitals and spiral piers of Saint-Gervais-et-Saint-Protais at Gisors (mid-fifteenth century). See Brosse (1968) vol. IVB 79.

171. Spiral piers are not specifically German. Cf., for example, the pier supporting the spiral staircase in the Archbishop's Palace at Rouen (Marburg photograph 162806), the spiral columns in the north transept of the cathedral at Senlis (built between 1518 and 1525 by Pierre Chambiges the elder and Jean Dizieult, neither of whom had German ancestry), the spiral columns of the southeastern crossing pier in the cathedral at Evreux (Marburg photograph 169961), and many others.

172. The history of the construction of this building, which has no unity, but is extremely attractive, is given in *C.A.*, CV (1947) 136. See also Sanfaçon (1971) 90–7.

172A. Frankl's reading of this 'two-aisled space' at St Nicholas-du-Port is curious. He is describing the transepts from a north–south direction, as if they formed a semi-independent, double-aisled 'cross-space' placed against the east–west movement of the church. In reality, the transepts do not visually 'join' in this north–south way; quite the reverse, the tall pillars which stand across their openings block off each transept arm. See above, Note 170.

173. Ernst Gall, *Die Marienkirche zu Danzig* (*Deutsche Bauten*, VI) (Burg, 1926). The building history of this, the largest of the *Backsteingotik* hall churches, and its stylistic position in the history of north German Gothic, have been clarified by Drost (1963) and Pilecka (1989) and (1990).

1) 1343 foundation of a basilica (on the model of Vistulan Cistercian churches such as Oliwa or Pelplin, and of Baltic basilicas, such as St Catherine, Lübeck), possibly with a chevet on the model of St Mary Lübeck. Single large west tower on Flemish model.

2) *c.*1379–1447, present hall choir and transepts to design of Master Ungeradin (active 1379–1410), who, according to Pilecka, probably determined the design of the whole church, including the projected hall nave.

3) 1459–65 completion of upper stories of west tower.

4) 1484–96 rebuilding of the fourteenth-century basilican nave into a three-aisled hall by Master Michael and later Hans Brand.

5) 1498–1502, the whole church vaulted under Master Heinrich Hetzel.

See also the useful Kaplan (1974) 16–23, and for a resumé of the literature and building history, Mroczko and Arszyński, eds., (1995) vol. 2 73–5.

173A. '*Vielbildigkeit*'; see Note 14D to Chapter 2.

173B. These facetted vaults, known as 'diamond', 'crystal', or 'cell' vaults, were invented, or first used, by Arnold von Westfalen in the Albrechtsburg Castle at Meissen in the 1470s. They quickly spread to Bohemia, Silesia, southern Poland and Prussia. The earliest examples in Prussia are in Gdansk (Danzig), in the northern walk of the cloister of the Franciscan monastery of the Holy Trinity ('*c.*1495–1500') and in St Mary's church (nave). See Radová-Štiková (1958) and (1974) (where Spanish examples, earlier than Meissen, are cited), as well as Radoví (1960), Brykowska (1965), Kaplan (1974) 87–104, and Meuche (1972) 56–66, 134–8. For St Catherine's church in Gdańsk see Mroczko and Arszyński, eds. (1995) vol. 2, 75.

174. *Beschreibende Darstellung etc. des Königreichs Sachsen*, Heft III (Dresden, 1884) plan p. 15; interior with Tulpenkanzel, plate after p. 34. Freiberg is the first of the gallcried hall churches of Upper Saxony. See Magirius (1993). For the functions and symbolism of its gallery see Meuche (1972a).

174A. For the iconography of this extraordinary pulpit, with its reference to Old Testament prophets (possibly the dream of Nebuchadnezzar), to the Doctors of the Church, and to mining, see Kalden-Rosenfeld (1992), and also Magirius (1993) 38–42.

175. The counterpart of the Tour de Beurre on the north side, the Tour Saint-Romain, was begun in the 1150s. The upper stories, built between 1468 and 70, were by Guillaume Pontifs, who first appears as an ordinary mason working on Saint-Maclou in 1444. Pontifs submitted a drawing for the Tour de Beurre in 1485, but construction only started two years later, and in 1488 the chapter criticized him for his lack of supervision of the work. By his death in 1496 it had not been completed. Under his successor Jacques Le Roux (architect of the cathedral 1496–1508) progress on the tower was hindered by arguments between architect and Chapter over the final shape of the tower's termination, by the indecisiveness of the Chapter over what it wanted (initially the Chapter required Le Roux to submit two drawings, one with, and one without a spire), and by lengthy consultations with all interested parties, including Rouen citizens. In 1504 work had not yet begun, but by 1507 construction had reached the top of the present octagonal crown. There is no indication that a spire was intended in the final stages, as Frankl implies. Pontifs's style in the Tour Saint-Romain and the ground floor of the Tour de Beurre is still indebted to his knowledge of Saint-Maclou, but the richer and more densely-textured vocabulary he developed in the higher parts of the Tour de Beurre, with large nodding ogees, is not easily distinguished from the elaborate curvilinear of his successor, Jacques Le Roux. Structural failures in the west bays of the nave, evident from 1503, caused Jacques to turn his attention to the strengthening and remodelling of the central section of the façade. In January 1508 he and his nephew Roullant Le Roux exhibited their plans for the new central portal in the Hotel de Ville. On 8 February Roullant Le Roux took over the workshop, and the portal was begun in 1509 with the financial support of Archbishop George I d'Amboise. By 1512 work must have reached the upper parts of the central bay, including the portal's gable and the gallery behind it (the *viri Galilei*) because in that year the Chapter urged Roullant to speed up construction, even if it meant simplifying the decoration and sculpture in the upper sections. The installation of doors in the west portal in 1514 suggest the portal's completion, and in the same year Roullant submitted a design for the upper sections of the portal (*pinnaculum*). The new rose window, which replaced one of 1370 by Jehan Perier, belongs to this campaign. Fire in the central tower in 1514 led to its remodelling and heightening by Roullant, who intended to crown it with a stone spire (not the wooden one which was constructed in 1542 and was destroyed in the fire of 1822). See Mallinne (1952), Lanfry (1963), Bottineau-Fuchs (1986) and Bottineau-Fuchs in: Baylé, dir. (1997) vol. 1 315–19. See also the articles on the Le Roux masons by Neagley (1996), and the full accounts of all these architects' work in Neagley (1998) 92–4, 106–7.

176. *C.A.*, IC (1937) 72. Also Sanfaçon (1971).

177. The crossing vault which was built after the collapse of 1539 is completely pierced, in the form of a transparent star divided into deltoid panels.

There is still, as far as I know, no monograph on the great fifteenth-century Burgalese architects, Simon of Cologne (Simon de Colonia) or his father Juan. For a brief review of Simon's work see Chueca Goitía (1965), and for a fuller discussion of the chapel and its sculpture see Proske (1951). Simon was Master mason at Burgos Cathedral from *c.*1482 to his death in (?) 1511. The chapel took some time to build, given the precarious finances of its founder, the Constable of Castille, Don Pedro Fernandez de Velasco. Its exterior pinnacles and interior sculpture were not finished until the 1520s. The stained glass lighting the openwork crown of the vaults is modern; originally the vault opened into the dark spaces of the roof. The German, ultimately Parler-derived, form of the vault, and the Flemish inspiration for the elevation's details, are discussed by Wilson (1990) 287–9. Welander's useful summary biographics of the family (1996) points to a more local set of sources for the chapel's decoration: the Santiago chapel, Toledo Cathedral, begun in 1432 (escutcheons placed aslant beneath crested helmets), and San Juan de los Reyes, begun in 1477 (large sculptural compositions enlivening exterior and interior walls). For the influence of the chapel on funerary chapels in Spain see Torres Balbás (1952) 301–2.

178. Perpignan is illustrated in *C.A.*, LXXIII (1907) 108. The plan of the church of San Juan at Toledo appears in Dehio (1901) plate 509. For Saint-Jean (the Cathedral) at Perpignan see Ponsich (1954) and Durliat (1962) 144–9. Freigang (1992) 315–16 and note 25, sees no reason to believe either author in their view that the cathedral originally intended a three-aisled nave and not the present *nef unique* with lateral chapels. The Perpignan church has a different choir structure than San Juan, with three polygonal apses. But Frankl's comparison hides a similarity he may have missed: both were royal churches. Perpignan was the capital of the Mallorcan kings and its cathedral (with that at Palma de Mallorca) their principal royal church.

178A. These nodding ogees also appear on Guas's show drawing, made in or after 1479, of the choir and transepts. Sanabria (1992) 170, finds their source in Toledan sculpture of the 1490s, such as the predella of the main *retablo* of the cathedral (begun 1498) or the piers of the church of the Royal Hospital at Santiago by Enrique Egas. See Note 179 below.

179. The living quarters of the royal family were in the upper storey of the monastery. The balconies thus lie on the same level as the living quarters. For the church and cloister, see Azcárate Ristori (1956), and Sanabria (1992), who reveals the Flemish, German and Mudejar roots of Guas's idiosyncratic style,

and underlines the function of the church as the intended mausoleum of Ferdinand and Isalbella (the tomb would have been placed in the crossing), For that reason the single-aisled plan may have referred to Juan II of Castille's mausoleum church of Miraflores in Burgos, founded in 1441 and completed in Isabella's reign, or to Enrique IV's aisleless, Latin-cross Hieronymite church of Santa Maria del Parral (begun 1459), in Segovia. Sanabria compares the completed church with Guas's show drawing (see Note 178A above) of the choir and transepts. Most of the drawing's details are Guas's, but its lantern tower (built in a slightly different form) shows the influence of Simon de Colonia, who advised on the design in 1495. The nave vaults are close to the Parler-influenced vaults of S. Maria am Gestade in Vienna.

180. Illustrated in Torres Balbás, *op. cit.* figure 274.

181. Frankl, *System der Kunstwissenschaft* (Brünn, 1938) 114.

182. Similarly inside, on the doorway to the cloister, and, on a broader scale, in the upper storey of the cloister, which is one of the most beautiful, not only in Spain.

182A. All these façades are mentioned and illustrated in Sanfaçon (1971) 100–15. The motif of the 'concave-convex gablet' appears in Beauvais on the flying buttress piers flanking the transepts façades. For the Sens transepts see Murray (1987) 101–3; for those at Beauvais, also by Martin Chambiges, see Murray (1989) 121–42. For a full discussion of the Troyes west façade see Murray (1987) 87–109. Wilson (1990) p. 254, traces the origins of these convex-concave undulating arches to Brabantine late Gothic and the Keldermans family, particularly to the west tower of St Rombouts at Mechelen (from 1468 onwards). However, this particular form does not actually appear in the built tower, but only in the 1550 Chalon drawing and only in those parts of the drawing which were never built: the octagon storey, and the west portal, whose existing simple forms the drawing re-shapes in more flamboyant style. See van Langendonck (1987).

183. Frédéric Lesueur, *Le château d'Amboise*, *P.M.* (Paris, 1935) illustrations on pp. 17, 19, 87. See also Sanfaçon (1971) 182–4, and Brosse ed. (1967) vol. IIID 2, where the completion date of 1493 is given. Wilson (1990) 154 was the first correctly to see the origins of these bell-shaped arches, what he calls 'round-headed ogees', in the Brabantine architecture of the Keldermans. See the buttress tabernacles of Andries Keldermans's first storey of the west tower of St Rombout at Mechelen, dated soon after 1468, illustrated in van Langendonck (1987). Esther, in Buyle *et al.* (1997) 94, 100–2, however, states that Andries Keldermans took over the direction of the tower not in 1468 but as early as the year of its foundation, in 1452. The bell-shaped ogee also occurs in the Chambiges's work after Sens: in the balustrade below the rose in the transepts at Beauvais, and in the great gable over the portal of Pierre Chambiges's south transept at Senlis. Murray (1987) 103, properly warns us against identifying these arch forms, indeed the whole de luxe decorative style that goes with them, as exclusive to the Chambiges family; they were part of a general 'Parisian vocabulary' of *c.*1500.

184. Illustrated in Lasteyrie, *op. cit.* I, 334. In 1488 the town's accounts mention a visit of the architects Jacques Le Roux and Michel Gohier, the latter referred to as master of the works on the church. In 1489 work began under his direction on the north tower, but he was probably dead by 1505, and work proceeded under Guillaume Morin and Thomas Theroulde. By 1514 work was going forward on the nave, but the side chapels were finished only in *c.*1535. Nave roofed in 1550. See Bottineau-Fuchs in Baylé, dir. (1997) vol. 1, 332–5. See Brosse ed., (1968) vol. IVB 127.

185. See Plat (1925).

186. On the interior of Saint-Maclou, see above, p. 231, and Chapter 4, note 143.

See now Neagley (1988) (1992) (1996) and most fully in (1998). She attributes the west porch and façade to Pierre Robin's designs, largely on the evidence of the geometry of the ground plan and the lack of any apparent break in the construction or change in design from the first beginnings of the church soon after 1432–6/7. She argues that Pierre Robin's drawings were followed faithfully by the executant architects throughout the fifteenth century, probably at the insistence of the church's treasurers. She identifies the source for the porch in Jehan Perier's design for a putative, three-part, uncompleted (?) porch of *c.*1370 for the west façade of the cathedral. The attribution of the three-sided porch to Ambroise Harel may be based on the fact that he constructed a similar polygonal western porch at Saint-Vincent in Rouen, which, according to Neagley (1998) 91, was begun in 1480, but which, according to Bottineau-Fuchs in Baylé, dir. (1997) vol. 1 326, was underway in 1479 and complete in 1481. Saint-Vincent was destroyed in 1944 and not rebuilt.

