History of Architecture

This book is the second history of architecture learned in Architecture school Start of Western and Non-Western Architecture. It focuses on the Middle Ages Architecture, starting from 300 AD to 1750 AD with The Romanesque. The Gothic, Renaissance, Baroque Architecture with reference to German, France and Italy give some analyses. This semester deals with the history and development of art, architecture and the built environment in the West from the 15th century to the end of the 19th century, Neoclassicism and 19th century revivals, and concluding with the movements leading to the rise of Modernism.

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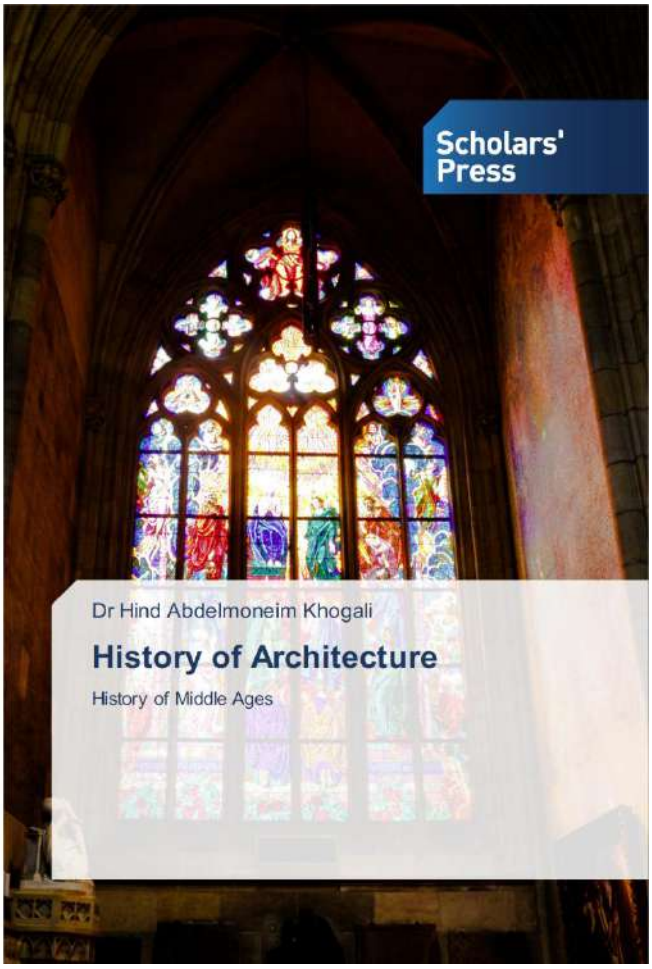

Dr.Hind Abdelmoneim Khogali

History of Architecture, History of Middle Ages

Scholar's Press

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History of Architecture History of Middle Ages

By

Dr.Hind Abdelmoneim Khogali

DEDICATION

In His HOLY Book, the Almighty Allah mentioned: **"And says (unto Act! Allah will behold your actions, and (so will) His messenger and the believers, and you will be brought back to the Knower of the Invisible and the Visible, and He will tell you what you used to do"** (Surat Al-Tawbah. 105); and He mentioned: "**And We have enjoined Upon man concerning his parents - His mother beareth him in weakness Upon weakness, and his weaning is in two years - Give thanks unto Me and unto thy parents. Unto Me is the journeying**" (Surat Luqman, 14). This dissertation is dedicated to my beloved mother Mrs. Al-Sareerah Mohammad Ata-Almanan. I cannot find more eloquent words than Prophet Mohmmad's words Peace Be Upon him as he mentioned: "**Who is the most worthy of your company? He mentioned: Your mother. Then, he added: Your mother and added: Your mother, then, your father**". My dear father, Engineer Dr. Abdel Moneim Khogali, who worked and struggled until his name flew up in the sky of Sudan. His plant has produced delicious fruits literally speaking. I pray Almighty Allah to watch over him, protect him, and bestow upon him His blessings and bounties. It is a great honour and source of ultimate happiness to me to dedicate this effort and dissertation to my beloved parents, in recognition of their love and care. I also dedicate this effort and dissertation to my respectable beloved husband, Dr. Al-Fatih Mohi Al Dein. I cannot forget, and I appreciate your endless and relentless support and love. I also dedicate this work and dissertation to my beloved children: Muhammad, Momen, Mazin and Noon. This work should be a guiding light for you to follow on the path of knowledge and learning

Bio:

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١. My website www.hindamkh.blogspot.com
٢. **https://sites.google.com/d/1k4D37HXAitHSihQdjQhNppSLpJzVSqdK/p/10_GhdFwiVQYuYAcSYtWlRpQbtLa3zA3I/edit**
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٤. **Research gate, Hind Abdel moneim https://www.researchgate.net/profile/Hind_Abdel_moneim?ev=hdr_xprf&_sg=KghtHqizOFxUKtLD-GaPxlaEWEmBqTVl9HN1KBj5DbkQxokASq_tQ65Zf_7QjXiEeIeWKW8OfhF4sHu-LXQ2qtq3**
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Channel 2) https://www.youtube.com/feed/my_videos

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HISTORY OF ARCHITECTURE

HISTORY OF THE MIDDLE AGES

CHAPTER ONE

EARLY CHRISTIAN ARCHITECTURE

EARLY CHRISTIAN ARCHITECTURE.

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE THE EARLY CHRISTIAN ARCHITECTURE

1. Influences.
i. GEOGRAPHICAL.
n. GEOLOGICAL.
in. CLIMATE.
iv. RELIGION.
v. SOCIAL AND POLITICAL.
vi. HISTORICAL.

٢. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.
2. Walls, their construction and treatment. -
3. Roofs, their treatment and development.
4. Openings, their character and shape.
5. Columns, their position, structure, and decoration.
6. Mouldings, their form and decoration.
7. Ornament, as applied in general to any building.
8.Lighting:
9.Arches:
10.surfaces:
11.forms :
12. Colours:
13. domes,
14.scale:

4. Reference Books.

University of Toronto (1761), History of architecture on comparative method, USA.

1.THE MAIN FACTORS HELPS IN APEARING THE EARLY CHRISTIAN ARCHITECTURE:

i. Geographical. The position of Rome as the centre of a world-wide empire was an important factor.

" All roads lead to Rome," and Christianity, to become universal, had to grow up at the capital, however eastern its birthplace.
Ravenna, subdued by Justinian in A.D. 537, was the connecting. link of the early Christian and Byzantine styles.

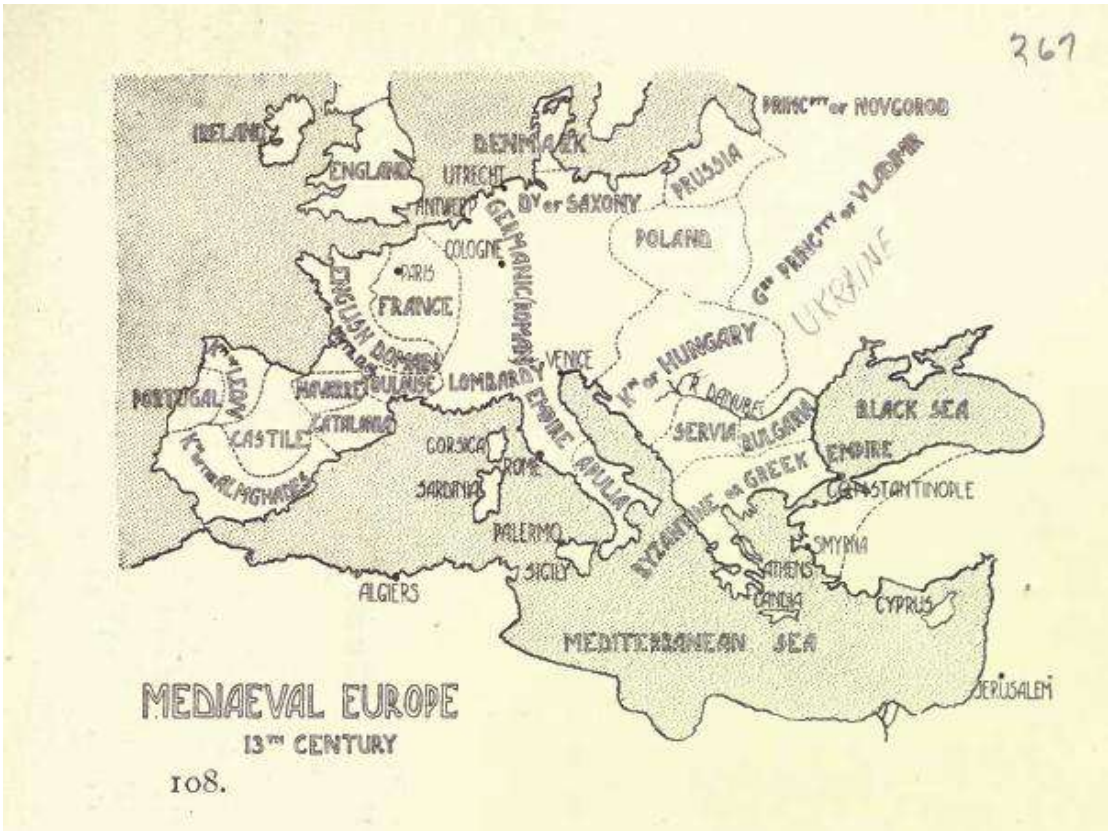


Figure 1.1: Europe map 13th Century

i. INFLUENCES.

ii. Geological. The quarry of the ruins of Roman buildings influenced the architectural treatment of the style, both regarding construction and decoration, as columns and other architectural features and marbles from the older buildings were worked into the design of the new basilica churches of the Christians.

iii. Climate. like Roman Architecture The north has the climate of the temperate region of continental Europe; central Italy is more genial and sunny; while the south is almost tropical.

iv. Religion. History presents no phenomenon so striking as the rise of Christianity, which spread so rapidly that in a very short period it was diffused throughout the whole civilized world.