Neagley's attribution of the whole of Saint-Maclou (apart from the lantern tower and a few decorative details), including the west porch, to Robin's plan of 1436/7 is forcefully argued, but it rests on a number of unsubstantiated assumptions: a) that Robin did a large number of detailed drawings (and not just the single drawing mentioned in the document of 1436/7), b) that Perier's porch was built and had gables, c) that the geometric layout of the western porch is by Robin and not a successor architect (Ambroise Harel?) who could have skilfully displaced Robin's conventional western termination by repeating at the west end the angled geometry and spun squares which Robin used to determine the angling of the chevet and d) that the style of the decorative details of the western porch is sufficiently close to Robin's known work to be accredited to him. On the latter point alone, the overloaded and mannered character of the porch seems to come from a different stylistic world than Robin's lucid and 'classic' language in the eastern parts. See also Chapter 4 above, Notes 111, 143, 175.

186A. Sanfaçon (1971) pp. 35, 61–2, briefly sets the elevation of the nave, begun in or soon after 1477, in the context of Norman Flamboyant. The heavy cylindrical piers with single shafts supporting the intrados of the arcade arches recall those of Saint-Pierre at Caen. The tiercerons resting on corbels are not innovations but are prefigured in the choir of Saint-Etienne d'Elbeuf, near Rouen, of before 1454. The porch, which derives from that of Saint-Maclou, and has parallels with other polygonal porches in Upper Normandy (Caudebec-en-Caux, Saint-Germain at Argentan, La Trinité at Falaise) is discussed on pp. 173–4. See also Grodecki (1953) for description and building history. Bottineau-Fuchs, in Baylé, dir. (1997) vol. 2 265–70, identifies two architects at work from 1477, the first who was responsible for the simpler forms of the arcades and triforium, and the second, probably Jehan Lemoyne, who designed the more imaginative upper parts, including the clerestorey, the high vaults and flyers, and who inserted the cellular chapels between the buttresses (three of them dated 1510–13). The flyers have parallels with those of the choir of Mont-Saint-Michel and Saint-Martin at Argentan. The style of the sculpture embellishing the vault ribs is close the sculpture of the west porch. Certainly Jehan Lemoyne is credited with designing this remarkable polygonal porch, constructed 1506–16. Four apostle figures (now lost) were installed above the side portals in 1508.

187. There are illustrations of the whole and of individual parts in *Die Kunstdenkmäler der Provinz Sachsen*, I (1929) 442ff. The importance of this font and its cover in the decorative architecture of the Middle Rhine was fully set out in Seeliger-Zeiss (1967) 40–1, 54, 142. The origins of some of its forms in the circle of Jodok Dotzinger's work in the Upper Rhine *c.*1460 was convincingly argued by Julier (1978) 229–30, who suggested that the work might be a late piece by Jodok himself. See also Lehmann and Schubert (1991) 259.

187A. For a description of the Sacrament House see Weidenhoffer (1991) vol. 1, 143, and, in greater detail, Timmermann (1996) 167–8, 268–70, where it is interpreted as a vertical narrative of the Passion, in which the architecture articulates and enhances the upward progression of the images. The subject matter of the sculpture, and the contribution of its patron, Hans IV Imhoff and family, to the work, is fully discussed by Schleif (1990) 16–75. In English there is Brandl (1986).

188. Quoted in Jean Laran, *La cathédrale d'Albi*, *P.M.* (Paris, 1931) 66. Laran does not say where the quotation is taken form.

188A. Biget, Carbonell-Lamothe and Pradalier-Schlumberger (1982) attribute the choir screen to the initiative of Bishop Louis I d'Amboise, that is some time between 1474 and 1483, when he succeeded Louis IX as the chancellor of the Order of St Michael.

188B. For the Breisach screen see Seeliger-Zeiss (1967) 93–4; and Julier (1978) 151, who positions it in a group of decorative architectural pieces in the Upper Rhine showing the Augsburg influence of Burkhard Engelberg.

188C. For the screen, built by Jehan Gailde, see Salet (1955a).

189. Richard Graul, *Alt Flandern* (Munich, 1918) plate 1. For the history of the façade and north tower at Antwerp see Lemaire (1946) van Brabant (1972) and van Langendonk (1987) 47–9, who discussed the close relationship between the Antwerp and Mechelen workshops during this period. Work on the south tower, begun in 1430, had stopped at its present height for lack of funds by 1475. The north tower, the only Brabantine great church steeple to be fully completed in the Middle Ages, was begun in 1420–2, and had reached the uppermost square stage by 1480. Much of this work can be associated with the principle architect of the nave, Everaert Spoorwater (1439–73). It may have been under his successor Herman de Waghemakere (1473–1502) that work resumed on the north tower, starting with the octagon, though this stage was not finished until *c.*1508. Anthonis I Keldermans was working on the north tower and north portal in 1506 and 1511. The spire, probably finished in *c.*1518, but officially completed in 1521, is the work principally of Domien de Waghemakere, assisted by Anthonis II Keldermans and Rombout II Keldermans (who both contributed to the construction, and completion, of the north portal). The transition between square and octagonal stories of the steeple owes more to the earlier steeple of the town hall in Brussels (1444–54), than to the more complicated star-shaped plan of the projected (but never built) spire of St Rombout at Mechelen. See also above, Chapter 4, Note 55.

189A. For the Týn church steeples see Líbal (1983) 339. The lowest parts of the towers may date from the mid fourteenth century. A Parler workshop built the west façade *c.*1380–1400. The west gable is dated 1463. The wooden spire of the north-west tower of St Mary's in Kraków, of 1478, by Maciej Heringk, is clearly influenced by the Týn church wooden spires, see Lepiarczyk (1959).

190. Plan in *C.A.*, LXXIV (1906) 17. The choir was almost completely destroyed in 1945. The church has now been rebuilt. For a full analysis of its piers, plan and influence in Troyes and Champagne see Murray (1989) 137–42, and Murray (1977). Murray attributes the choir to Martin Chambiges and dates its beginning to shortly before 1502.

191. Gerstenberg, *op. cit.* (Note 141 to this chapter) 17. For Engelberg's work at Ulm see Wortmann (1972) 24, 37–8; and Bischoff (1990) who dates the remodelling of the aisles 1498–1508. Bischoff's book (1999) is the best treatment of this important architect and his practice.

192. The date of Pirna is known from an inscription, which is quoted in *Darst. d. ä. Bau- und Kunstdenkmale d. K. Sachsen*, I (Dresden, 1882). See now Lemper (1991).

193. The 'wild man' and the 'wild woman' at the foot of the tree are not Adam and Eve, as is suggested in the inventory, even if only because there were originally twelve such figures. Scholars who interpret every tree as a symbol of the first or second paradise must make an exception here. See also Richard Bernheimer, *Wild Men in the Middle Ages etc.* (Cambridge, Mass., 1952). Frankl's view has been confirmed by Möbius (1972), and Möbius and Beyer (1978) 201–8, who interpret the two figures as pacified 'wild people'. It is doubtful, however, if Frankl would have agreed with their identification of these figures as the stone equivalents of contemporary popular devices for exorcism, hung in the roofs of private houses.

194. Described in *Darstellung etc. Sachsen*, XII (Dresden, 1889). A Marxist interpretation of this church and of the whole series of Upper Saxon Late Gothic halls to which it belongs can be found in Meuche (1962) and (1971). His argument, that they are harbingers of the 'realism' of the 'early middle-class revolution', fails to account for the irrational and fantastic elements in these churches. Useful, and less politically biased, surveys of this group of halls can be found in Ullmann (1987) and Ullmann ed. (1984) 133–62.

195. Wolff and Jung, *Die Baudenkmale von Frankfurt a. M.*, I (Frankfurt am Main, 1895). The choir, consecrated in 1434, is by the most influential architect working in the Middle Rhine in the first half of the fifteenth century, Madern Gerthener (*c.*1360–1430/1). For his work and his 'school' see Fischer (1962) especially 33–41. For St Leonard see also Natale (1973) and Germund (1997) 77–84.

196. Berthold Riehl, *Bayerns Donautal* (Munich, Leipzig, 1912) 271. Riehl has here written an appreciation which is at least fifty per cent positive – a thing which demanded considerable courage at that time. The heightening of the Romanesque nave and the extension of its aisles were begun *c.*1500 by the architect Hans von Bingen, and the north aisle was complete by 1507. The skeletal vaults of the north-east chapel, known as the 'Salvatorchörlein', were built *c.*1510 under Hans Baltz (active at St Bartholomew's 1507–16). See Fischer (1962) 244–7, who touches, interestingly, on the iconographic programme of the sculpture of the chapel's vaults, and the 'dissonant' nature of the flying ribs around the figure of the sourged Christ on its pendant boss. A visual analysis, in the context of other flying rib compositions in the Middle Rhine, is given by Germund (1997) 133–6.

196A. Frankl is confusing the architect who began the nave enlargements in 1500, Hans von Bingen, with the architect of the vaults of the 'Salvatorchörlein', Hans Baltz (see above, note 196). Baltz's burial in the small choir in 1516, and his confident title of *lapicida et architectus*, suggests that he was the designer of the space, including its vaults, though Hans von Bingen had completed the vaulting of the eastern bay of the north aisle, and may have laid the foundations or outline walls of the eastern chapel. The college of St Leonard had accused Hans von Bingen of endangering the stability of the church by laying unsatisfactory foundations for the nave extensions. Fischer (1962) 145, refers to him as an architect 'of limited talent with a tendency to extravagance'.

196B. See Hoffmann and Meyer (1977) 14–16, which gives a convenient summary of Hoffmann's research on the Heydenreichs. Fischer (1974) 345–9, attributes the vaults to Erhard and sees the 'split level' nature of the vaults – one level made of 'abstract' moulded stone, the other carved as branchwork – as the reflection of a typically late medieval paradox: the suggestion of the heavenly canopy through the literal and realistic rendering of the natural.

197. H. Giesau, *Der Dom zu Magdeburg* (Burg, 1924) 41. The date 1330–40 is not certain. See above, Chapter 4, Note 19.

198. Eduard Paulus, *Die Kunst- und Altertumsdenkmale von Württemberg, Schwarzwaldkreis* (Stuttgart, 1897) 35ff. The date is confirmed in the most recent Dehio *Handbuch*, see Dehio/Zimdars *et al.*, (1993) 120.

198A. Other flying ribs in Central Europe in the early- or mid-fourteenth century are: the original vault in St Catherine's Chapel in Strasbourg Cathedral of *c.*1340–5; the vaults of the belfry storey of the west tower of Freiburg Minster, of *c.*1300?; the now-destroyed fountain pavilion in the Cistercian monastery at Zlatá Koruna in southern Bohemia, *c.*1360; the Bridal Portal at St Sebaldus in Nuremberg, *c.*1360. See above, Chapter 4, Note 19.

199. Hans Jantzen, *Das Münster zu Freiburg* (Burg, 1929). Still fundamental for the Freiburg choir is Meckel (1936), supplemented by Adam (1968) 24, 96–102. But see now Julier (1978) 140–5. He dates the choir vault to 1509–10 and attributes it to Hans Niesenberger. Frankl is right in seeing its ultimate source as the net vault of Peter Parler in Prague cathedral, but the more immediate inspiration came from Austria, in particular from the lodge of St Stephen's in Vienna and its offshoot in Steyr, where dense net patterns are combined with small curving ribs in the vault penetrations.

200. Cf. F. Bond, *Introduction.* Also K. Escher, *Englishe Kathedralen* (Munich, 1929). See now Leedy (1975) and (1980) 32ff, 214–17, where he also proposes a symbolic interpretation of the fans. For the rest of the chapel, together with its vaults, see Woodman (1986) 140–8 (with rather optimistic parallels drawn with French Flamboyant), Wilson (1986) 70–8, and Wilson (1995), the latter the best assessment of the design and authorship of the whole chapel in relation to late Perpendicular architecture. Wilson attributes it to Robert Janyns.

201. Subsidiary members like those in the cloister at Gloucester exist in small-scale architecture, for instance in the Warwick Chantry at Tewkesbury, built in 1422. In full-scale architecture, they appear at the east end of the cathedral at Peterborough about 1440. Joan Evans, *English Art, 1307–1461* (Oxford, 1949) 199, claims that the Divinity School at Oxford was begun as early as 1430 and that the ceiling was built some time after 1448. On this subject cf. Great Britain, Royal Commission etc., Inventory of Oxford (1939), where the later date is given. For the architects of the Divinity School see Harvey (1978) 174, 185, 209, and Harvey (1984) 220–3, 336–7. He attributes the first stage of the construction (the enclosing walls), from 1424 to 1439, to Richard Winchcombe. The vault was added by William Orchard in 1479–83. For earlier, small-scale pendant vaults see Wilson (1986) 77.

202. Lozoya, *op. cit.* (Note 67 to Chapter 3) 548; F. W. Feilchenfeld, *Die Meisterwerke der Baukunst in Portugal* (Vienna-Leipzig, 1908); Walter Crum Watson, *Portuguese Architecture* (London, 1908). Boutaca was followed in 1517 by João de Castilho, to whom the Renaissance ornaments are attributed.

Boitac laid out the church as an enlarged version of his Franciscan hall church at Setúbal, with no transept. By the time he moved to Batalha in 1516 it had reached the full height of the outer walls. João de Castilho, who replaced him as leading architect in 1517, completed the piers and built the vaults. He suppressed the nave's two easternmost pillars envisaged by Boitac and turned the whole eastern space into a large continuous transept, which he covered with a single vault. See Pereira and Leite (1986), Alves (1989–91), Marques de Carvalho (1990) and Vieira da Silva (1996).