In A.D. 313 Constantine issued his celebrated decree from Milan, according to Christianity equal rights with all other religions,

and in A.D. 323 he himself professed Christianity, which then became the established religion of the Roman Empire. The Christians, who up to that period were an unpopular dissenting sect, and had worshipped in the Catacombs, which formed their burial-places, were now able to hold their services openly and freely.

The Council of Nice, A.D. 325, called by Constantine, was the first of several Councils of the Church for the settlement of disputes about heresies.

A temporary reaction took place in A.D. 360-363, under Julian, known as the " Apostate."

EARLY CHRISTIAN ARCHITECTURE.

Gregory the Great (590-604), when besieged by the Lombards at Rome, employed the imperial army of Constantinople and acted as the defender of Rome, making common cause with the people against the Lombards and others.

v. Social and Political. On changing the capital of the

empire from Rome to Byzantium in A.D. 324 Constantine practically reigned as an absolute monarch till his death in A.D. 337, the old Roman political system coming to an end.

The division of the Roman Empire first took place in A.D. 364, Valentina being Emperor of the West and his brother Valens of the East. Theodosius the Great, reigning between the years A.D. 379-395, reunited the Eastern and Western portions of the Empire.

The series of emperors in the West came to an end in A.D. 476, and the empire was nominally again reunited, Zeno reigning at Constantinople over the Eastern and Western Empires.

Theodoric the Goth reigned in Italy, A.D. 493-526, a period of peace and prosperity, in which Byzantine art influenced Early Christian art by way of Ravenna, which, from 493-552, was the capital of the Gothic dynasty. Kings of separate states were then elected in Italy, Spain, Gaul, and Northern Africa, Odoacer, the new king of Italy, recognizing the supremacy of the one Roman Emperor at Constantinople.
The emancipation of the West from direct imperial control made possible the development of Romano-German civilization, which facilitated the growth of new states and nationalities, gave a fresh impulse to the Christian Church and laid the foundations of the power of the Bishops of Rome. From the Roman or common speech several of the chief.

languages of modern Europe commenced to arise, and in consequence are called Romance languages.
vi. Histoncal. The Early Christian period is generally taken as lasting from Constantine to Gregory the Great, or from A.D. 300 to 604. The Teutonic invasions of Italy commenced about A.D. 376, and Teutonic settlements took place within the empire about this time, these movements being caused by the incursions of the Huns into Germany.
The West Goths sacked Rome under Alaric in A.D. 410. The defeat of Attila, king of the Huns, at the battleChalons, A.D. 451, aided in consolidating Christianity in Europe. During the reign of Gregory, the Great (A.D. 590 to 604) the Latin language and Early Christian architecture, the latest phase of Roman art, ceased to exist, and for the next two centuries architecture was practically at a standstill in Europe, when the old Roman traditions were to a great extent thrown aside, and Romanesque architecture was gradually evolved.
F.A. N

COMPARATIVE ARCHITECTURE.

2. ARCHITECTURAL CHARACTER.

O**ne** style was evolved from another so gradually that it is impossible to say exactly where the one ended and the next began. This gradual growth characterizes progress in other departments as well as Architecture. Each age feels its way towards the expression of its own ideals, modifying the art of the past to meet fresh conditions.

Little money being at the command of the Early Christians, it was necessary for them to adopt places ofworship which could be readily constructed. Many of the Roman Temples, which were now rendered useless for their original purpose, were utilized for the new faith, and in addition new churches built on the model of the old Roman basilicas and

formed of columns and other features from Pagan buildings, were erected.

These are known as basilican churches, and were often situated over the entrances to their former hiding-places or crypts, and were constructed with columns of different orders and sizes which were made to an uniform height by the addition of new pieces of stone, or double bases, or in some cases by the omission of the base mouldings (No. 77).

On this account, although extremely interesting from an archaeological point of view, the early buildings can hardly have the value for study, in the architect's mind at least, which a new manner in architecture, arising from new structural necessities, is certain to possess.

The earlier basilican churches had their columns closely spaced, and were crowned with the entablature which supported the main wall, on which rested the wooden roof (No. 75 B), but as the arch came more into general use these columns were spaced further apart, being connected by semicircular arches
(Nos. 72, 73 A and 74).

The basilican church with three or five aisles, covered by a wooden roof, is the special type of the style as opposed to the vaulted types of the Byzantine style (Nos. 80, 81, 84 and 85), in which a circular dome was placed over a square space by means of the pendentive (No. 79).

The architectural character is impressive and dignified ; due to the increase in the apparent size of the basilicas by the long perspective of the columns, and the comparative lowness of the interiors in proportion to their length.

Figure 1.2:The Basilican Church,Rome.

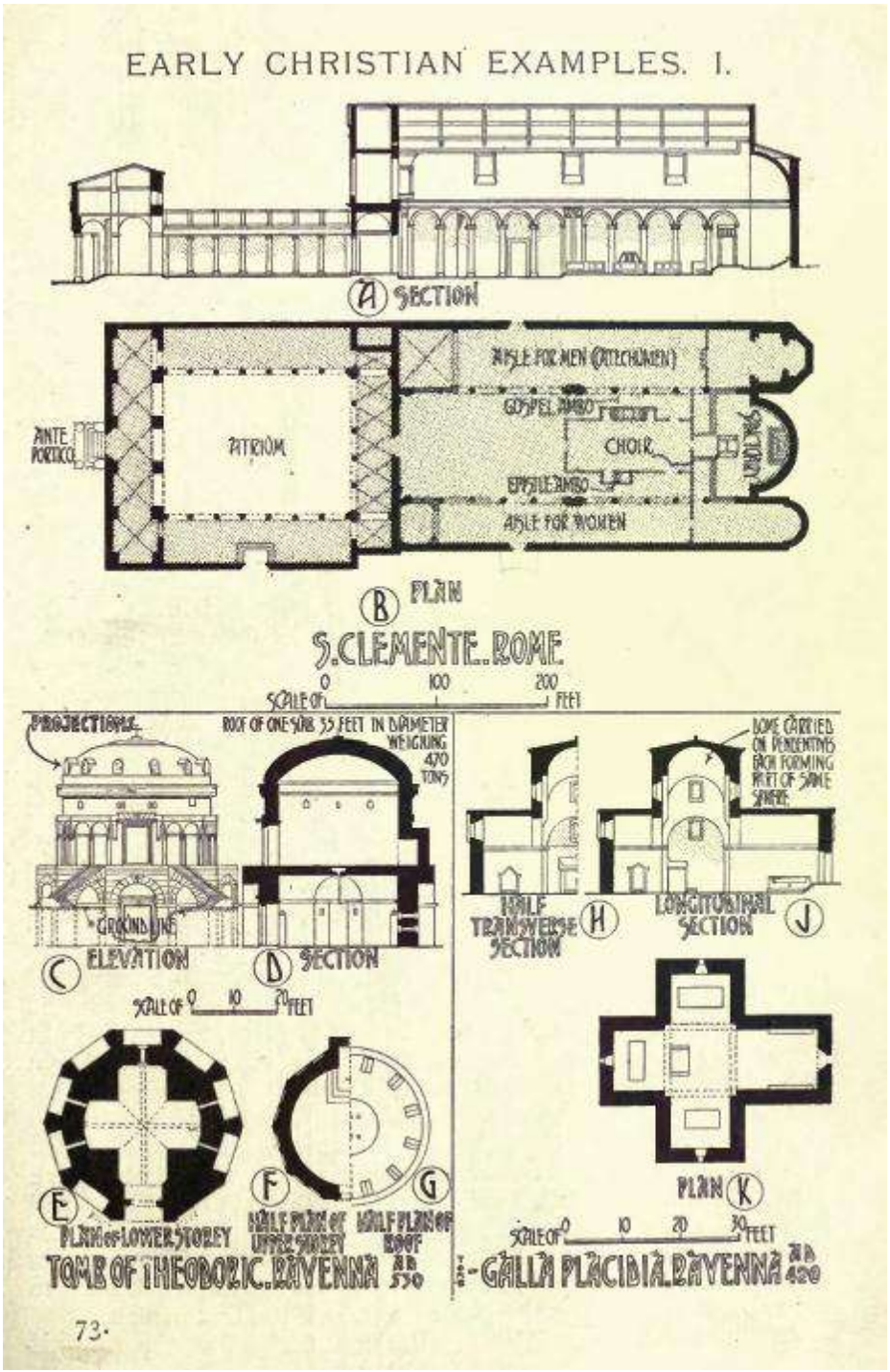


Figure 1.3: Early Christian Example I.

Discerption of 72, 73

How suitable the Roman basilica type (No. 58) was for
Christian worship is seen from the plan of S. Clemente,
Rome, A.D. 1084 (Nos. 72, 73 B), which, ^although rebuilt in the eleventh century, contains the original internal arrangement of the churches of the fifth century.
An atrium or forecourt, being an open space surrounded by
arcades, formed an imposing approach in most of the Basilican churches. The covered portion next the church 'called the narthex was the place for penitents. In the centre of the atrium was a fountain or well, the water from which was used for washing before entering the church a custom which still survives in an altered form amongst Catholics, who dip their fingers into a stoop,
or holy-water basin, at the entrances of their churches.
The nave, lighted by a clerestory of small windows, had an aisle on either side, such aisles being usually half the width of the nave. ([Occasionally two aisles occur on each side of the nave, as in the Basilicas of S. Peter (No. 75 c), S.
PaulJ(No. 75 E) and S. John Lateran.
Galleries for the use of women were sometimes placed over the aisles, as at S. Agnese and S. Lorenzo ; but where none existed the sexes sat apart on opposite sides of the nave.
A transept, called the " bema," or "presbytery," which existed in a modified form in the pagan basilicas, was occasionally introduced, converting the plan into a Latin cross, of which the nave was the long arm. Some consider, however, that this cruciform ground plan was derived from the buildings erected for sepulchral purposes as early as the age of Constantine.
A choir became necessary, owing to the increase of .ritual,
and was inclosed by low screen walls, or
' " cancelli "
(from which the word chancel is derived), and provided with an " ambo " or pulpit on either side, from which the gospel and Epistle were read (No. 72).
The bishop took the place formerly occupied by the
pratprf 1*!
"
questor" (page 136), until in subsequent ages the seat was moved to the side, becoming the bishop's throne.
The presbyters or members of the council of the early Church, occupied seats on either side of the bishop formerly occupied by the assessors.

The apse became the sanctuary which remained circular-ended in Northern Europe.
The altar in front of the apse, formerly used by the Romans for the pouring out of libations, or sacrifices to their gods, was now used for the celebration of Christian rites, and a baldachino, or canopy, supported on marble columns, was erected over it. In later times the altar was frequently placed against the east wall of the apse (No. 72).
The interiors of these buildings owe their rich effect to the use of glass mosaic (" opus Geranium,") which was placed frequently in a broad band (No. 74) above the nave arcading and to the semi-dome of the apse (No. 78 G, K), which is frequently richly treated with a central figure of Christ seared in glory and set in relief against a golden background.

Basilican Church of S. Peter

(A.D. 330) was erected near the site of the martyrdom of S. Peter in the circus of Nero. It had a "transept," or “bema," 55 feet wide, and 113 feet high (No. 75 A, B, c). Five arches, the centre called the arch of triumph, gave access from the body of the church, and at the sanctuary end was a semicircular apse on a raised floor, against the centre of the wall of which was the Pope's seat. The priest stood behind the altar, and thus faced east, as the chancel was at the west end of the church.

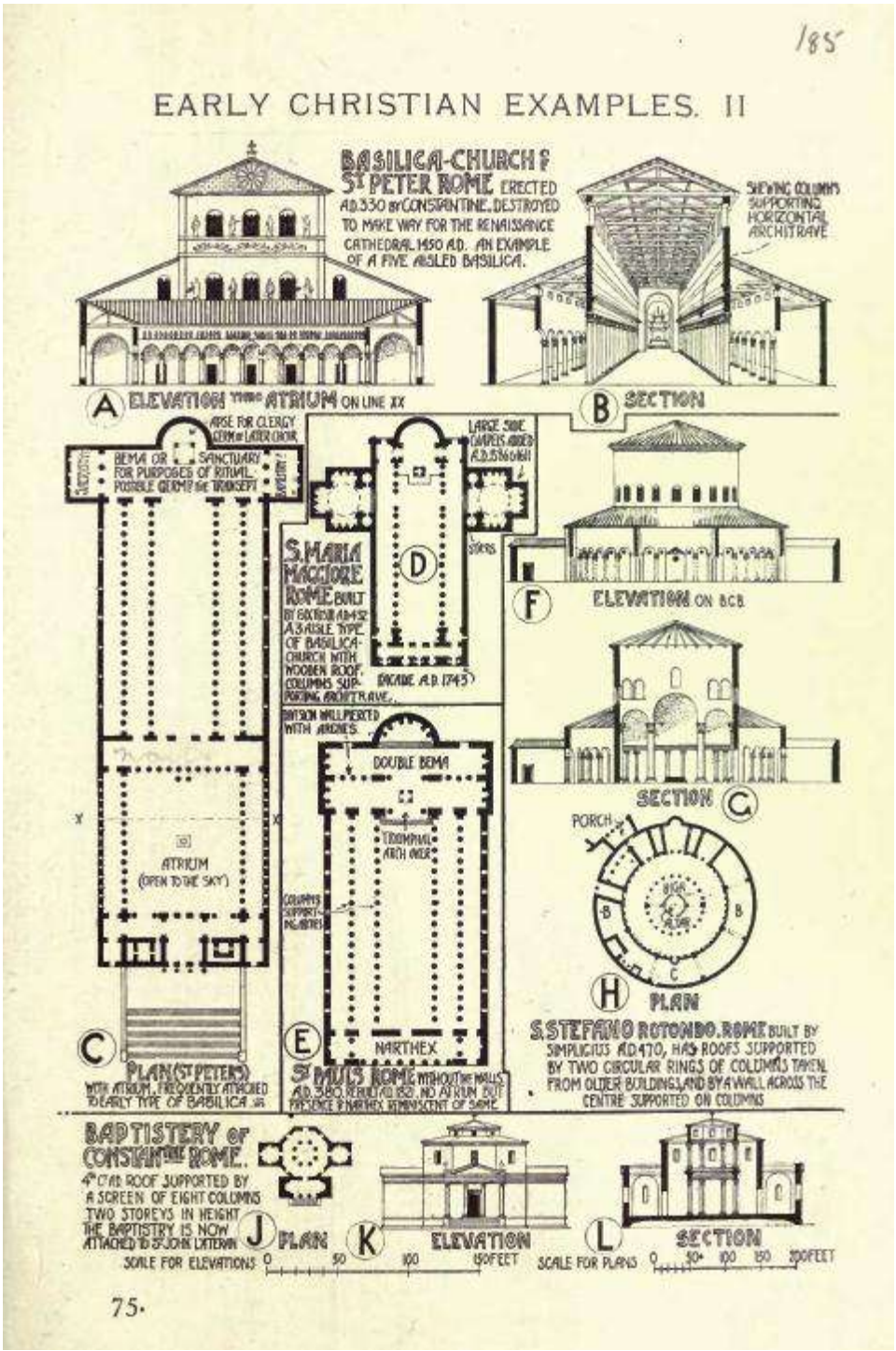


Figure 1.4: Early Christian Example II

S. John Lateran (A.D. 330)

has been altered so much in modern times as to have lost its early character. There were in all thirty-one Basilican churches in Rome,

mostly made up of fragments of earlier pagan buildings. The interiors of these basilicas are impressive and severe, the repetition of the long rows of columns being grand in the extreme, as in the interior view of S. Paolo fuori le mura (Nos. 74, 75 E), built A.D. 380 by Theodosius but re-erected in A.D. r82i.

Figure1.5: Basilica Church S. PAUL, ROME

BAPTISTERIES

are another description of building met with in Early Christian architecture. They were originally used only for the sacrament of baptism ; hence the name ". Baptistery." The form was derived from the Roman circular temples and tombs, already described. There was generally one baptistery in each city, as at Ravenna and Florence, and it was as a rule a detached building, usually adjoining the atrium or fore-court. Indeed, until the end of the sixth century of our era the baptistery appears to have been a distinct building ; but after this period the font came to be placed in the vestibule of the church. In adopting the Roman tombs as models for these buildings, the early Christians modified them to some extent, for the internal columns which in Roman examples were

generally used in a decorative way were now used to support the walls carrying the domes. To cover a large area with one roof was difficult, but by the addition of an aisle in one story round a moderate-sized circular tomb, the inner walls could be replaced by columns in the lower half, resulting in such a building as these early baptisteries (No. 75 H, j). The Baptistery of Constantine, Rome (No. 75 j, K, L) is octagonal, and the roof is supported by a screen of eight columns, two stories in height. The Baptistery, Nocera, between Naples and Salerno, is circular, being 80 feet in diameter, with two rings of columns.