203. Albrecht Haupt, *Die Baukunst der Renaissance in Portugal etc.* (Frankfurt, 1890) III and illustrations 95–9. The title of the book is misleading, since it deals mainly with the works of the Late Gothic period. See now Ferreira de Almeida (1990) and Vieira da Silva (1987) (1990) and (1996a) who have confirmed the attribution of the monastery church to Boitac, and its seminal influence on the so-called Manueline style (in its use of star vaults, spiral columns, and the hall church). A useful survey of the Manueline style is given in Dias (1988).

204. *Inventário antístico de Portugal*, II (Lisbon, 1947) plates 7, 8, 93–5. (For examples of forms of frameworks, cf. plates 10 and 11.) See also Watson, *op. cit.* 196ff., where there are plans etc. See Dias (1988a) 60–6, for more up-to-date chronologies and attributions. Boitac was responsible for the rebuilding of the church from 1507, and signed a contract in 1513 to complete the first stage of the work. Pires seems to have been responsible for the cloister. See also Dias (1986) II 30ff.

205. For a plan of Tomar, cf. Watson, *op. cit.* 225. The plan of the Romanesque church is in Conant (1974) 334, fig. 257. For the specifically Manueline iconography of its extraordinary west façade, glorifying the history of Portugal and the king's life see O'Mally (1969). The architecture is discussed by Dias (1988).

206. Lozoya, *op. cit.* 554ff. See also Guimarẽs de Andrade (1989) and Verdelho da Costa (1996), the latter for recent literature.

207. August Prokop, *Die Markgrafschaft Mähren etc.* (Vienna, 1904), illustrations 559 and 583.

208. On Rieth, see Thieme-Becker under 'Benedikt'. See now Fehr (1961) 36–40.

209. Tietze, *Österreichische Kunsttopographie*, XXIII (1931) 34 and 198. The standard work on Pilgram is still Oettinger (1951). The Vienna pulpit can be definitely assigned to him, but the proper attribution of both his drawings and his buildings remain matters of controversy. Grimschitz (1953) attributed to him no less than sixty-nine drawings from the Vienna collection – a conclusion not unexpectedly (and convincingly) challenged by Koepf (1953) and (1975). As far as the buildings are concerned, Feuchtmüller (1951) indiscriminately attributed to him almost every major Austrian building with curving ribs in the late fifteenth and early sixteenth centuries. The issues, and the buildings, are sensibly discussed by Brucher (1990) 203–13. See also Fehr (1961) 115–18. The technical ingenuities of 'Pilgram's' vaults are analysed in detail by Müller (1974).

210. '*Vielbildigkeit*'; see Note 14D to Chapter 2.

Walter Buchowiecki, *Die gotischen Kirchen Österreichs* (Vienna, 1952). Sec: St Valentin, 1522; Weigersdorf, 1523; Hirschbach, Steinakirchen, Aflenz, Goes, etc. One of the most beautiful is the church at Königswiesen, built hy Thaman Pramer, whose name appears in 1509 in the ordinance of Admont; cf. Frank l(1960) 127.

These Austrian churches, particularly in and around Vienna, Steyr and Admont, were grouped by Feuchtmüller and Ulm (1965) and by Ulm (1962) under the title of the 'Danube School', largely because of their preference for naturalistic, even rustic, decoration and for a sense of unlimited and undirected interior space.

211. Described in *Darst. d. ä. Bau- und Kunstdenkm. d. K. Sachsen*, IV (Dresden, 1885). Here the question of authorship is discussed. Peter, who built the church at Pirna, certainly co-operated. The vaults in the two churches are very different, and it remains doubtful whether they were designed by the same architect. The building history was set out, rather uncritically, by Schönemann (1963), and clarified by Magirius (1975) and (1990). The three-apsidal east end, which Frankl compared to the Wiesenkirche, is much closer to Conrad Pflüger's SS Peter and Paul at Görlitz. The church might have remained a typical Upper Saxon hall (e.g. Pirna, or the Thomaskirche in Leipzig) but for the intervention of the Prague-trained Jacob Haylmann in 1515, who had worked as a mason at Prague castle under Benedict Ried. He brought Benedict Ried's spatial organization and decorative vocabulary to Annaberg, by altering the original form of the galleries and introducing curvilinear vaults in the south sacristy and over the main spaces. Krause (1996a) puts Pflüger's death not in *c.*1508 but between 10 February and 28 May 1505. He also notes (1996) that the foreman called Jacob working at St Barbara's at Kutná Hora in 1512 was not, as Fehr (1961) 62–3 and many others have thought, Haylmann himself.

212. Analysed in Hoeltje, *op. cit.* (Note 147 to this chapter) 68.

For the vaults see now Leedy (1980) 24–9 and 140–4. An unconventional analysis of the chapel – its building history, its masons, and its stylistic context – is provided by Woodman (1986). He plots the following sequence:
1) 1448–*c.*1471 Reginald Ely designed the plan and sections of the elevation.
2) *c.*1471–1477 John Wolryche designed the main lateral tracery and built up to the vault springers.
3) 1477–85 Simon Clerk finished the five eastern bays. The white magnesian limestone from Huddleston in Yorkshire which is associated with this period extends into the base courses of the north and south porches of the ante-chapel. He is probably the author of the bell tower drawing (BM Cotton Ms Aug. I.i.2).
4) 1508–15 John Wastell completed the ante-chapel, designed and built the vaults, towers and battlements. (pp. 155–204 for perceptive observations on Wastell and his work in East Anglia and Canterbury).

For the early history of Henry VI's foundation see Leedy (1990).

213. T. G. Jackson, *Gothic Architecture etc.*, II (Cambridge, 1915) 109. Jackson may have been thinking of star-vaults.

The knotty problem of the intended design of the original vaults is discussed by Woodman (1986) 61–3, 93–8. He suggests that the seven-shaft system in the ante-chapel was laid out for a lierne vault by Reginald Ely in 1448/9; that the five-shaft system in the choir was not the result – as Willis thought – of a cutting out of two shafts from seven-part choir responds, but was installed from the start by John Wolryche in the late 1460s or early 1470s, possibly with the idea of abandoning the high vault altogether. Simon Clerk (from 1477) reinstated the idea of a vault, certainly a lierne – though Woodman's suggestion that it may have been intended to look like the vault of the Lady Chapel at Ely is based on his mistaken assumption that the Ely vault was built in the fifteenth century, see above, Chapter 4, Note 8.

214. The exterior has been much impaired by the reconstruction of the roofs, begun in 1759. The original appearance is discussed in Victor Nodet, *L'église de Brou, P.M.* (Paris, 1911) 18ff.

The best recent study of Brou is by Hörsch (1994), who gives a detailed picture of the building's troubled construction. In 1532, the year of the consecration, Louis van Boghem left the site never to return, with the west portal still unfinished. The aisles and chapels of the nave had an idiosyncratic roof and buttress system, caused partly by the low clerestorey. Tall assymetrical gables, identical in height and pitch to those crowning the side sections of the west façade, originally rose at each bay division above the side chapel and side aisle roofs, their inner faces providing support for small flyers rising above the nave aisles. See Hörsch (1998), who also gives further literature on the church. Queen Margaret's influence on the style of the church and her tomb, and the intersection of artistic choice and political motive, is discussed by Carpino (1997).

215. Paul Clemen, *Belgische Kunstdenkmäler*, I (Munich, 1923).

See now Buyle *et al.* (1997) 68–73. Arnould van Mulcken, the architect of St Martin at Liège, took over the rebuilding of the church in 1513, beginning with the choir which had been started abortively in 1418?–21 but halted just below the windows in *c.*1436. By 1515 the choir was finished, by *c.*1525 the transcpts, and the nave was complete by 1538, though the consecration had to wait until 1552. The overloaded detailing and 'naïve eclecticism' of the design come in for censure from Wilson (1990) 241. The net and star vaults resemble Austrian precedents (particularly the net vaults of Gurk cathedral and of the choir of Freiburg im Breisgau); the choir, with its baldachined statues and radiating chapels without an ambulatory, recalls Notre-Dame Halle, while the triforium of the nave is reminiscent of St Pancras at Leiden, and the cusped, 'frill' arcade arches recall the façade of St Peter at Louvain.

215A. See Sanfaçon (1971) 176–9, Verdier (1980) and Bottineau-Fuchs in Baylé, dir. (1997) vol. I 332. The south porch is the final, and most elaborate stage in the transformation of the nave which began under the architect Jehan Gilat in 1493. The nave was given double aisles on the north and south sides, but the orientation of the town southwards towards the river guarenteed the increasing emphasis on the south entrance over against the north side or the west façade, indeed over every other aspect of the church. The south portal was begun in 1506. Verdier (1980) 25, note 8, thinks its designer could have been Roullant Le Roux, on the basis of its close stylistic similarities with the façade of the Palais de Justice in Rouen and the St Romain (central) portal at Rouen Cathedral. Roullant could have been recommended to the chantier by Archbishop George I d'Amboise, his patron and supporter at Rouen, who was also Count of Louviers.

215B. The porch was built at the same time as a now lost chapel (founded in 1521) which terminated to the west the platform on which the porch rests. The heraldry of the porch refers to Bishops of Albi and to Cardinal Jean de Lorraine, in a date span from 1519 to 1550. See Biget (1982) 36.

216. Leopoldo Torres Balbás, *Arquitectura gótica* (Madrid, 1952) 378.

Still the most authoritative monograph on the New Cathedral at Salamanca is Chueca (1951). As early as 1509 King Ferdinand the Catholic had ordered the architects Alfonso Rodriguez and Anton Egas to go to Salamanca and prepare designs for the new cathedral. But it was only in 1512, after the chapter has summoned a conference of nine leading architects (including Egas and Juan Gil de Hontanon the Elder) that work began on the present site at the west end of the nave and worked slowly eastwards, preserving the old twelfth-century cathedral to its south. Juan Gil de Hontañón the Elder was put in charge (from 12 May 1513), and the Hontañón family kept virtual control of operations throughout the first half of the sixteenth century, (Juan Gil the Younger 1526–31; Rodrigo from 1538). Chueca (1951) 154 summarizes the chronology as follows:
1) 1520. Outer chapels up to half height and lowest courses of main pillars.
2) 1523 Outer chapels vaulted.
3) 1534–7. Main pillars raised to capital height.
4) 1540. Main arcade arches and aisle vaults.
5) 1550. High vaults and upper buttress system.

By 1560 the cathedral was in use, and by 1584 work had reached the crossing. The choir was under construction through the seventeenth and into the early eighteenth centuries, for which see Chueca (1951) 178–95. The new cathedral has many similarities to the earlier Seville cathedral, in its width, its strongly scanned bays, its compound piers and balustraded clerestorey. Rodrigo's famous 'treatise' on rib vaults and their statics is lucidly discussed by Kubler (1944), and Sanabria (1982).

217. Lozoya, in *op. cit.* 532, mentions the church in a few lines. Among the details, the springing of the vault is of particular stylistic interest. The pear-shaped elliptical transverse arch runs through it without interruption, while the diagonal ribs and the tiercerons rest on springing which has the shape of a quarter circle in plan. Below this springing there is a pear-shaped shaft which ends on a concave abacus. As in the cathedral, the piers and the ribs do not conform to one another. For an illustration see Rahlves (1969) 264–5, and plate 138.

218. Torres Balbás, *op. cit.* 380. Juan Gil de Hontañón's design for Segovia nave closely follows his for Salamanca. At his death in 1526 his son Rodrigo continued the work until at least 1529. In 1560 until his death in 1577 Rodrigo was master of the cathedral workshop. By 1562 the nave was nearing completion. A year later the present choir and chevet was begun according to Rodrigo's plans, and was largely complete by 1591. Frankl seems to be implying that Juan Gil de Hontañón the Elder intended a flat-ended choir at Segovia, following that at Salamanca, and that Rodrigo 'returned' to the 'older' type of chevet. But since the Salamancan choir belongs to the late sixteenth and seventeenth centuries, and the Segovian choir was begun long after Juan's death, and under the direction of his son, there are too many imponderables in any reconstruction of Juan's intended plans for the choirs of either Salamanca or Segovia. Salamanca's dependence on Seville cathedral may have extended to the present flat-ended plan, but equally Segovia's radiating chevet may reflect Juan's original plan for both Segovia and Salamanca. See Yubero (1978).

219. Illustrated in Lozoya, *op. cit.* 570. The portal is definitely by João de Castilho, and dates to soon after 1519, the year of his appointment as architect there. See Moreira (1996).

220. Emil Delmar, 'The Window at Tomar etc.', *The Art Quarterly*, X (1947) 203. Delman's far-fetched explanations of this programme have now been superseded by O'Mally (1969), who sees it as a royal iconography, celebrating

the history of Portugal, and of Manuel I's life and achievements (as recorded in Giles of Viterbo's eulogy to Julius II?) and the interaction of both in biblical and eschatological history.

221. Described in *Beschreibende Darst. d. ä. Bau- und Kunstdenkmal der Stadt Halle a. S.* (Halle a.S., 1886) 6–81. See now Dehio (1976) 160–2, and Volkmann (1958/9).

221A. The classic discussion of the relationship between the Renaissance and the Middle Ages can be found in Panofsky (1960). Theories of 'Late Gothic' and 'Early Renaissance' are discussed in Biatostocki (1966) especially 81ff. A useful discussion of the Late Gothic/Early Renaissance overlap in Germany is given by Nussbaum (2000) 219–28. More modern approaches to the impact of the Italian Renaissance on 'the Gothic North' can be found in Burke (1987), who discusses the para-national model of Italian culture in Europe, and in Allmand ed., (1998) – see particularly the essays by Genet on 'Politics: Theory and Practice', 3–28, and by Crossley on 'Architecture and Painting', 299–318. There are also critical comments on Panofsky's model of Renaissance reception north of the Alps, as a distinction between 'humanist content' and 'Gothic form', in Kauffmann (1995), Chapters 2, 3.