This building is domed and covered with a wooden roof and appears to be the first instance of the use of both, as the Roman architects always allowed the stone vault to show externally, as in the Pantheon. In the case of this building, however, the vault is merely an internal ceiling which is covered with an external wooden roof, and is similar to the practice of Gothic architects,

who, in the mediaeval period, covered the stone vaults of their churches with timber roofs (No 109). S. Stefano Rotondo, Rome (A.D. 470), though not a baptistery, is a good example of a circular plan of similar type (Nos. 75 F, G, H, and 77), being 210 feet in diameter, and with roof supported on two circular rings of columns, all taken from older buildings, the outer range supporting arches, and the inner a horizontal architrave. The two central columns are an addition.to support the roof timbers.

The Baptistery, Ravenna, founded at the end of the fourth. century, is an octagonal structure with two arcades in the interior one above the other. The dome, constructed of hollow tiles, has.

Figure 1.6: Early Christian Architecture, Basilica Church.S.Maria.

Figure 1.7: Early Christian Architecture, S.STEFANO, ROME.

3.. COMPARATIVE.

1. Plan. The early Christians adopted the Basilican model for their churches (Nos. 73 and 75), but in addition the halls, baths], dwelling-houses, and even the pagan temples were used for places of worship. An isolated circular church, used as a baptistery, 1 was generally attached to the chief Basilica or cathedral.

2. Walls. These were still constructed according to the Roman methods, rubble or concrete walling being used, faced with plaster, brick, or stone. Mosaic was used internally, and sometimes externally on the west facades for decorative purposes.

3. Openings. Doors, windows, and niches were generally spanned by a semicircular arch, the use of the lintel being dispensed with. The window openings were small (No. 78 D, F) ; those to the nave being in the clerestory high in the nave wall above the aisle roof, a feature which was developed in Gothic architecture (Nos. 73 A, 75 B, G).

4. Roofs. Wooden roofs (No. 75 B), covered the central
nave, simple forms of construction such as King and Queen post trusses being employed.. These roofs were ceiled in some ornamental manner (No. 74), the decoration of a visible framework being of a later date, as at S. Miniato, Florence (No. 93). The side aisles in the churches were occasionally vaulted, and the apse
was usually domed and lined with mosaic (Nos. 72 and 78 G, K).

5.Lighting: small high windows. Little light

6.Arches: like roman arches, semicircular arch**.**

7.surfaces: squares, rectangular and circular surfaces

8.forms :cubic forms, cylindrical

9. Colours: natural colours, they used bricks and stones on their buildings.

10. domes, vaults: there are domes and vaults

11.scale: huge scale, or out of scale

12. Columns (Nos. 72, 77 and 78). They are often of different.
design and size, being mostly from earlier Roman buildings which had fallen into ruins &kt were purposely destroyed. It was natural that the early Christian builders, not being good craftsmen themselves, should use in their buildings the materials and ornaments which had been left by the pagan Roman. A rich and grandiose effect wTas often obtained at the expense of fitness in the details of the design. Middleton states that all the fine marble.

columns
1 In later Romanesque and Gothic periods, these early baptisteries, themselves founded on the Roman circular temples and tombs, were treated as follows in the different European countries , Corinthian and composite.

In Italy, where the churches were not derived from a combination of a circular eastern church with a western rectangular nave, as in France, but were direct copies of the Roman basilica, the baptistery always stands alone.
In France, circular churches were built to stand alone, and when it was necessary to enlarge them, the circular building was retained as the sanctuary or choir, and a straight-lined nave was added for the use of the people. Thus from the circular church originated the apsidal choir of the Gothic period.

In Germany, the earlier baptistery was joined to the square church and formed a western apse. The Germans also built circular churches, and then added choirs for the priests, that they might pray apart from the people (No. 83 E).

In England, the Gothic builders generally preferred a square east end, except where French influence made itself felt, as at Westminster. Circular churches were erected, as the Temple Church, London, but they were few in number, and due to the Knights Templars, being built as copies of the Rotonda of the Holy Sepulchre at Jerusalem.

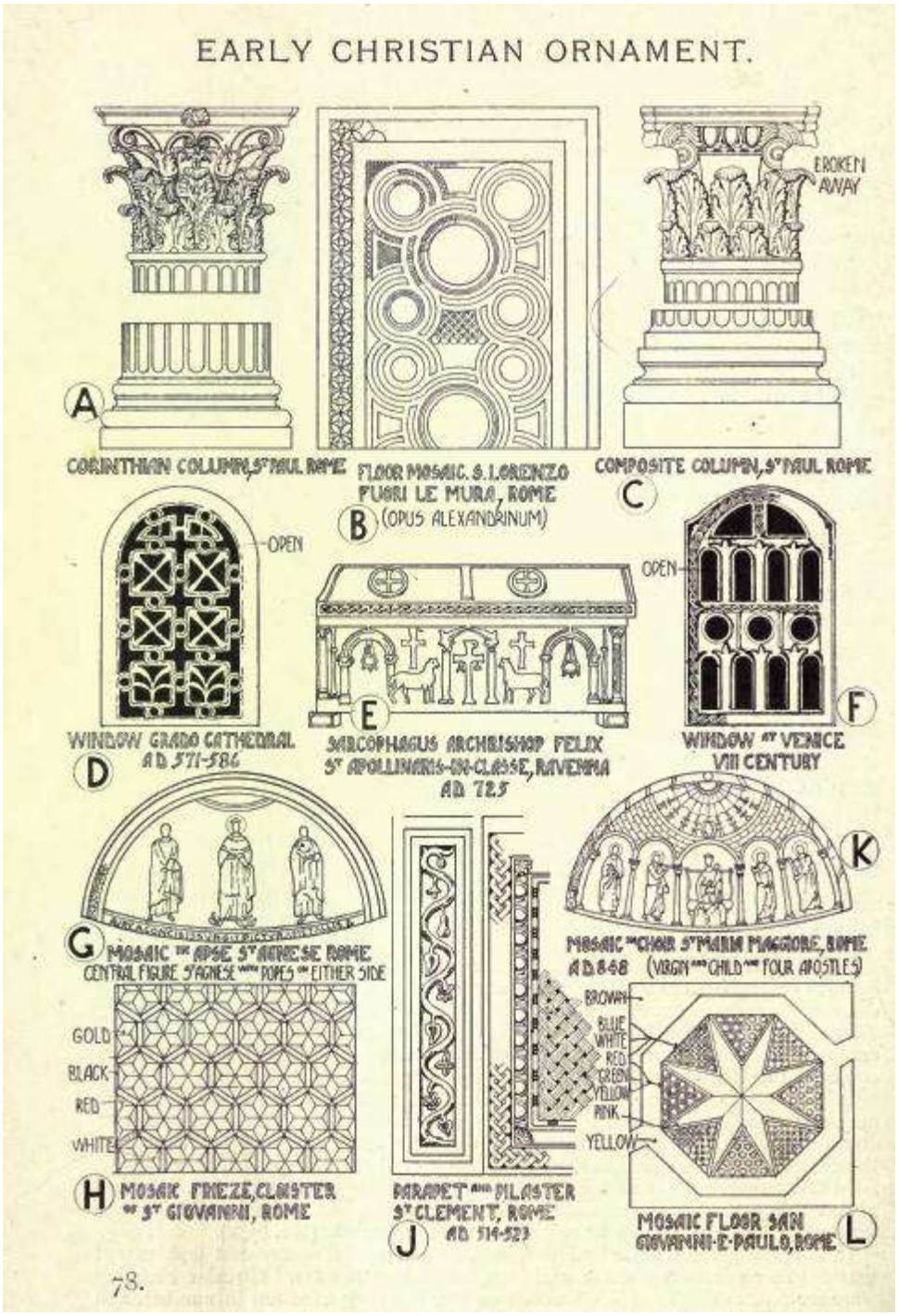


Figure1.8:Early Christian Ornament.

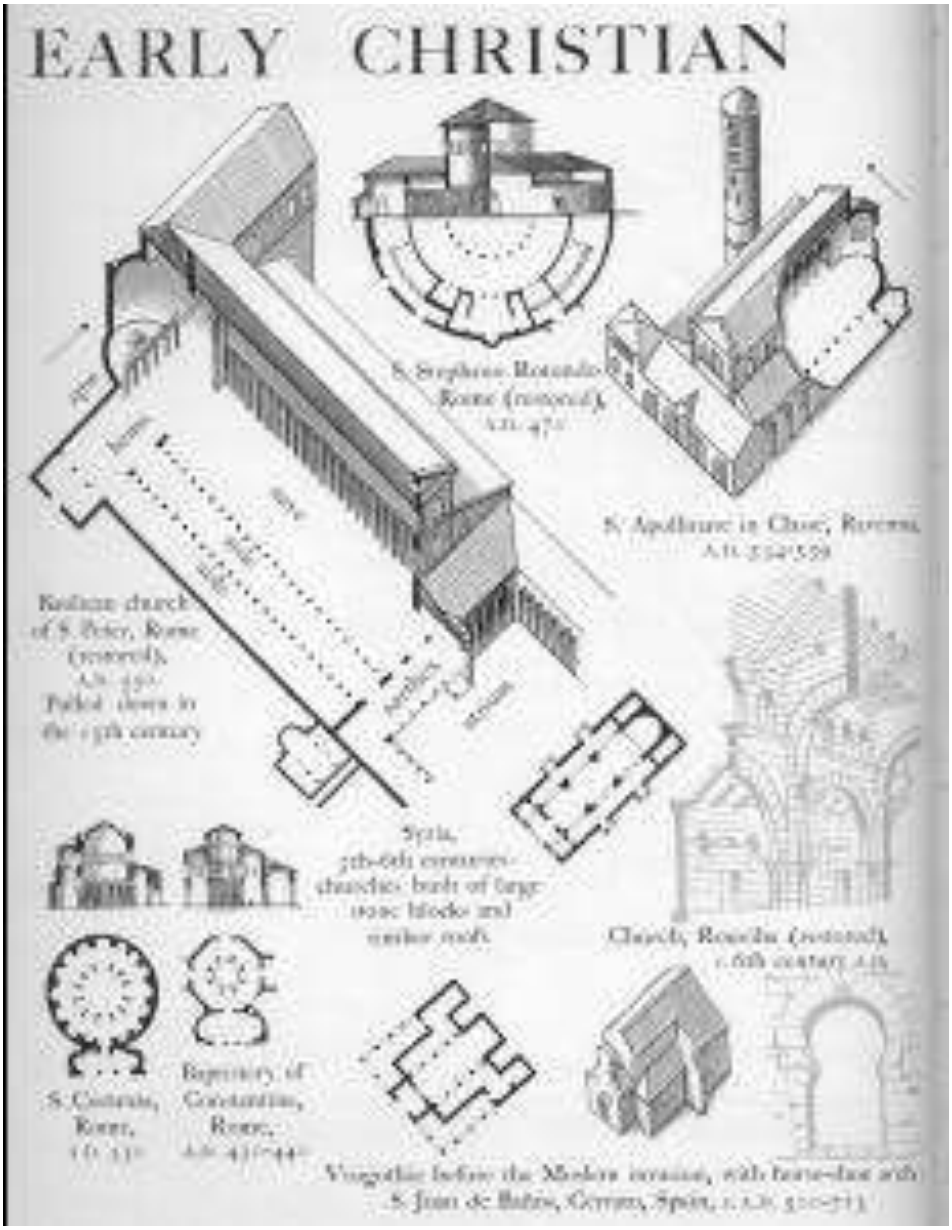


Figure 1.9: Early Christian Architecture drawings. Source: Grafic History of Architecture.

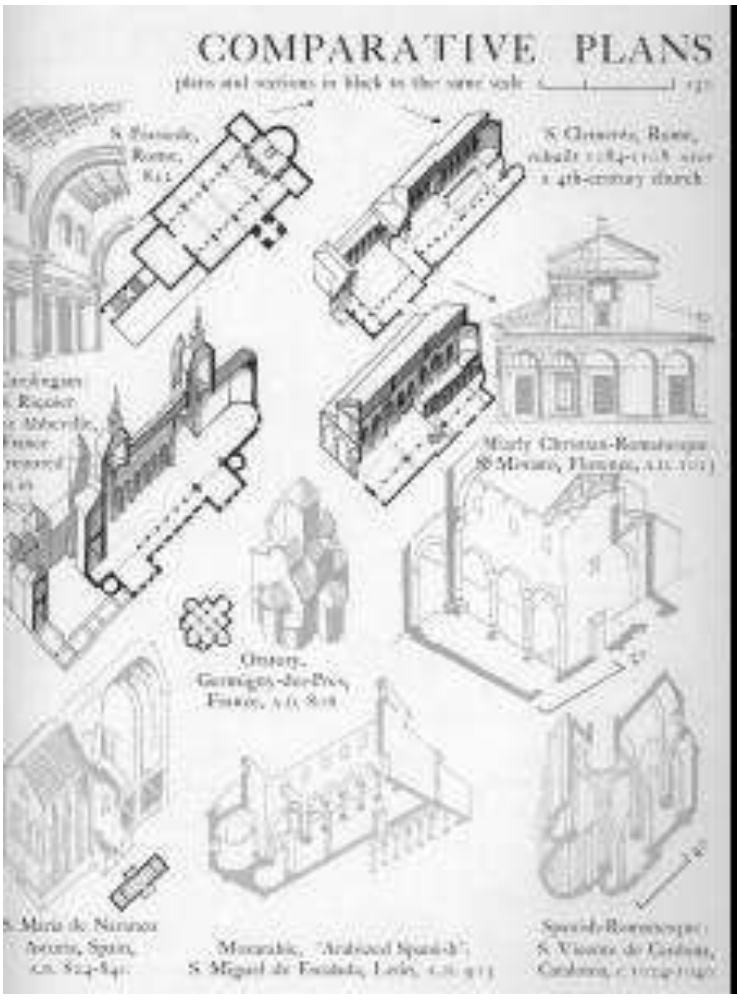


Figure 1.10: Comparative plans. Source: Grafic History Of Architecture.

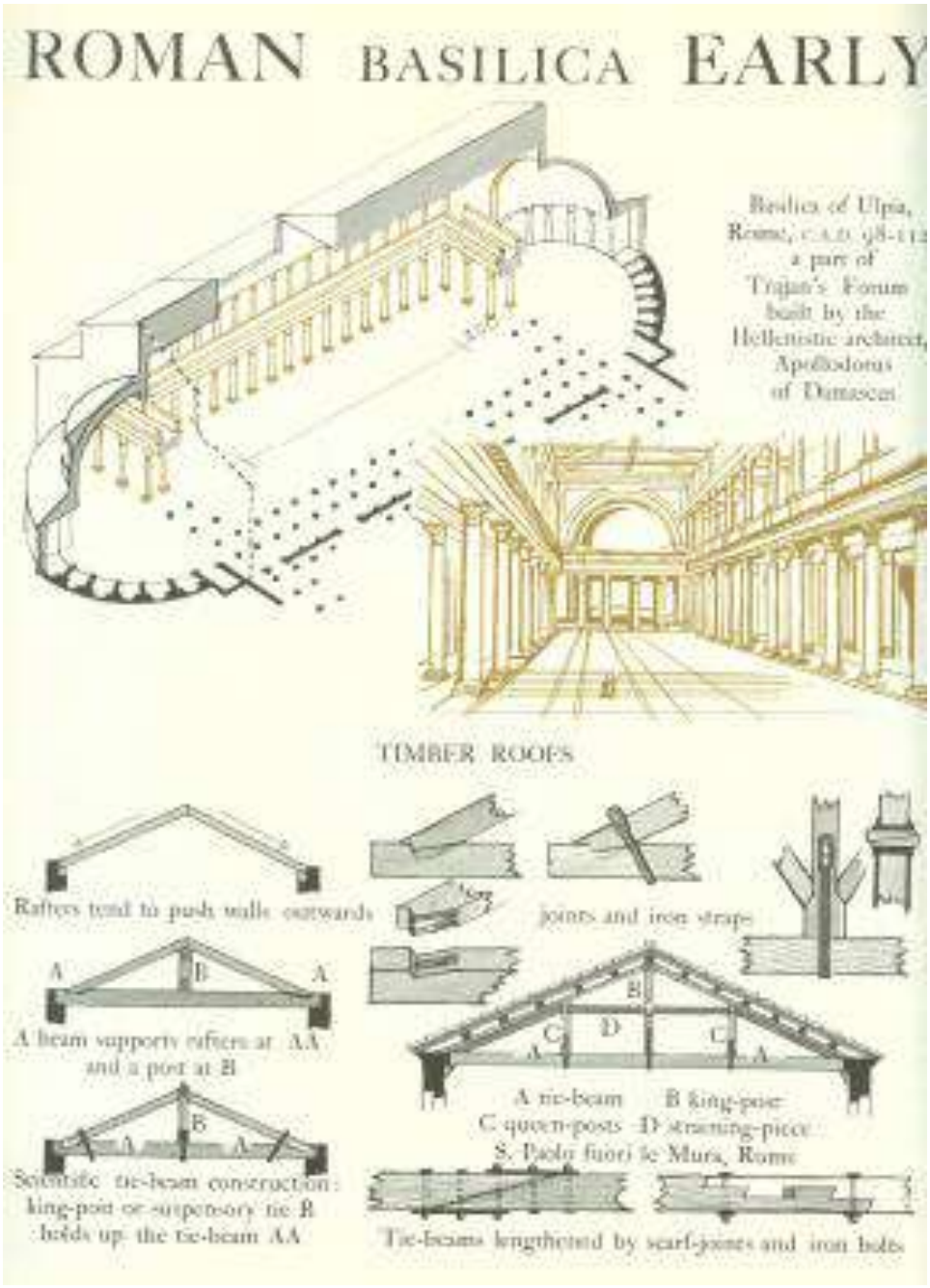


Figure 1.11: Early Christian Basilica structure . Source: Grafic History of Architecture.