222. *C.A.*, LXXVI (1908) 1, 68.

223. *C.A.*, CV (1947) 103. For Saint-Pierre at Caen and Saint-Eustache see Blunt (1980) 20–3 (Caen) and 58–60 (St Eustache). Some helpful observations on the Gothic survival in France can be found in Cocke (1990). The case of Nantes cathedral, where the south transept was finished in a sympathetic Gothic style between 1631–7, is illustrated in Leniaud *et al.* (1991) 34–5. Louis le Vau recommended to the Chapter at Nantes in about 1650 that they should build its choir in the Gothic style.

223A. The building history of this cathedral, begun in 1318, but under construction into the early sixteenth century, is set out fully in Araguas and Peropadre Muniesa (1989).

224. Frankl (1960) 237ff. A clear account of the controversy, and the façade designs, can be found in Belluzzi (1983/4) and Matteucci (1983/4).

224A. The church has now been rebuilt. See Hilger (1982), and, more generally, Hipp (1979).

224B. A convenient introduction to Gothic survival in England is given by Cocke (1987).

225. Pointers to a study of this subject are given in the Bibliography.

225A. For medieval towns, particularly French, see Lavedan and Hugueney (1974); for England see Reynolds (1977) and Platt (1976); for Germany there is the convenient Meckseper (1982); for central Italy the classic Braunfels (1979, 4th edtn).

NOTES TO PART TWO

1. For Suger's meaning of the term *arcus* in *De Consecratione* chapter 5, see Annas and Binding (1989), who argue that he is referring to the transverse arches of his new choir, and not its vaults. See also Introduction, note 1, above. For Burckhard von Hall and Wimpfen see Klotz (1967) 15–18. On this, and on what follows, see Frankl (1960) 299ff.

1A. A supplement to Frankl's discussion of Gothic as the style of barbarians is provided by de Beer (1948). For the German attitude, both humanist and post-Renaissance, to the 'Barbarian theory' see Brough (1985) and Borchardt (1971).

2. For Christopher Wren's theory of the Saracen origin of Gothic, see Frankl (1960) 360ff.

2A. Johannes Wetter's (1806–1897) contribution to understanding the essential nature of Gothic is discussed by Frankl (1960) 525–9, and Appendix 29, 870–1. See also Viollet-le-Duc (1858–1868).

2B. For Alexandre de Laborde (1773–1842) see Frankl (1960) 502–506. For Carl Schnaase (1798–1875) see Frankl (1960) 544–553. In the same work, Frankl discusses Ludovic Vitet (1802–1873) 523–4.

2C. For Joseph Arthur Gobineau, Sulpiz Boisserée (1783–1854) and Daniel Ramée (1806–1887) see Frankl (1960) 659, 514–8, 522–3 respectively.

2D. For a discussion of this kind of base and its origins see above, Part One, Chapter 4, Note 57E. A none too successful attempt to find French Rayonnant precedents for the Prague bases, which are by Matthias of Arras, was made by Héliot (1975).

2E. For the Beauvais rose see Henwood-Reverdot (1982) 123–32, and Part One, Chapter 1, Note 23B. For the rose as wheel of fortune (including a discussion of the Basel rose) see Beyer (1962), and Nelson (1980). A broad survey of the symbolic connotations of rose windows, with many illustrations, can be found in Mersmann (1982). The changing meanings of roses in the thirteenth century, from cosmological-theological picture systems to virtuoso decorations, are discussed in Suckale (1981). For the south transept rose at Amiens see Murray (1996) 100–102.

2F. The classic analysis of the Lausanne rose is by Beer (1952). For a resumé of interpretations of its iconography see Trumpler (1993).

3. The central spoke was built vertically at Beauvais for technical reasons; it was the first spoke to be erected, and it was easiest to set it vertically. However, there were aesthetic reasons to want to keep the centre-line free. (By contrast, however, cf. the oculus in the west façade at Strasbourg.)

3A. Frankl presumably means the bifurcating tracery of rose windows, a system already employed in the west rose at Notre-Dame in Paris. Another early example, earlier either than the west rose at Reims (*c.*1260) and probably the original rose at the Sainte-Chapelle (*c.*1240) is the north transept rose of Saint-Denis of 1231–45.

4. Illustrated in Lasteyrie, *op. cit.* I, 484. See also Behling, *op. cit.* (Note 106 to Chapter 3). This pattern appears also in the south transept rose of Rouen cathedral, in the south transept at Meaux Cathedral and in the nave clerestorey of York Minster – all '*c.*1300', but its diffusion is more extensive in the Empire. It can be found in a number of variations in the Peter's Portal at Cologne Cathedral, in the south transept of the Cistercian church of Zlatá Koruna in southern Bohemia, and, in micro-architectural form, in the choir stalls in Cologne and St Mary at Oberwesel, and the high altar at Oberwesel. For some of these see Zimmermann-Deissler (1958) 82–9, and Palm (1976) 67–70.

4A. Murray (1996) 71, 102, 164, dates the rose to the fourteenth century and associates it with structural reinforcements to the problematic transept area.

4B. The term Rayonnant is used to cover French architecture from *c.*1230 (the beginning of the remodelling of Saint-Denis) to *c.*1380 (the first appearances of Flamboyant). Frankl is misleading in suggesting that it also covers High Gothic proper (i.e. buildings dating from *c.*1190–*c.*1230). See above, Part One, Chapter 3, Note 1.

5. Frankl (1960) 110ff. The training of the medieval architect, with special reference to late medieval Germany, is set out in Booz (1956). Harvey (1972) collects much valuable material on masons. There are excellent articles on all aspects of the masons's craft in Recht ed., (1989). The most comprehensive general study is Binding (1993). Claussen (1993/4) addresses the problem of masons' anonymity in the early Middle Ages, and attributes the change to named architects from the later twelfth century onwards as a direct result of the gigantism of Gothic architecture, and with it the new skill and power which architects are seen to possess.

5A. For the Mass and its relation to altars, music and *ars sacra* see Jungmann (1952).

6. Dehio (1901) II, 24. Kimpel and Suckale (1985) 256–61 complained of the lack of any general history of the diverse functions of the medieval church. Their short outline of the variety of church use sets out a useful framework for future study. The relationship of the liturgy (in the broadest sense of the word as the ritual of the regular services and other forms of corporate or private worship) on the building and decoration of the church has therefore tended to be treated in rather piecemeal fashion, largely according to country. Liturgical influences on English Gothic architecture have been the object of a series of studies by Draper, his findings summarized in (1987). See also Klukas (1981) (1983/4) and (1995) for a consistently enthusiastic belief in the shaping power of liturgy on architectural planning. Duffy's monumental study (1992) is founded on the conviction that the imagery and dispositions of the later medieval parish church in England can only be understood in terms of the liturgy of the Mass. For the liturgy in twelfth- and thirteenth-century Gothic great churches in France there is now Sturgis (1991), who is sceptical of any real influence of liturgical practice on architectural form, and gives considerable freedom of aesthetic choice to the architect. On the more demonstrable connexions between liturgy and imagery in the French cathedral see Sauerländer (1992) (for Reims), Fassler (1993) (for Chartres) and Speer (1987) for Saint-Denis. For Germany there are the impressive studies of Kroos (1976) (on Bamberg), (1979/80) (on Cologne) (1989) on Magdeburg, and (1985) (on the display of relics in the earlier Middle Ages). See also her contributions (not specifically attributed) in Hubel and Schuller (1995) 55–74, 130–5, on the liturgy of Regensburg Cathedral. Liturgical practice, church interiors and moveable sculpture – their combined effect creating a living image of the Celestial City – are discussed with insight and learning in Tripps's (1998) study of church architecture in Late Gothic Germany. A short, useful general bibliography on liturgy and art can be found in Reynolds (1995).

6A. Suger not only preserved but also remodelled the old crypts at Saint-Denis, which may have housed the abbey's collection of Passion relics. For Suger's conservatism in this section of the church see van der Meulen and Speer (1988) 95–106, 256–98 (who controversially, and unsuccessfully, argue that Suger's crypt was a rebuilding of the eleventh-century *turris* – a two-storied apsidal east end with radiating chapels – given by William the Conqueror, see above, Part One, Chapter 2, Note 5F). Clark (1995) emphasizes Suger's retrospective inclinations, pointing to the re-use of Merovingian capitals and columns in the crypt. One of the first to isolate the gradual redundancy of crypts in the Gothic period was Sedlmayr (1950) 137–8, 231–3. For the crypt in the cathedral of Erfurt see Wedemeyer (1997) 433–7. Here, as in Siena and Bourges, the crypt was the result of sloping ground to the east, and did not

entail the raising of the choir. In all three cases, the scenic and urbanistic possibilities of the geography were dramatically exploited.

6B. A good general discussion of choirs and choir screens, at least in France, is given by Erlande-Brandenburg (1994) 266–83. For the Notre-Dame screen see Gillerman (1977) and Davis (1998). For Naumburg a vivid account, with the most recent literature, is provided by Sciurie and Möbius (1989). The book is essentially a re-print of their material on Naumburg in Sciurie and Möbius eds. (1989). Strasbourg's screen is described in Will (1972). There are other screens, or remains of screens long-demolished, in Laon, Chartres, Amiens, Bourges, Sens and Mainz. For the *coros* of Spain, which extend into the nave on the model of the original *coro* of Santiago de Compostella, see Kraus and Kraus (1986). Hall (1974a) reconstructs the rood screen of S. Maria Novella in Florence as a deep structure standing in the nave on a line with the fourth pillar pair from the east, and separated by about one bay from the western termination of the monks' choir. Her reconstruction (1974) of the 1332–8 *tramezzo* at S. Croce, revealed by excavation in 1967, envisages a gabled loggia-type structure, running between the third pillar-pair from the east, and also separate, by about a bay and a half, from the western termination of the monks' choir in bay two. The purpose of this screen was to separate the monks from the laity on their entrance from cloister to choir Duffy (1997) analyses the paradoxical nature of late medieval English rood screens, as barriers between laity and clergy but also as 'pointers' to the sacred ambience of the sanctuary. Still the best general account of medieval choir screens is by Kirchner-Doberer (1956).

6C. The 'imaginary description' is to be found in Albrecht von Scharfenberg's secular narrative, the *Jungerer Titurel*, of *c.*1270–90. The Cologne collector Sulpiz Boisserée made detailed and wholly misleading drawings of the Temple on the basis of its lengthy descriptions in the poem. For a discussion of the poem and its commentators see Frankl (1960) 177–94. For comparisons between the poetic vision and the aesthetics of metalwork see Timmermann (2000), where some of the more recent literature on the Grail poem is listed.

6D. Frankl is misleading in suggesting that chapels did not proliferate in parish churches. On the contrary, the growth of the chantry and the patronage of lay confraternities resulted in the piecemeal enlargement of parish churches with private and semi-private altars and chapels. The general background to the process, growing out of the fear of Purgatory, is discussed in Le Goff (1984) and Rosenthal (1972). For chantries, soul-masses and chapels in England see Cook (1947) and Platt (1981) 88–146. For Germany the chapel foundations in Nuremberg parish churches – typical of urban patriciate piety throughout Germany – are discussed by Schlief (1990) and Klein (1990). An introductory survey of the phenomenon is provided by Colvin (1991) 152–89, and with useful bibliography (pp. 390–91).

7. Examples are Noyon, Dijon (Notre-Dame), Troyes (St Urbain), and Casamari. For processions starting in the west porch of Vézelay see Diemer (1985). Blum (1986a) has argued for the influence of Palm Sunday processions of the Sarum Rite on the choice of low portals for the west façades of Wells and Salisbury Cathedrals. Klukas (1981) connects the Sarum Use and its processions with the rebuilding of the east end of Wells in the 1320s. Palm Sunday processions in France and Germany, particularly with wooden moveable sculptures of Christ on the Ass (a genre particularly popular in German and Central Europe in the later Middle Ages), are the subject of detailed analysis by Tripps (1998) 89–113. Kroos (1989) discusses the Palm Sunday procession from the church of Our Lady to the Cathedral in Magdeburg, carrying a two-sided painted panel, one with the image of the Entry into Jerusalem, the other with scenes of the Passion. The Easter processions went up into the choir gallery, the so-called *Bischofsgang*.

7A. A readable general discussion of cathedral financing is given by Kraus (1979). Lopez's (1952) analysis of the economy of thirteenth-century Beauvais suggested that the High Gothic cathedrals of northern France seriously damaged local economies. Lopez's neo-Marxist position was rebutted, at least as far as Beauvais was concerned – by Murray (1989) 47–8; but it was revived and developed by Abou-el-Haj (1988) in her analysis of Reims and its financing. In 1972 James (1972) tried to cost High Gothic Chartres in Australian dollars. Warnke (1976) especially 93–102, whose influential study concentrates largely on the early Middle Ages, saw the internationality of the building site as a critical stimulus in the growth of a long distance money economy. Where sources survive, the funding of individual churches shows extreme fluctuations in income, and diverse patterns of management. For Utrecht see Vroom (1981) and (1996), for Milan see Welch (1995) 49–69. A good general introduction to funding and its managerial structures is given by Vroom (1989). The whole legal constitution of the building lodge, and its funding organization, is spelt out in admirable detail by Schöller (1989) especially 232–359. However, he does not include the rich English evidence, for which see Brown, Colvin and Taylor (1963).