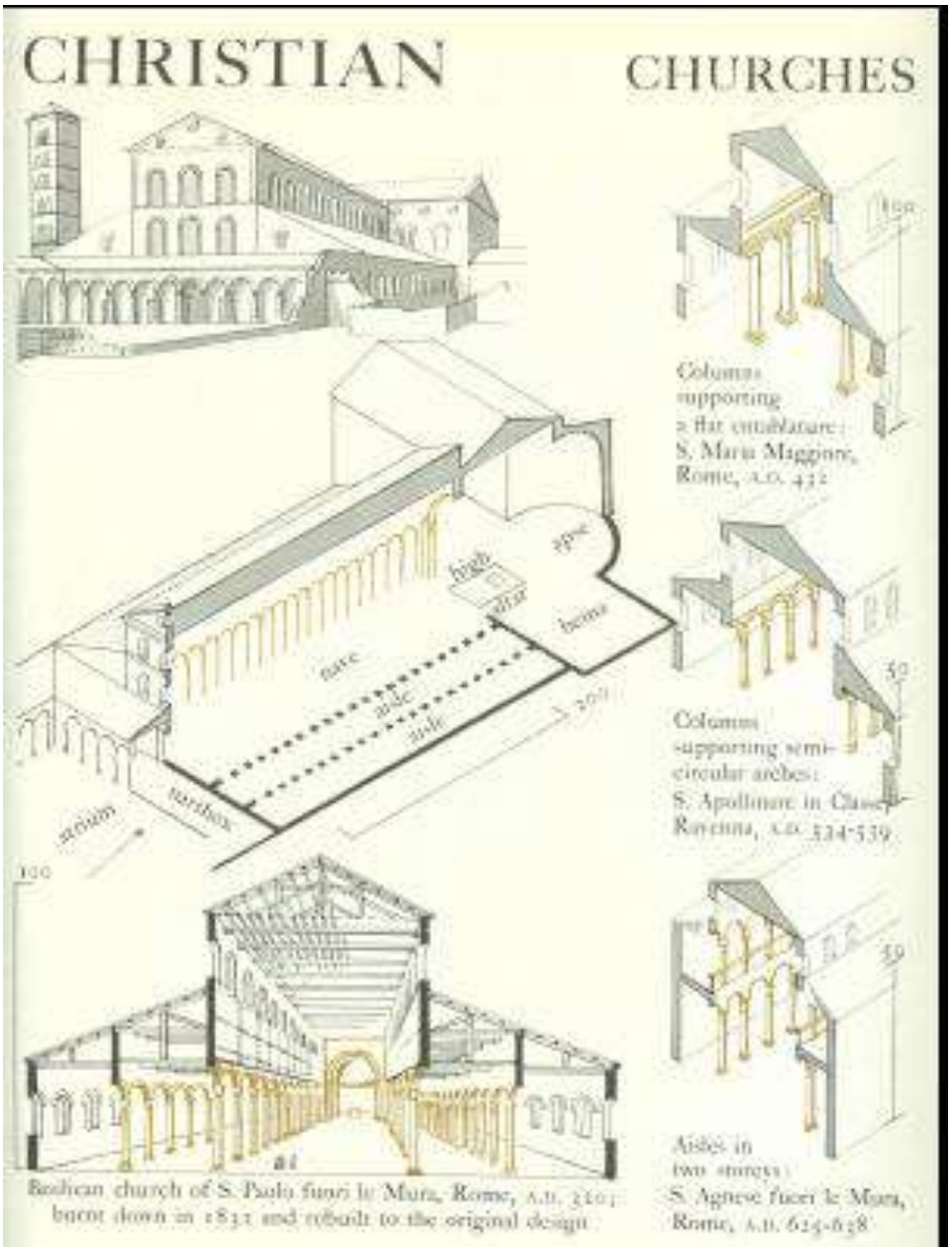


Figure 1.12: Early Christian plans, section. Source: Grafic History of Architecture.

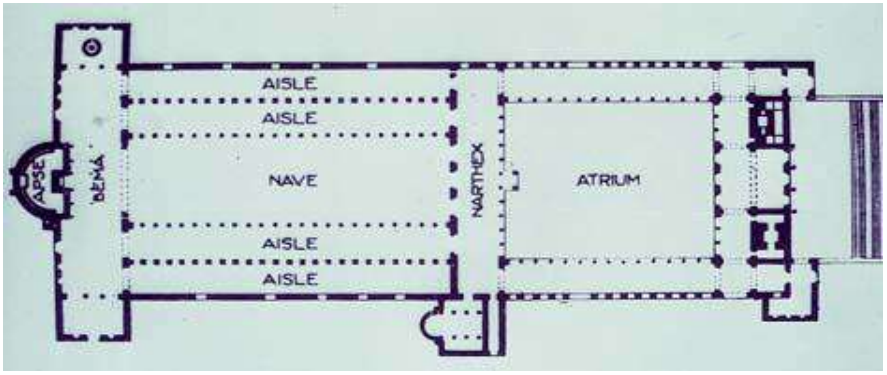


Figure 1.13: Early Christian Architecture, Basilica plan. Source: Graphic History of Architecture.

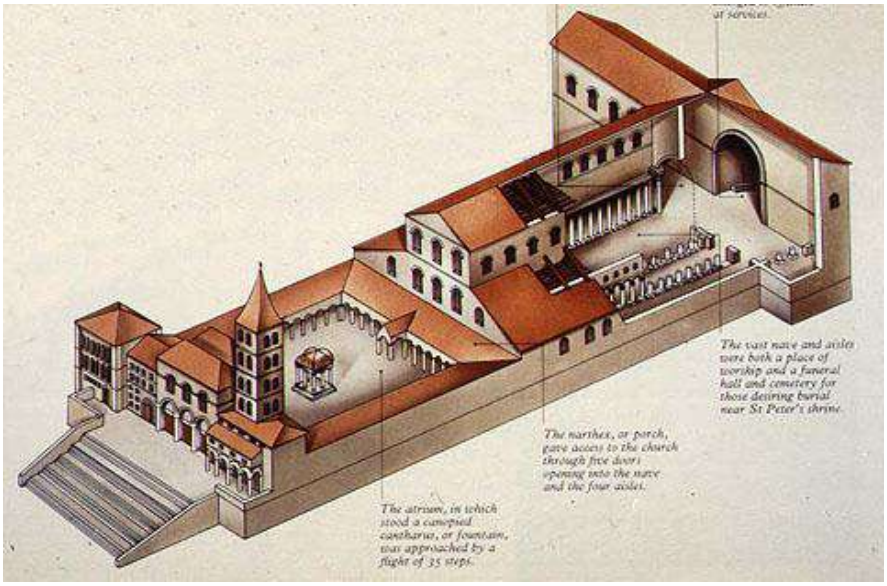


Figure 1.14: Early Christian Architecture, Basilica 3D. Source: Graphic History of Architecture.

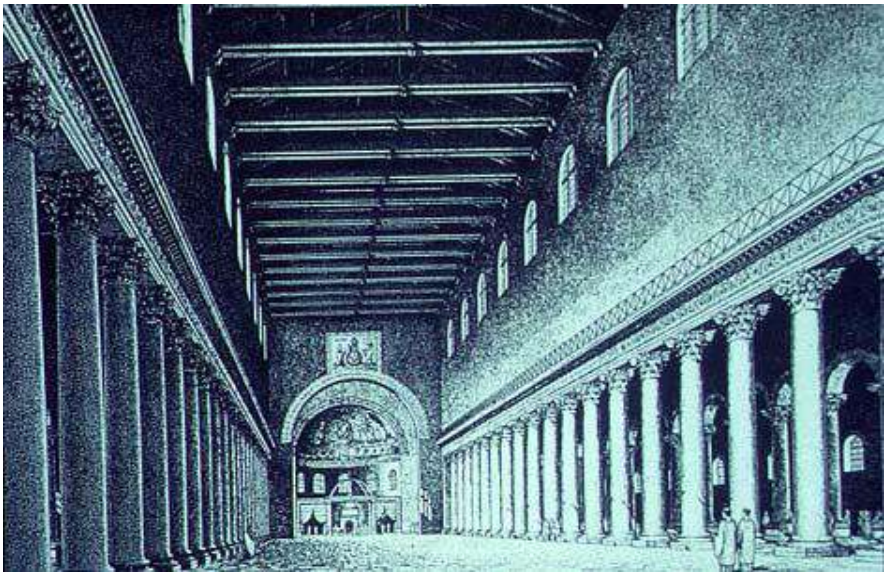


Figure 1.15: Early Christian Architecture, Basilica 3D. Source: Graphic History of Architecture.

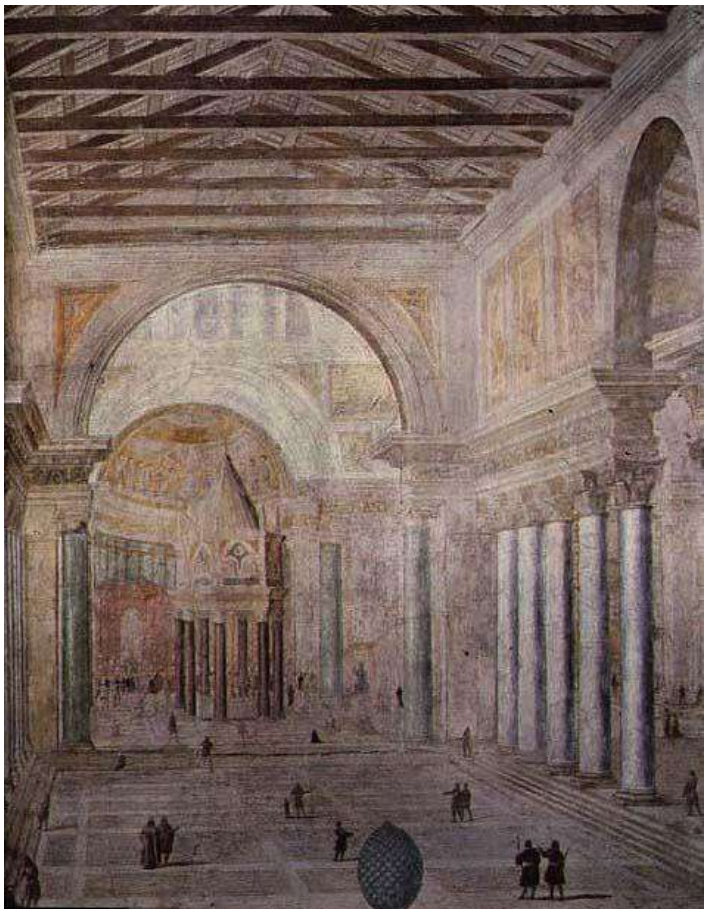


Figure 1.16: Early Christian Architecture, Basilica 3D. Source: Graphic History of Architecture.

Christian houses

Christian house-church, Dura Europos, Syria, 230 AD: cutaway reconstruction; the baptistery: compare this house with the House of the Vettii at Pompeii, ca. 70 AD, on the lines of fig. 207.

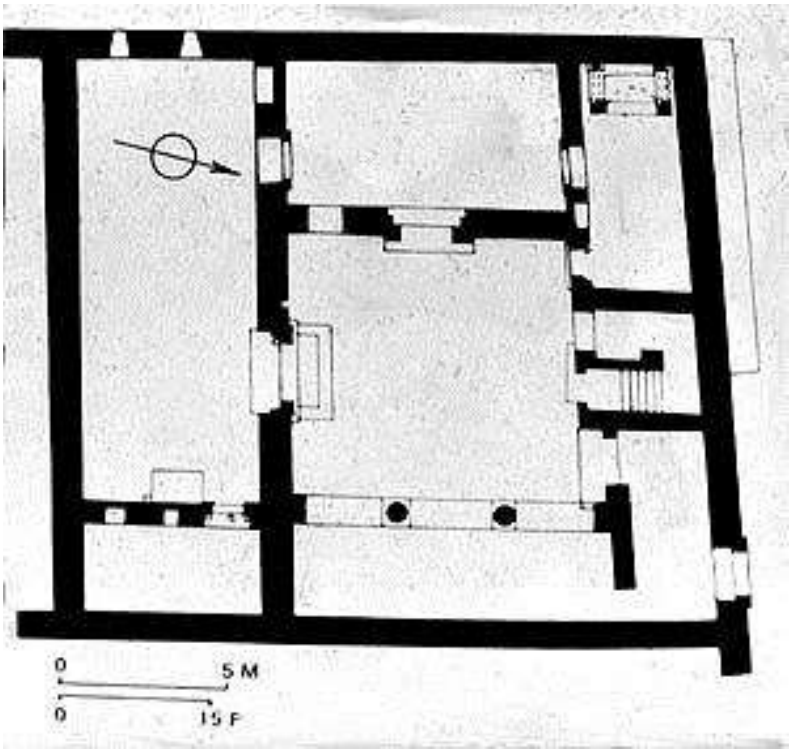


Figure 1.17: Early Christian Architecture, Roman house. Source: Graphic History of Architecture.

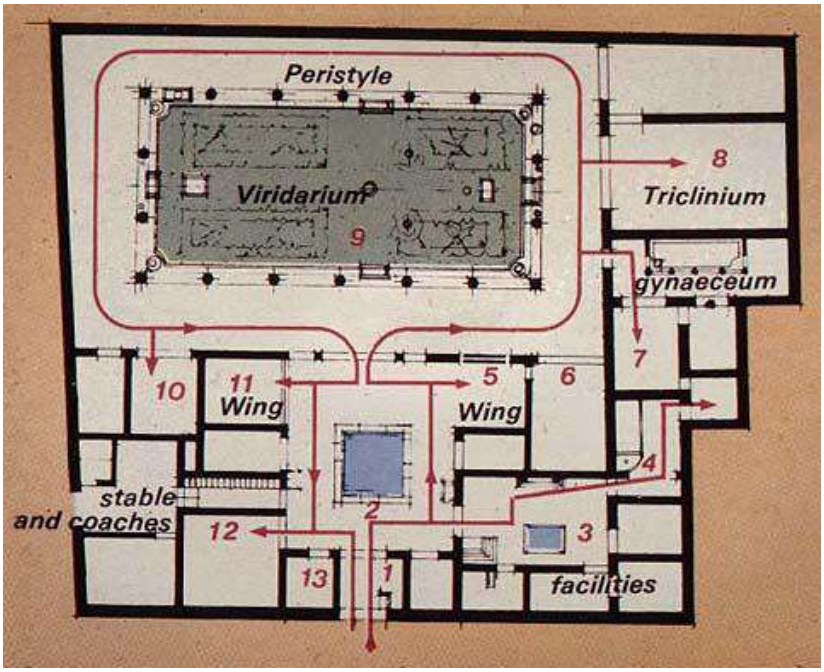


Figure 1.18: Early Christian Architecture, Christian palace. Source: Graphic History of Architecture.

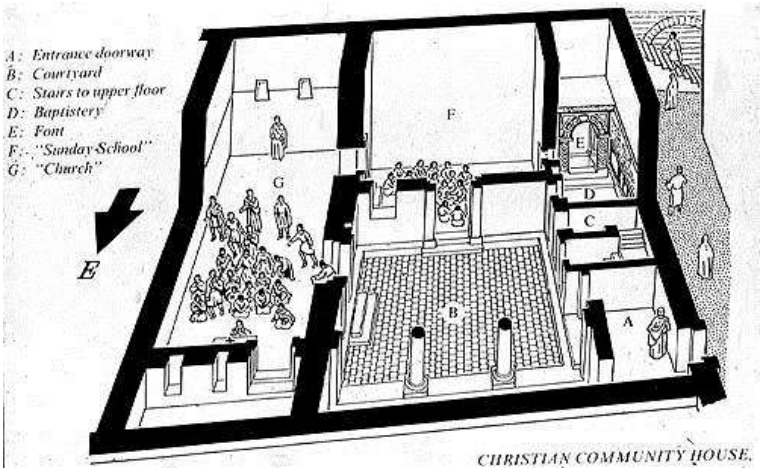


Figure 1.19: Early Christian Architecture, Christian house. Source: Graphic History Of Architecture.

Figure 1.20: Early Christian Architecture, Christian house. Source: Graphic History of Architecture.

Figure 1.21: Early Christian Architecture, Roman house ART. Source: Graphic History of Architecture.