7B. This kind of allegorical symbolism, in which the sign has little or no similarity to what it signifies beyond a conventional and abstract equivalence, is discussed in full in Sauer's classic study, see note 8 below. For the wider connotations of the medieval topos of columns as apostles see Krautheimer (1942) and, more fully, Reudenbach (1980). Markschies (1995) also points to the topoi that abound in Suger's descriptions of his new Saint-Denis, especially in matters of light (*lux/lumen*) and clarity (*claritas/clarificatus*). Gage (1982) had already emphasized the conventional *ekphrasis* of Suger's descriptions, but in identifying the dazzling darkness of Saint-Denis's glazing with the 'negative theology' of the Pseudo-Dionysius he was crediting Suger with a theological sophistication not borne out by his writings or his character. A series of excellent articles by Hanning, Rezak, Maines, Zinn and Spiegel, on Suger's 'symbolist mentality' are gathered together in Gerson, ed., (1986), and the whole problem of Suger's aesthetics is set against the background of monastic reform, and monastic debates about the purpose of art, in northern France in the early twelfth century by Rudolph (1990). Neuheuser (1993) examines the liturgical and allegorical character of Suger's concept of beauty, and stresses the importance of the liturgy as a linking factor in all Suger's writings. He denies that Suger had any autonomous 'aesthetic', and underlines the indicative function of his art and architecture as a stage for the liturgy, and as a vehicle of transcendence: it creates, or reifies a *respublica una* uniting the living with the communion of saints. Binding (1993a) isolates Suger's main architectural concerns: the symbolism of the column; the need to harmonize the old work with the new; the use of *spolia*; the allegorical cast of his architectural description. He also suggests (less convincingly) that Suger's reference to the 'geometrical and arithmetical instruments' by which the new choir was 'equalised' with the nave of the old church was not a technical comment on the skill of the architect, but a reference, in a spirit typical of Suger's love of allegory, to the divine *artifex* who creates according to number and measure. See also Binding (1985) for a fuller discussion on this point. All these authorities stress Suger's neo-Platonic cast of mind, a connexion first advanced by Panofsky (1946, 1979, 2nd edn), who indentified a specific debt in Suger's writings to the mystical theology of Denis the Pseudo-Areopagite and its Latin translation by John Scotus Eriugena. The Dionysian connexion was taken up by Sedlmayr (1950) as part of his metaphysical conception of the cathedral as an *Abbild* of heaven, and by von Simson (1956 and 1962) in his 'iconographical' analysis of the new Saint-Denis. Kidson (1987) radically questioned this trend by denying the neo-Platonic inspiration of Suger's patronage, and its indebtedness, in any real sense, to the Pseudo-Denis. Markschies (1995) carefully examined both the arguments and the Sugerian texts and could find no single reference to the Pseudo-Denis in, or his direct or indirect influence on, any of Suger's writings. Grant (1998) 23–5, 270–1, accepts some measure of Dionysian influence (the text of the *Celestial Hierarchy* was read in the refectory at Saint-Denis on the eve of the feast of Saint-Denis), but doubts its specific inspiration for Suger's inscriptions on the west door, and regards Suger's understanding of the *Celestial Hierarchy* as superficial. Many of these problems are seriously addressed in the recent German-Latin edition of the *De Consecratione*, with a series of critical commentaries on it edited by Binding and Speer (1996). The object is to establish a solid textual platform from which a number of contributing scholars launch specialist investigations into the more theological and liturgical aspects of Suger's Saint-Denis. Annas and Lubich (pp. 21–57) set Suger in his historical context, from which he emerges as a practical politician, not an intellectual. Lubich (pp. 59–63) presents the *De Consecratione*, in comparison with similar texts, as a unique affair, half way between a traditional *translatio*, and a *fundatio*, with its emphasis on the abbey's ancient royal associations. Pagel and Schroder (pp. 95ff) concentrate on Suger's allegorical conception of architecture: on his use of anagogy, on the new choir as a theatre for the liturgy (his concern for relic cults and his naming of the buildings parts as settings for processions), on his love of display – of *spectaculum*. Speer's careful analysis of the text of *De Consecratione* (pp. 65–9) and of the liturgical dimension in Suger's thought (pp. 71–9) demonstrates that Suger's theology, especially his 'anagogy', owed less to the Pseudo-Denis than to Hugh of Saint-Victor's *De Sacramentis*, and in any case belonged to the standard repertory of late Antique and medieval exegesis. For Speer, the real key to Suger's 'art' and his 'light metaphysics' was the liturgy, specifically of the consecration. This brought together architecture and cult, the material and the immaterial; it established a coherence between the old church and the new, and between the diverse parts of the church.

8. The best and most comprehensive introduction is given in Joseph Sauer, *Symbolik des Kirchengebäudes* (Freiburg i. Br., 1902). On the subject of the figure twelve, see p. 66. There are also much older treatises on numerical symbolism; see Frankl (1960) 211ff.

8A. The symbolist mentality of the twelfth century is brilliantly analyzed by Chenu (1968). For the varieties of medieval exegesis on the church as *ecclesia universalis* see Büchsel (1983). A critical survey of twentieth-century approaches to 'architectural iconography' can be found in Crossley (1988).

9. Günter Bandmann, *Mittelalterliche Architektur als Bedeutungsträger* (Berlin, 1951) 229. His interpretation seems doubtful when applied to places where the emperor could hardly have been expected to worship – for instance,

at Maria Laach. A useful survey of the various interpretations of 'westworks', with bibliography, can be found in Möbius (1968) and, for Carolingian architecture, Heitz (1980) 54–6, 70–8, 153–6. For early medieval choirs and their functions see also Möbius (1984).

9A. Although altars were placed in the large galleries of Anglo-Norman churches, there is no evidence, as far as I know, for similar functions in early Gothic galleried basilicas in the Ile-de-France. Kimpel and Suckale (1985) 250–1, advanced the idea that galleries were abandoned at Chartres and elsewhere after *c.*1194 because the new practice of elevating the host at the consecration of the Mass prompted patrons to remove any upper spaces which might have been used, wholly inappropriately, to look down on the altar. This, however, presupposed that galleries in early Gothic churches in France housed congregations for the eucharist, and that their access could not be controlled during the Mass. For the liturgical functions of galleries in Anglo-Norman Romanesque see Klukas (1978) and (1983/4), who argues that churches with low, unvaulted galleries (Durham, St Albans) adopted the liturgy of the *Decreta Lanfranci*, where no gallery altars were envisaged, while those with tall vaulted galleries (Winchester) followed the *Regularis Concordia*, which required gallery altars. The gallery in the choir at Magdeburg, the so-called *Bischofsgang*, was used for feasting at Easter, see Kroos (1989) 90.

9B. For the seclusion of nuns in their churches see Bruzelius (1992) and (1995), who deals mainly with Italian Angevin material; Simmons (1992), who discusses Fontevraud in the later twelfth century; and Hamburger (1992) and (1998), who relates the laws of enclosure, and its actual enforcement in the church, to female spirituality in later medieval Germany.

10. Karl Lehmann, 'The Dome of Heaven', *The Art Bulletin*, XXVII (1945) 1–27. Gothic vaults made explicit references to the heavenly spheres: see the stars painted on the vaults of the Sainte-Chapelle in Paris or S. Francesco in Assisi. Tripps (1998) 141–200, gathers together interesting instances of the more explicit identification with heaven in Late Gothic vaults. These include figural bosses, arboreal painting, and large circular holes in the vault through which images, flowers and even fire were lowered or thrown down into the space during the liturgical theatricals which accompanied the major feasts.

11. Luke 17: 21: regnum Dei intra vos est.

11A. For the notion of 'suitability' or decorum, of the fitness of form to function, in medieval church architecture, in particular at Salisbury and Wells cathedrals, see Draper (1987) and (1995). It has also been applied by Suckale in vol. 4, *Die Parler* (1980) to the different 'modes' of design used by Peter Parler. For the 'aesthetics' of St Bernard see Melczer and Soldwedel (1982), Talbot (1986), Rudolph (1990). St Bernard's influence on Suger's new church at Saint-Denis is a topic riven by controversy. Panofsky (1979, 2nd edn.) first advanced the theory (followed by von Simson and many others) that St Bernard's criticism of Cluniac Romanesque forced Suger to reconsider the whole nature of monastic art and architecture, and in so doing, to arrive at a style we call 'Gothic'. This, with proper historical nuances, was also the brunt of Rudolph's sensitive analyses (1990) and (1990a). Kidson (1987) however denied that Bernard had any influence on Suger. Grant (1998) argues convincingly that Bernard left his mark on Suger the politician and the monastic reformer, but he had little influence on the abbot's patronage at Saint-Denis, precisely on the grounds of decorum: that what was appropriate for a Cistercian monastery did not apply to a royal and public pilgrimage church. For St Francis and the Franciscans' influence on art see Egger (1982).

11B. Frankl is here voicing a concept popular in later medieval exegesis, particularly in sermons preached on the dedication of churches: that the church is an allegory of the soul. St Bernard's first sermon on the consecration of the church likened the church with the monks within to the individual physical body sheltering the Holy Spirit. See Horie (1998) 117ff.

12. Unfortunately, mathematicians also call their signs symbols, although they are really only signs. In the terminology of my *System etc.* (Note 181 to Chapter 4) signs like signposts, numbers, and letters have a meaning in the second degree of concepts; signposts or the marks on a scale are cognate with their meaning (direction, distance, etc.) and letters and musical notation are conventions. Signs become symbols when they take on a higher meaning – for instance, a cross is a sign for a meaning of the second degree in mathematics, but if it signifies the Cross of Christ, or Christ himself, it becomes a symbol of the third degree, as do the attributes for the saints.

13. Sensations, feeling, and human instincts are also part of nature, whereas our conceptions, ideas, and concepts (including our conceptions and concepts of sensations, feelings, and human instincts) are creations of human reason – which is a part of the human spirit. This is the same relationship as that between a lion as a natural object and the notion 'lion', in which the natural object is included. (Cf. Frankl, *System*, 667.)

13A. This may be Frankl's veiled criticism of Sedlmayr's (1950) monumental study, which interpreted the Gothic cathedral, not just as a metaphor for, but as a literal image (*Abbild*) of, the Heavenly City. See also his bitter review – some would call it a parody – of Sedlmayr's book in his (1960) 753–9. The diverse textual references to the church as the Heavenly Jerusalem are neatly brought together in Stookey (1969). An authoritative survey of the church as *ecclesia universalis* in medieval exegesis can be found in Büchsel (1983). Büchsel, and Haussherr (1968), do not see the concept of the Heavenly Jerusalem as specific to any particular style. Tripps (1998) 33–56, discusses the liturgical evidence for the notion of the church as paradise. Schlink (1997/8) suggests that the whole nation of the church as the Heavenly Jerusalem is a fiction of German art history.

13B. See Laufner and Klein (1975).

13C. See von Juraschek (1954).

13D. See Morgan and Sandler (1987) nr 110. Murray (1996) 42–3, and plates 47 (a) and (b), sees the image of the celestial city in the Trinity College Apocalypse (Trinity College, Cambridge, Ms R.16.2), with its squares forming a golden section ratio, as analagous to the central *ad quadratum* matrix underlying the crossing (and therefore the whole ground plan) of Amiens Cathedral.

13E. For the depiction of the Celestial City and the Holy Sepulchre in Carolingian manuscripts, some of them apocalypses, see Heitz (1980) 201–22. The whole problem of representing the unrepresentable in apocalypse imagery is discussed in a wide-ranging essay by Alexander (1999)

14. The interpretation of the Song of Solomon as a dialogue between Christ and the Church (the bride) is superimposed symbolism. Originally this was a pure love lyric, meant in its most concrete sense. St John speaks of the bride of the Lamb and, by the bride, means the Heavenly Jerusalem – the kingdom of God. It must be left to theologians to decide whether this interpretation of the Song of Solomon is a transference of the sense of the Apocalypse.

15. It is unlikely that he can have known Ovid's description of the palace of Helios.

16. Frankl (1960) the chapter on architectural fantasies (p. 159ff.). See also Timmermann (2000). It is generally agreed that the closest medieval building came to a literal realization of the Younger Titurel's vision of the Grail Temple was in the chapel of the Holy Cross in Karlštejn (Karlstein) Castle, and to a lesser extent, the precious-stone-encrusted walls of the Wenceslas Chapel in Prague Cathedral, also a foundation of Charles IV. Möseneder's (1981) penetrating study of the Karlstein Chapel rehearses the literary, liturgical and exegetical sources for the use of precious stones in architecture, particularly 'glass-house' reliquary chapels. See also Legner (1978) and Meier (1978), both articles in vol. 3, *Die Parler*. An up-to-date and authoritative analysis of the Karlstein programme, and its sources, can now be found in Fajt and Royt (1998) especially 128–75.

17. Bandmann, *op. cit.* 89. See also Alfred Stange, *Das frühchristliche Kirchengebäude als Bild des Himmels* (Cologne, 1950). Stange rejects Kitschelt's theory, but himself puts forward an untenable one when he tries to show a connexion between the cathedral at Trier as it was about 450, and the text in the book of the Revelation, 21. See also Stange (1964).

18. Richard Krautheimer, 'Introduction to an Iconography of Medieval Architecture', *Journal of the Warburg and Courtauld Institutes*, V (1942).

The only thing that could arouse criticism in this article is the word 'iconography'. Architecture is not and can never be an icon. This essay does not touch on the problem of Gothic style, and it need not, therefore, be discussed further here. The Greek word '*eikon*', although it might refer to any kind of image, was not applied in the Middle Ages to architecture. But the medieval conception of 'image' was often non-pictorial, and the Middle Ages saw the 'image' not as a 'picture' of the material world but a 'likeness', a matter of spiritual similarity. In that sense architecure could be treated as an icon, rather than as an idol. For the notion of the image and its related concepts of picturing, perceiving and imitating, see Mitchell (1986), who recognises the inextricable power of ideology in image-making. A profusion of stimulating ideas on the subject, but with little reference to the problem of medieval architecture, can be found in Camille (1989). The relationship between image and viewer is discussed on the broadest scale by Freedberg (1989); and Belting (1994) enlighted the whole problem by seeing imagery in the west against the background of eastern Christianity. But neither tackled the problem of architecture. The nearest equivalent in the field of architectural history to these broad explorations of meaning has been Onians (1988) but his discussion of medieval buildings is flawed by factual errors.

19. It should be stressed once more that representational art embraces sculpture and painting, but not architecture. The Italians classified all three arts under the heading *arti del disegno*, but one could also put the art of writing (signum), that is calligraphy, under this heading.

20. In this example we are differentiating between the form of one spatial dimension and the form of two such dimensions. One cannot define either meaning or form. For definitions, one requires a *genus proximum*, but meaning and form are themselves fundamental concepts – in fact, the most fundamental in the whole realm of philosophy (Frankl, *System*, 3, 20).

20A. For interpretations of the meanings of this vegetal architecture, especially in Germany, see above, Part One, Chapter 4, Note 164A.

21. The church of St Nicolas at Leipzig, illustrated in Hermann Schmitz, *Die Gotik in deutschen Kunst- und Geistesleben* (Berlin, 1921), illustration 87.

21A. The history of vegetal architecture and the primitive hut, from Vitruvius to the Enlightenment, is discussed by Gaus (1971).

22. Fundamental for the definition of the concept Art is Willi Drost's *Form als Symbol*, cited in the Foreword.

23. For quotations of the many opinions, see Frankl (1960) 237–414.

24. Two familiar examples are the red sandstone of Strasbourg cathedral at sunset, and the white marble of Milan cathedral by moonlight.

25. Frankl, *System*, 496.

26. Alfred D. F. Hamlin's term.

26A. For St Gall see Horn and Born (1979), and Hecht (1983).

26B. A useful history of the monastery and its buildings is still Braunfels (1972). On the cloister in the early Middle Ages see the articles devoted to the subject in the double issue of *Gesta*, 12 (1973).

27. Léon Honoré Labande, *L'église Saint Trophime d'Arles, P.M.* (Paris, 1930) 72. The inscriptions on the wall and north gallery of the north walk of the cloister show that the work must have been begun before 1183. See Stoddard (1973) 199–271.

28. Illustrated in Aubert (1943) II, 5. See also Berenguier (1975).

29. Lucien Bégule, *L'abbaye de Fontenay, P.M.* (Paris, n.d.) 32.

30. Aubert (1943) II, 10.

31. Aubert (1943) II, 19, and *C.A.*, XCIV (1931) 175. The two walks of the cloister with six-part vaults, and dating from the thirteenth century, are the northern and the western. The eastern and southern walks are fourteenth-century additions, with four- and six-part vaults respectively. See Meslé and Jenn (1980).

32. Aubert (1943) II, 14. Aubert gives the date as the end of the twelfth century – that is, contemporary with St Hugh's Choir at Lincoln, and therefore much later than Montivilliers (1140–50).

33. *C.A.*, LXXVIII (1911) I, plan, 166. See also Clark and King (1983) 44–7, who date it to before the beginning of the choir extension of *c.*1205. It actually has three wings, of which the eastern and western are stunted.

34. C.-H. Besnard, *Le Mont Saint-Michel, P.M.* (Paris, n.d.) 87.

34A. See now Grant (1987) 294ff. Grant (1991) 119–20, confirms the English, specifically Lincoln, influence in the contrapuntal arcading of Mont-Saint-Michel's cloister. She points to similar syncopated arcade rhythms in Normandy in the destroyed cloister of Saint-Pierre-sur-Dives and in the existing west portal of Sées cathedral. For the cloister's stylistic connexions with Hambye and Coutances see Grant in: Baylé, dir. (1997) vol. 1 147–8.

35. *C.A.*, LXXIV (1906) 185, plan facing p. 170. See also Seymour, *op. cit.* (Note 10 to Chapter 2) 67. See also Kimpel and Suckale (1985) 361–4, who date its beginning to 'after 1231'.

36. See Lethaby, *op. cit.* 84. See now Wilson (1986) 80–5.

36A. Despite Bishop Walter de la Wyle's gift of land in 1263 for a larger cloister, Blum (1991) 22–36, sets the real beginning of the cloister into the 1270s. Construction began with the north walk, and proceeded along the east walk and, from *c.*1276, the south walk, where work stopped, *c.*1280, on the seventh bay from the east. The rest of the south walk and the west walk were completed *c.*1290–early fourteenth century. Frankl's descriptions of the cloisters at Westminster and Salisbury as 'High Gothic' is another misleading consequence of his refusal to recognize the existence of Rayonnant as a stylistic category. These cloisters belong to the earliest instances in England of the use of French-inspired, Rayonnant, bar tracery.

36B. For this Laon-inspired workshop at Maulbronn see Chapter 2, Note 54 above. For the most recent literature on the monastic buildings, and the so-called Paradies Master who built the first (east) walk of the cloister *c.*1220–30. see Hassler, Knoch and Glaser (1994). They date the rest of the cloister to 'after 1270', beginning with the north walk and the remodelling of the whole east wing, including the chapter house on the ground floor and the twelfth-century dormitory above.

37. Lozoya, *op. cit.* (Note 67 to Chapter 3) 164 and figure 166.

38. Net-vaults are not the same thing as star vaults with triradial figures. The terminology used in literature was extremely inexact, and there is no generally recognized definition of the differences. The essential thing in a star-vault is that more than three ribs intersect on a common ridge, whereas the essential thing in a net-vault is that the ribs (not ridge-ribs) intersect at several points. Net-vaults are not a variation of star-vaults. The terminology was clarified by Clasen (1958) especially 24–71, and now presents no problem.

39. Reinhardt, *op. cit.* (*Deutsche Bauten*, XIII) 36. Gantner, *op. cit.* (Note 73 to Chapter 3) II, 165ff., who also mentions the cloister at Rorschach, which dates from 1483, and may be by Erasmus Grasser. See Julier (1978) 154–80, who related the net vault's inspiration to the circle of Madern Gerthener, and particularly to the Peterskirche in Frankfurt.

40. H.P. Eydoux, *Das Cisterzienserkloster Bebenhausen* (Tübingen, 1950) 36. See now Kohler (1995).

40A. See above, p.209 and Chapter 4, Note 80A.

40B. For the Wells Chapter House see above, p. 187 and Chapter 4, Note 4. For the Old St Paul's Chapter House see Harvey (1978) 51ff, 75ff; and Wilson (1987) 369–70. Wilson (1999) surveys the connexions between English thirteenth-century chapter houses and their continental equivalents, including Villard de Honnecourt's drawing of a chapter house, and umbrella-vaulted spaces in central Germany and Bohemia (the eastern crypt at Kouřim, the chapter house at Vyšší Brod and the Silberkammer in Worms).

40C. Frankl is underestimating the influence of secular building types on church architecture in the later Middle Ages. It is now recognized that the precocious appearance of decorative vaulting (an essential component of the German Late Gothic style) in the lower Vistula in the early fourteenth century was the initiative of secular and not church architects. Such vaults first appeared not in the choir aisles of the Cistercian church at Pelplin (as most published sources assume) but in the chapter house and Grand Master's summer refectory of the Teutonic Knights's castle-capital at Marienburg (Malbork). The Pelplin choir aisle vaults, wrongly dated since Clasen (1958) to the late thirteenth century, – see Crossley (1990) – are now considered to be mid-fourteenth-century constructions; while the Marienburg rooms are both securely dated to the 1330s and 1340s. See Becker-Hounslow (1998) and note 44b below. Another critical ingredient of the Late Gothic formal vocabulary, the ogee arch, also made an early appearance in Germany in quasi-secular contexts: in the east wing of the cloister of Konstanz cathedral (*c.*1320?), and in the chapter house at Heiligenkreuz in Lower Austria (*c.*1290). See above, Chapter 4, Note 22A. Similarly, the earliest dated flowing tracery in Spain is in the Catalan cloister of Santes Creus (1331–41), probably by an English mason. See Bony (1979) 65, and note 63, and plate 37. Bony (1979) 22, 36, was among the first to point to the clear influence of secular timber construction on English fourteenth-century church architecture, notably the choir of St Augustine's at Bristol, and of temporary timber structures (tournament podia?) on the crenellated cornices of St Stephen's chapel and the Eleanor crosses. On a more utilitarian level, we should note the possible influence of barns and double-naved refectories on the churches of the friars *c.*1300, an issue touched on by Schenkluhn (1985) 74, 108. For Cistercian conventual buildings, often with double-naves, see Braunfels (1972) 97–110. Undercrofts are discussed in Jansen (1990). Liberties first taken in a 'lower' genre of architecture – the simplification of supports, the rejection of capitals and vaults – find themselves promoted to a higher, ecclesiastical context in the fourteenth and fifteenth centuries. The whole question of the interplay between secular and ecclesiastical architecture in the later Middle Ages needs proper investigation.

40D. See Michler (1974).

41. On these Saintes Chapelles, see Joan Evans, *Art in Medieval France* (London, etc., 1948) 194 etc. See also Hacker-Sück (1962).

42. *C.A.*, LXXVII (1912) 1, 296ff. Viollet-le Duc's descriptions of the castle, despite some inaccuracies, are invaluable. See (1858–68) principally vol. 3 (1859) 107–17, and (1861). A good analysis of Coucy, with photographs before its demolition by the Germans in 1917, is given by Mesqui (1988) 134–59, and (1991) vol. 1 168–9, 217, 237–8, 269–70. See also Albrecht (1986) 24, 58–60.

42A. Frankl is incorrect here. Even the massive cylindrical keep of the thirteenth-century castle had internal Gothic features, such as rib vaults, crocket capitals, *en delit* shafts and pointed arches; while the great Salle des Preuses of Enguerrand VII Coucy, begun in 1380, is rich in Gothic tracery, vaulted window alcoves, and (originally) fireplaces.

43. Dehio, *G.d.d.K.*, II, 297. This chapter is probably the best thing ever to have been written on the subject of German castles.

There are still no up-to-date surveys of the German castles throughout the Middle Ages. Tillmann (1958–61) is a useful dictionary, and Meyer (1963) provides a general history. Maurer (1977) gives a useful introduction to the Hohenstaufen castles and Arens (1977) to their fortified palaces. Good studies on particular problems can be found in Meckseper (1975) (French influence in the thirteenth century) and Torbusz (1998) (the castles of the Teutonic Knights). Albrecht (1995) offers a much-needed synthesis of royal and noble castle-palace building in western Europe, but concentrates less on Germany than England, France and the Netherlands. A detailed and authoritative study of early medieval German castles, from Charlemagne's Aachen and Ingelheim to Frederick II's Seligenstadt, is given by Binding (1996).

44. G. Colombes, *Le palais des Papes d'Avignon, P.M.* (Paris, 1927). A convenient illustrated description is provided by Gagnière (1977). A detailed history of its construction is given in Caselli (1981). Its influence on the growth of new kinds of space, function and outlook in later palace architecture in France, especially in the Valois castles of the later fourteenth century, is nicely judged by Albrecht (1995) 120–7. Whiteley (1985) assesses its influence, in particular, on the design of staircases.

44A. For Pierrefonds see Harmand (1959) and (1983) and Mesqui (1988) 281–93. For Karlstein see Möseneder (1981) and all the studies brought together in Fajt and Royt (1998). Also see above, Part Two, Note 16.

44B. For a full description of the castle, with all literature up to the early 1990s, see Mroczko and Arszyński, eds., vol. 2 (1995) 152–5. The castle has attracted a vast of literature since its art historical rediscovery in the late eighteenth century. The handiest survey of its fabric and history from an older,

German, generation of scholars, is by its inter-war curator Schmid (1955). The immediate post-war Polish position is reflected in the work of a leading historian of the Knights, Karol Górski, of which his (1973) monograph is a useful conspectus. The earliest of the castle's rooms with all-over 'triradial' vaults are the chapter house of the upper castle and the great refectory of the Grand Master's palace. Because these belong to some of the earliest decorative vaults on the continent their dating and their sources of inspiration (English chapter houses?) have long been subjects of comment and controversy. Schmid (1955) 18, 51, dated the chapter house to *c.*1310–12 and the refectory to before 1324, and attributed them both to the same architect: the 'Remter-Baumeister' Clasen (1958) 39–48, dated the chapter house to *c.*1300 and the refectory to *c.*1320. Frazik (1967) 83, and (1985) put the chapter house around 1330 and the refectory 'to the second quarter of the fourteenth century'. Since then, Skibiński (1982) 87, in a study of the upper castle's chapel, has favoured a date of *c.*1320–4 for the chapter house. Jurkowlaniec (1989) 82–94, 179–82, in his analysis of the architectural sculpture, suggests that the chapter house and the great refectory were done by the same shop, active 1331–40 under the Grand Masters Luther von Braunschweig (1331–5) and Dietrich von Altenburg (1335–41). The architectural similarities between the chapter house and the refectory, already noted by Schmid (1955), would confirm this relative dating, but not the absolute chronology. A clear summary of the issues, with full descriptive catalogue of all the spaces of the castle, can be found in Torbus's monumental study of the castles of the Teutonic Knights (1998) 260–88, and 487–517, especially 264–5, 272–3, 496, 504–5, 514–15, who dates both rooms to *c.*1330, and certainly not before 1324. For the problem of English influence at Marienburg, the connexions with the very similar vaults of the slightly earlier Briefkapelle in St Mary at Lubeck, and the dating, see Crossley (1990), Torbus (1998) 312–15, and, much more fully, Becker-Hounslow (1998) (1998a).

44c. See Bonnel (1963).

45. Both are illustrated together in Clasen, *Die gotische Baukunst* (Wildpark–Potsdam, 1930) plate xv. See Willemsen (1977) especially 160ff, and (1982). The literature on Castel del Monte up to 1978 is discussed by Krönig (1978). From 1990 the Heidelberg Academy of Sciences has supervised a multi-author, multi-discipline programme of research on the castle. The work includes a detailed recording and photogrammetric measuring of the structure, the investigation of its stone polichromy, and the assessment of its place in palace architecture in the Mediterranean and the near east. Some of the findings have been published in Schirmer *et al.* (1994).

45a. for the Powder Tower (Pulvertum) see Šperling (1965). For the Old Town Bridge Tower see Chadraba (1974) (with some far-fetched interpretations of its function and iconography as a 'triumphal arch'). Sauerländer (1994) especially 195–200, relates its imperial imagery to the juridical idea of *concordia imperii*, and to other bridge towers with regal figures. The fullest analysis of the Bridge Tower – iconographical and structural – is by Vítovský (1994). He reconstructs a slow building campaign, beginning under Peter Parler in the late 1360s/early 1370s, but continuing under a second master in the 1380s at the level of the second (top) floor. It was this second architect, not Peter Parler, who in *c.*1390 inserted the influential net vault over the ground floor entrance way.

45b. See Kimpel and Suckale (1985) 369–71, and Branner (1960) 182, with bibliography. For the Viollet-le-Duc restorations see Saulnier (1980) 66–71.

45c. See Koepf (1958) 95–8, Dehio and Zimdars (1993) 524. Binding, Kainzer and Wiedenau (1975) provide a good introduction to the kind of half-timbered German house or hall represented by Markgröningen. Griep (1985) offers a useful survey of the history of the German middle-class house. See also Büttner and Meissner (1983) 39–101. The fullest survey of German town houses is the monumental Bernt *et al.* (1959 onwards). Markgröningen appears in the volume by Heinitz (1970) 120ff.

46. The attribution is doubtful; see Thieme-Becker II, 138, but not improbable. The leaders of the cathedral workshop participated in the planning of the Piazza della Signoria and some of its principal buildings in the second half of the fourteenth century. Toker (1979) and (1983) has pointed to many similarities between Arnolfo's project for the cathedral and S. Croce (octagonal piers, wide intercolumniations, wooden roofs), and some of the more elaborate capitals in the biforia windows in the Palazzo Vecchio can be parallcled with Arnolfo's (or his workshop's) work. For the Palazzo Vecchio itself, and its place in Florentine urban design in the later Trecento see Trachtenberg (1988) and (1997) 87–147. Trachtenberg argues convincingly for radical changes in the design during construction. The first (1299) project called for a narrow, relatively small tower set back and rising behind simple battlements, and with the main entrance on the north side. The second project, developed after 1307, turned the palace's main façade westwards, to the Piazza della Signoria, increased the scale of the superstructure by enlarging the battlements with a windowed gallery, as well as heightening the tower and projecting it forward over the battlements. The tower was also given a massive columnar belfry. Trachtenberg (1989) also reconstructs the original shape of the courtyard and discusses its place in Trecento urban palace design. Rubinstein (1995) especially 1–34, 79–94, presents the documentary and historical evidence. He does not comment on Trachtenberg's thesis in (1988) but thinks his restoration of the cortile is 'plausible' (p. 18, note 133). Still the best general survey of the history of medieval town halls in Italy is Paul (1969), though a good short summary of the main issues can be found in Cunningham (1995).

46a. See Nagel (1971) 47–8 and Delmelle (1975).

46b. See von Osterhausen (1973).

46c. The Doge's palace belongs to a Venetian tradition of thirteenth-century palace architecture with long rows of arcades on the ground and first floors and a second floor with few, relatively small windows. An account of the phases of construction can be found in Arslan (1972) 141–54, 246–54, who argues for a unified design by a single architect laid down a few years before 1350, a mid-fourteenth-century date for some of the sculpture of both loggia and portico on the south side, but a slow execution of the south façade lasting to the end of the century. He also reviews the conflicting evidence for the completion of the south wing. See also Franzoi, Pignatti and Wolters (1990) especially 38–78, for the most recent general account. A good discussion of the marble used for the building, and of the careers of the masons, including the respective contributions of Giovanni and Bartolomeo Bon, can be found in Connel (1988) 22–3, 121–2, 127–9, 135–6. Bienert (1990) offers a symbolic interpretation of the palace, based on its function as a prison, and on its three main floors, as an image of Dante's 'Divine Comedy'. He sees a juridical – even penal – message in much of its exterior sculpture on the ground and first floors.

46d. The church was begun *c.*1330 with the construction of the choir chapels and the outer walls of the north transept. The completion of the transepts and the main choir, and the construction of the nave, belong to a second campaign, beginning in about 1361. The nave was under construction in 1391 (second pair of pillars from east), but not finished until the late 1440s. The high altar was consecrated in 1469. See Dellwing (1970) 117–37, and (1990) 91–4 and Schenkluhn (2000) 186–9, who assesses this church and its contemporary Venetian rival, the Dominican church of S. Giovanni e Paolo, as culminations of a particular kind of brick mendicant architecture in the Veneto (Treviso, Verona, Vicenza).

46e. Arslan (1972) 233–44, stresses the separateness of the Ca d'Oro from earlier Venetian architecture. The palace is the only one of the period for which building records of any substance remain. Arslan and especially Goy (1993) give a clear account of the Venetian and Lombard craftsmen and attribute parts of the façade to the different masters mentioned in the account books. Goy publishes the rich documentary evidence from the building, relates it stylistically to other Venetian palaces, especially the Doge's palace, and gives a coherent history of its construction. He puts the deficiencies in its planning (mainly the lack of coordination between the upper two loggias and the floors of the rooms behind them) down to the lack of a professional architect, though the patron, Contarini, was – he argues – closely involved in the work.

46f. The Louvain town hall was begun in rivalry with the earlier town hall in Brussels in 1438 by the architect Sulpitius van Vorst. His death a year later brought Jan II Keldermans to head the work. Matheus de Layens, city architect since 1445, took over in 1447–8. For structural reasons he abandoned the idea of a single steeple on the Brussels model, and compensated by having four prominent angle turrets. Work was finished in 1468–9. See Maesschalk and Viaene (1977), Lemaire and Godts (1978); and also (in brief) Buyle *et al.* (1997) 177–8. See van Wylick-Westermann (1987) 12–13 (for Jan II Keldermans).

46g. For a detailed and well-illustrated description of the house, as well as a vivid account of the carcer of Jacques Coeur himself, see Favière (1992), who has a full bibliography. The art-historical position of the house, between aristocratic display and bourgeois comfort, is assessed by Albrecht (1986) 85–91, and (1995) 129–31.

47. Described in Viollet-le-Duc, *Dictionnaire*, under 'Maison', VI, 277.

47a. The different heights and degrees of decoration in the building reflect the function and status of the rooms, see Albrecht (1986) 88–9.

48. Otto Stiehl, *Das deutsche Rathaus im Mittelalter* (Leipzig, 1905) 156. The complex building history of this town hall, begun in 1299 and finished in the early sixteenth century, has been authoritatively disentangled by Zlat (1976). Mroczko and Arszyński, eds. (1995) vol. 2 260–2, give an exhaustive biblio-graphy and identify no less than six stages of construction, of which the most important, and the last (*c.*1470–1510), is characterized by the rich decorative and sculptural manner imported by Saxon masons of the so-called 'Lausitz lodge', from Görlitz (Briccius Gauske/Gautszke) and Meissen (Paul Preusse). It is in this period, with the construction of oriels on the east and south façades, and the incrustation of the exterior with elaborate sculpture and micro-architecture, that the town hall acquired the picturesque irregularity which Frankl describes.

49. On Aigues-Mortes, founded by Louis IX in 1240, cf. Pierre Lavedan, *Histoire de l'urbanisme* (Paris, 1926) I, 312. The plan of the town is almost regular, but the irregularities are sufficient to banish the possibility of monotony.

For Aigues-Mortes see Fliche (1950). For chequerboard new towns see the English and French *bastides* of the thirteenth and fourteenth centuries in

Languedoc, discussed in Lavedan and Hugueney (1969) (which deals with Villeneuve-sur-Lot and Vianne) and (1970). For a short account of Edward I's southern French *bastides*, and his new towns in England and Wales – all with chequerboard plans, see Shillaber (1947). There is also the series of German thirteenth-century colonial towns with regular layouts, e.g. Neubrandenburg, Prenzlau, Frankfurt/Oder, Chelmno (Kulm), Soldin. For some of these see Meckseper (1982) 70ff. Still the best general discussion of regular urban planning in central Italy is by Braunfels (1979, 4th edtn.), though for Florence and its new towns see Friedman (1988).

50. Described in *Darst. etc. Sachsen*, section 40 (Dresden, 1919) 396. For the origins and career of Arnold von Wesftalen, who came from the Leipzig family of Westfal, and not from Westphalia, see Lemper (1972) who provides the best account of his work at Meissen. Radová-Štiková (1974) and (1988) tries to locate his sources of inspiration, or the traces of his earlier career, in Magdeburg, Leipzig and the north aisle of Braunschweig cathedral. Koch (1960) finds direct French sources for the main façade of the Meissen palace: its roof architecture in Jacques Coeur's house in Bourges, and its principal staircase, with its enclosing arcades on the ground floor, in Pierrefonds. But he accepts too easily Viollet-le-Duc's fantastic reconstruction of the Pierrefonds staircase.

51. Cell-vault (*Zellengewölbe*) is the German name for a vault consisting of concave troughs or hollows separated by groins. See above, Chapter 4, Note 173B.

51A. The cell vault is Arnold von Westfalen's most obvious contribution to church architecture in eastern Europe, see above, Chapter 4, Note 173B. But other novelties of the Albrechtsburg – its 'curtain' window heads, its vaults without arcade arches, its preference for concavity and multi-level vault springing points – all had a formative influence on later church architecture, especially in Upper Saxony, Bohemia, Lusatia and Silesia. See Nussbaum (2000) 59–61, and Ullmann ed. (1984) 133–59.

52. For the Poitiers palace and Jean de Berry's modifications see Labande-Mailfert (1951) and Blomme (1993) 280–6. Its position in the history of French palace architecture is assessed by Albrecht (1986) 56–8. Ringshausen (1972) 69–72, sets it briefly in the context of Guy de Dammartin's work and early Flamboyant in France.

53. M. Junghändel and Cornelius Gurlitt, *Die Baukunst Spaniens* (Dresden, 1893–8) II, plate 77. For Harlech and Beaumaris see Taylor, in: Brown, Colvin and Taylor, vol. I (1963) 357–65, and 395–408; Brown (1970) 95–112. For Tarascon see Pressouyre (1963).

54. For Conway Castle see Taylor (1963) 337–54. Even more irregular is Caernarvon Castle of 1283–1327, see Taylor (1963) 369–95. Completely regular on the other hand is Beaumaris (begun 1295, construction finished in the 1330s). Tendencies towards regularity and irregularity existed side by side. For the Welsh castles as a whole see also Brown (1970) 95–111, and the useful survey of castles in Europe by Brown *et al.* (1980).

54A. Recent developments in the study of castles in the later Middle Ages have tended to stress, not just their military functions (as Frankl does in this section), but also their social and symbolic roles. An obvious case is Albrecht (1986) and (1995). But see also Coulson (1979) (for an extreme view of the non-military use of later castles), Thompson (1987) and Pounds (1994). Morris (1998) examines much of the secular architecture of Edward I of England's reign as the setting of Arthurian romance.

55. John Harvey, *Gothic England* (London, 1947). For the Palais de Justice in Rouen see Chirol (1926), and Chirol and Lavallee (1977). The town hall in Ulm was destroyed in 1944 and its interiors have been rebuilt. For Westminster Hall see Courtenay (1984) (1987) (1990), whose studies have concentrated on Hugh Herland's spectacular roof. Wilson (1997) concentrates on its more neglected arpects, including the hall's functions, its symbolism and its stylistic position in English Perpendicular architecture.

56. Junghändel and Gurlitt, *op. cit.* II, plate 77. The palace was begun under Don Iñigo Lopez de Mendoza in 1480 by the architect Juan Guas and the sculptor Egas Cueman, and completed *c.*1500. Despite interior damage in the Spanish Civil War 1936–9, it remains one of the finest examples of the 'Isabelline' or Hispano-Flemish style. See Azcárate Ristori (1951) and Herrera Casado (1975).

56A. Still fundamental for the 'coherent' and 'intellectual' nature of Gothic sculpture are Emile Mâle's two great volumes on religious art in France retranslated (1978) and (1984). Still indispensable for French Gothic sculpture is Sauerländer (1972). Camille's neo-Marxist and post-structuralist account (1989) amounts to a direct criticism of Mâle and his methods. Williamson's (1995) synthesis for Gothic Europe up to 1300 is judicious and well-informed.

56B. But not if the original twelfth-century choir had flying buttresses as now seems likely. See Bruzelius (1987) 551ff, Murray (1998) and Chapter 3, Note 38. James (1992) 276–7 also infers the presence of flyers from the start, but dates them to *c.*1215, when, he thinks, the vaults of the choir and eastern bays of the nave were finally built. This delay is implausible.

57. Frankl (1960) the chapter on Riegl (p. 627). But the *wollen*, the 'must' element in Riegl's concept is stressed by Pächt (1963), reprinted in (1977). Riegl's concept in the context of German art history in the late nineteenth century is discussed by Podro (1982) 71–97. The clearest and most up-to-date analysis of the term, and of Riegl's contribution to a supra-personal art history, can be found in Iversen (1993) and Olin (1992).

58. Bandmann, *op. cit.* 83.

59. On the six preserved heads, see above, note 33 to chapter 1. The difficulties of relying on drawings of the Saint-Denis column figures in discussions of style are dealt with by Crosby (1987) 192–7.

59A. For the chronology of the west façade see above, Chapter 3, Note 42A.

59B. For the transept sculpture are Chartres see above, Chapter 3, Note 5.

59C. For the Cologne choir statues see Williamson (1995) 195–7, with literature.

59D. For the Sainte-Chapelle statues see Sauerländer (1972) 471–2; Williamson (1995) 147–9.

60. Adolf Goldschmidt, 'Das Naumburger Lettnerkreuz im Kaiser Friedrich Museum in Berlin', *Jahrbuch der preussischen Kunstsammlungen*, XXXVI (1915) 137.

61. Hahnloser, *op. cit.* (Note 15 to Chapter 3) plates 4 and 15, text pp. 19 to 40.

62. Strongly curved hips can be seen in the Passion window in the west wall of the cathedral at Chartres, which dates from about 1150, and, again at Chartres, in the oculus in bay XVIII, which dates from before 1220. Illustrated in Yves Delaporte and Etienne Houvet, *Les vitraux de la cathédrale de Chartres* (Chartres, 1926) colour plates II and LII respectively. There are earlier Byzantine models.

63. Louise Lefrançois-Pillion, *Les sculpteurs français du XII siècle* (Paris, 1931), and *Les sculpteurs français du XIII siècle* (Paris, n.d.). See now Sauerländer (1972).

63A. Frankl's categories – 'Transitional', 'the Transition' – are confusing. In reality, most authorities now accept that the beginnings of Gothic sculpture and of Gothic architecture, at least in France, went hand in hand. Both new styles begin more or less simultaneously at Saint-Denis (west portals) and Chartres (west portals). See Sauerländer (1972) passim and Williamson (1995) 11–17. Art historians of metalwork and painting still, however, refer to products in these media dating to the last quarter of the twelfth century as belonging to the 'transitional style'. To some, including Frankl, this concept simply means a bridge between Romanesque and Gothic, or a kind of no-man's land in which currents of both Romanesque and Gothic, and their implicit attitudes to the world, intermingle. See Dodwell (1993) 404–5. To others, 'Transitional' is not a bridge but a style in its own right, running parallel to Gothic rather than being part of it, see Lasko (1972) 240–52. Morgan and Sandler (1987) 149, briefly discuss the problems of late twelfth- and early thirteenth-century English painting developing at a different stylistic pace than architecture. Beside highlighting problems of stylistic classification, which, ironically, the term 'transitional' was designed to resolve, the whole concept of 'transitional' is problematic, since it tends to identify its artefacts as little more than the connecting links between 'static' or 'untransitional' works of art which 'truly' belong to one or another recognized stylistic period. Some of these issues were discussed by Bony and Panofsky in Bony (1963). Panofsky recommended replacing the word 'transition' with a set of more accurate concepts, which register various stages in the evolution of forms: 'anticipation', 'mutation', 'evolution after mutation' and 'compromise after the fact'. The undertones of evolutionary determinism in the notion of 'transition' are neatly uncovered by Sauerländer (1987). On the general problems of defining periods and styles see Bizarro (1992) 150–60, and Gombrich (1979) 199–206. Kauffmann (1985) distinguishes between a common style within media or techniques (a *Gattungstil*) and the more dubious concept of a style common to a whole period (*Zeitstil*). See also above, Chapter 1, Note 38D.

64. Julius Baum, *Die Malerei und Plastik des Mittelalters (Handbuch der Kunstwissenschaft)* (Wildpark, 1930) 336, where the author considers the sculpture on the Porte Sainte-Anne in Paris to be Early Gothic. He gives the date of the beginning of the High Gothic style in sculpture as 1220; even this is thirty-six years after the date of the High Gothic design for the architecture of Chartres. For an analysis, largely iconographical, of the St Anne portal see Horste (1987). For Laon see Sauerländer (1970) 42–5, and (1972) 51–2, 425–9; and Williamson (1995) 35–6.

64A. Few would now agree with Frankl's classification of the Senlis portal as 'Romanesque'. In an incisive study, Brouillette (1984) especially 19–32, has dated it to 1165–70, attributed it to an atelier working on the Porte de Valois at Saint-Denis and at the St Anne portal at Notre-Dame in Paris, and traced its fluid and dynamic style to contemporary metalwork. In all, the figures (particularly in the archivolts) show a three-dimensional freedom and an independence from their architectural setting which is quite distinct from the flat relief of Romanesque carving, and even from the first generation of Romanesque-inspired early Gothic sculptures in the Ile-de-France. See also Williamson (1995) 25–8.

64B. See Müller (1966) 9–10; and Morand (1991) 79–85.

65. Nikolaus Pevsner, *The Leaves of Southwell* (Harmondsworth, 1945).

65A. For vegetal naturalism in Gothic sculpture see Behling (1964). English naturalistic carving is discussed by Givens (1986).

66. In 1549, in a letter to Benedetto Varchi, Michelangelo wrote 'che la pittura e la scultura e una medesima cosa' (Milanesi 522). Although this opinion was given in connexion with the strife between the protagonists of the two arts, it can still be recommended as fruitful for thought to those people who see too great a difference between sculpture and painting.

67. André Michel, *Histoire de l'art*, II, première partie (Paris, 1906) 332.

68. Alfred Stange, *Deutsche Malerei der Gotik* (Berlin, 1934) IX.

69. Henri Auguste Omont, *Psautier de Saint Louis* (Paris, 1902). See now Beer (1981) 62–91 and Branner (1977) 132–6, 238.

70. It is known that architectural frameworks existed long before this, for example at Chartres itself, but they are, at best, Transitional in style, e.g. the pointed arc over the so-called Notre-Dame de la belle Verrière, which itself dates from about 1180, but had the framework added only about 1215, and also Maréchal Clement and Saint-Denis in bay CII (of about 1230). See Delaporte, *op. cit.* plates XLI and CCVIII. Architecture as a feature of stained glass was first investigated in a fundamental article by Grodecki (1949). For the early appearance of Gothic frames and architectural canopies in stained glass see Frodl-Kraft (1956) and (1972) (the latter article concerned wholly with Reims). More generally there is Grodecki and Brisac (1985) 26. Note the Legend of St Caraunus window at Chartres, dated *c.*1220, showing a precocious use of Gothic arcades as settings for figures, arcades which anticipate the general concept of 'architecturalizing' narratives, found later in the St Louis Psalter. The most recent work on early fictive archritecture in stained glass is Kurmann (1998) with full bibliography. For the Chartres windows as a whole see Note 70A below.

70A. The literature on the stained glass at Chartres is enormous and, especially recently, contentious. Questions of chronology have been considerably refined since Frankl's (1961) misguided attempt to date the windows according to the style of their armatures. Van der Meulen's (1967) 155–7, assertion that the making of the windows played no integral part in the construction of the cathedral has also been largely discredited. Most authorities now consider the glazing to have closely followed the progress of the building. Thus the windows of the nave aisles and navc clerestorey are put at about 1200–10, followed by an early phase of glazing in the ambulatory (*c.*1210) and the choir clerestorey (*c.*1210–20). After a break, work resumed *c.*1230 with more glazing in the ambulatory, and with the installation of windows in the clerestorey and terminal walls of the transepts. Much of the most interesting literature on the Chartres glass in recent years has been concerned less with issues of style and chronology than with such questions as narrative reading – see Kemp (1996), patronal power – see Williams (1993), or iconographic programmes and liturgical needs – see Manhes-Deremble (1993). A convenient summary of the problems, and the disagreements, can be found in Kurmann-Schwarz (1996) and Kurmann and Kurmann-Schwarz (1995).

71. Illustrated in Delaporte, *op. cit.* plate 52.

72. *Ibid.* plate 65.

73. *Ibid.* plate 125.

74. See Aubert, Grodecki, Lafond, Verrier, (1959) 71–349, Jordan (1994) (The most penetrating analysis of the glass as natrative) and Weiss (1998).

75. For a short description of the Sainte-Chapelle glass see Grodecki (1975) pp. 47–68; and Grodecki and Brisac (1985) 100–8. Few would now agree with Frankl that the fictive archritecture of the Sainte-Chapelle glass is not Gothic.

76. On Petrarch, Boccaccio, etc., cf. Frankl (1960) 237ff.

76A. See now the dissertation by Burger (1978), who sees the whole chapel space as a *teatrum sacrum*, but overinterprets it as an image of the protective mantle of the Madonna della Misericordia.

77. Kenneth Harrison, *The Windows of King's College Chapel in Cambridge* (Cambridge, 1952). For a complete survcy see Wayment (1972). See also Marks (1993) 207f.

78. Frankl (1960) the chapter on thc confcrences of experts at Chartres, Milan, and Gerona (p. 57ff.).

79. *Ibid.*, the chapter on Romanticism (p. 447ff.).

80. Gottfried Semper, *Der Stil in der technischen und tektonischen Künsten* (Munich, 1860–3) 2nd ed. (1878) XX and 475n.

81. Dehio (1901) II, 15.

82. Willi Drost, *Romanische und gotische Baukunst* (Potsdam, 1944) 5.

83. 'Neque enim quaero intellegerc ut crcdam, sed credo ut intelligam.'

83A. The predominant influence of neo-Platonism during the twelfth century, that is, during the formative period of Gothic architecture, and the lack of any serious understanding of Aristotle's philosophical works – *de Anima*, the *Metaphysics* and the *Ethics* – until the early and mid-thirteenth century, makes the crude generalization that Romanesque = Platonism, and Gothic = Aristotelianism impossible to sustain. Abbot Suger, like most of his clerical colleagues, was a conventional Platonist. See Chenu (1968) especially 51–100; and also von Simson (1956 and 1962), passim.

84. Basically he follows the article on the beginnings of the Gothic style in the *Festschrift für Heinrich Wölfflin* (Munich, 1924), in so far as the contrast between the two styles had already been formulated there.

85. Erwin Panofsky, *Gothic Architecture and Scholasticism* (Latrobe, 1951). Panofsky's thesis has attracted more criticism from art theorists than from specialists in the history of the Middle Ages. Gombrich (1969) and (1979) 199ff, saw it as one of the last and most sophisticated fruits of Hegelian *Geistesgeschichte,* but no less flawed on that account. Podro (1982) 199–202, gives a neat summary of the book's argument. Dittmann (1967) 84–108, 125–39, assesses the book briefly in the light of Panofsky's debt to Mannheim and Cassirer.

86. *Op. cit.* 21. Expressed scholastically: 'principium importans ordinem ad actum' (after Thomas Aquinas), meaning 'the principle that regulates the act'.

87. Cf. the essay by A. D. F. Hamlin, 'Gothic Architecture and its Critics', *Architectural Record*, XXXI (1916) 389 etc. and 419 etc.; XL, 97; XLI, 3.

87A. One such attempt to tackle the whole problem has been made jointly by a historian of medieval philosophy and an architectural historian, see Radding and Clark (1992). They follow Panofsky's concept of shared 'mental habits' by locating the similarities between scholasticism and architectural design in similar mental behaviour, notably in the creation in both areas of similar 'disciplines' and cognitive processes. The author's arguments, however, are less successful than Panofsky's, see Crossley (1994).

88. In the original Greek: *καὶ κυκλόεν τοῦ θρόνους* etc., ch. 4, line 3.

88A. For Albrecht's full text see Wolf and Nyholm, eds. (1955–94).

89. However, one could hardly say that every bay of a Gothic vault was a separate heaven: for example that Reims has nine high heavens with ribs in the nave, accompanied by nine lower heavens on each side with ribs, and with trapezoid heavens in the ambulatory; and it would be ridiculous to spcak of star-heavens or net-heavens. The word 'heaven' remains a metaphor, and the history of art is concerned with the forms of concrete objects.

89A. Thc rational and archeological approach to the poem, which assumed that Albrecht's descriptions corresponded to a 'real' building which could be reconstructed, culminated in Boisserée's fantastic and implausible reconstruction. But the idea that the building could in some sense be translated into reality was revived by Sedlmayr (1950) 85–91, whose literal identification of the Gothic cathedral (as an *Abbild* or 'picture') with the essentials of Albrecht's vision, has been influential in German approaches to the 'iconography' of medieval architecture, especially when it also emphasized the mystical and numinous character of both the Cathedral and the Temple. Timmermann (2000) reads Albrecht's description in a different light, as exemplyfing a system of aesthetic and symbolic values closest to contemporary micro-architectural metalwork. Timmermann also gives full literature.

90. This problem is discussed in detail in Frankl (1960) 159ff. For Karlstein and the Wenceslas Chapel see above, Part Two, Note 16.

91. Adama van Scheltema, *Der Osebergfund* (Augsburg, 1929) 38ff.

92. Max Dvořák, 'Idcalismus und Naturalismus in der gotischen Skulptur und Malerei', *Historische Zeitschrift* CXIX (1918). Reprinted in *Kunstgeschichte als Geistesgeschichte* (Munich, 1918). See now the English translation by R. Klawitzer: Dvořák (1967).

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JACKET ILLUSTRATIONS: *front*, Laon Cathedral, begun after 1155, interior looking east; *back*, Lübeck, St Mary, vaults of the Briefkapelle, 1310–20.

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