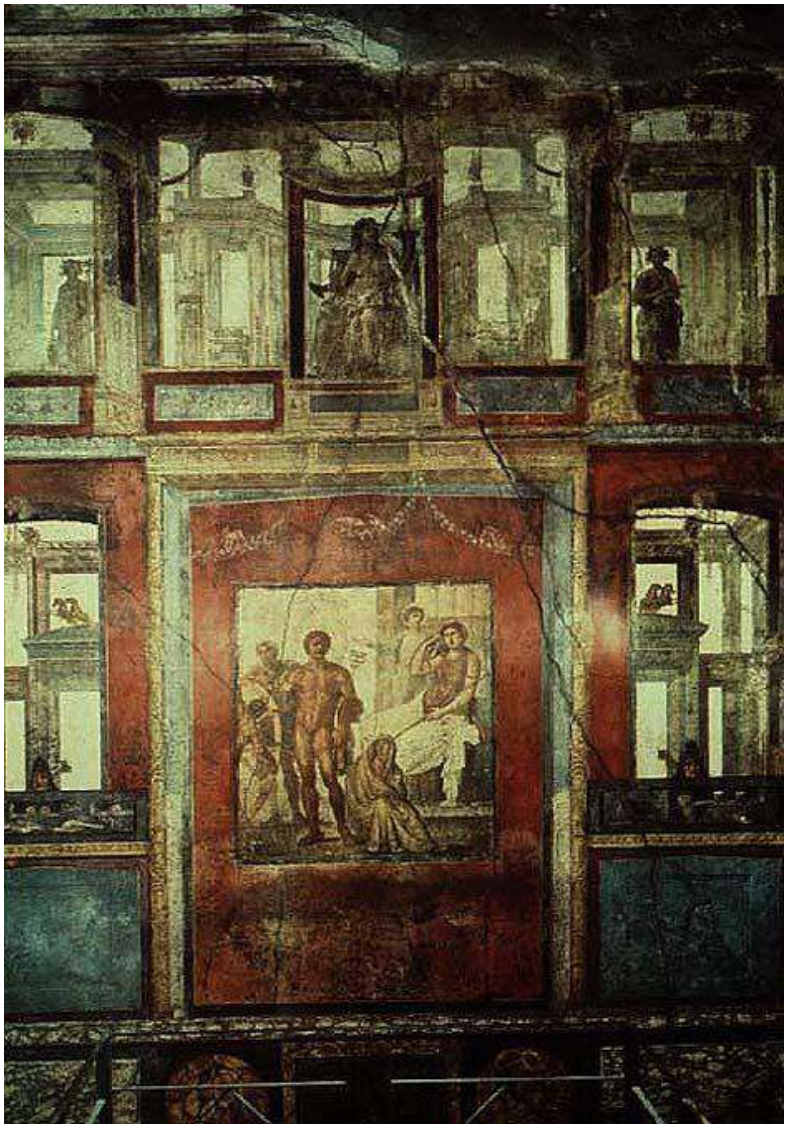


Figure 1.22: Early Christian Architecture, Basilica ART. Source: Graphic History of Architecture.

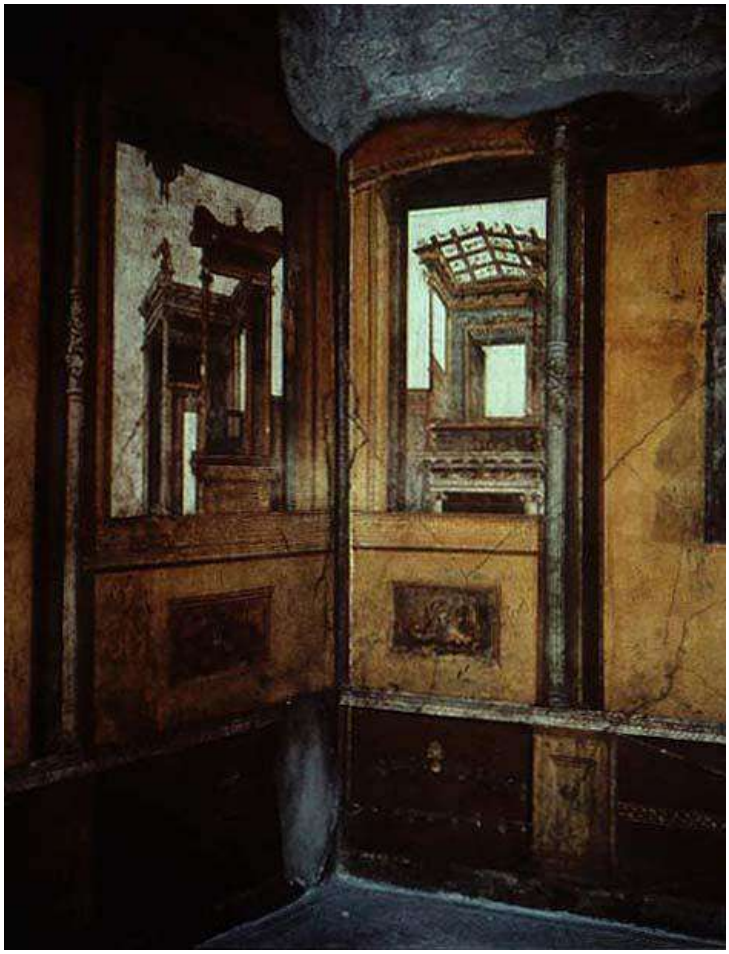


Figure 1.23: Early Christian Architecture, Basilica. ART: Graphic History of Architecture.

CHAPTER TWO

THE ROMANSQUE ARCHITECTURE IN EUROPE

GENERAL INTRODUCTION

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE THE ROMANSQUE ARCHITECTURE IN EUROPE

a. Influences.

b. GEOGRAPHICAL.

c. GEOLOGICAL.

d. CLIMATE.

e. RELIGION.

f. SOCIAL AND POLITICAL.

g. HISTORICAL.

2. Architecture character

3. Examples.

4. Comparative Table.

1. Plan, or general distribution of the building.

2. Walls, their construction and treatment. -

3. Roofs, their treatment and development.

4. Openings, their character and shape.

5. Columns, their position, structure, and decoration.

6. Decorative, their form and decoration.

7. Arches

8.Vaults

9. Domes

10. Lighting

11. Flying Buttresses:

12. Surfaces:

13. Forms:

14. Scale:

5. Reference Books.

FLETCHER.B.(1905). History of architecture on comparative method, University of Toronto L, UK, London

1.INFLUENCES.

ROMANESQUE

800 AC-1200AC

New construction principle - structural equilibrium. Heavy cross-vaulting evolved into lighter ‘rib and panel’. Glass in general use during the 9th C - small fenestration in the south and large in the north Decline in Roman power. Civil government and military

Protection. New states and nations formed in previous colonies in Western Europe. Rise of religious enthusiasm and churches, feudal tenure.

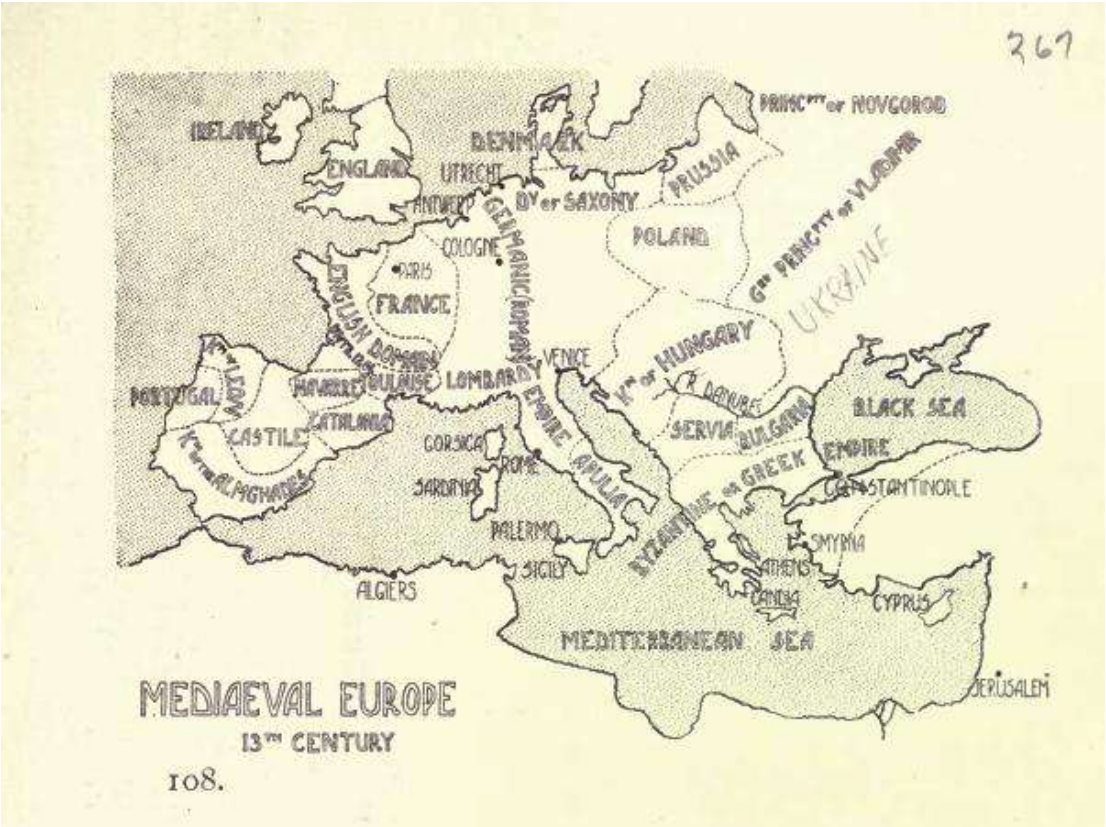


Figure2.1: Europe Map 13th Century.

a. Geographical

The style which grew up on the decay of the Roman Empire, and is known as Romanesque, was carried on throughout practically the whole of the Western empire that is, in those countries which had been directly under the rule of Rome. The position of each country will be slightly touched upon under its own heading. The influence of Byzantine art brought through Ravenna and Venice also influenced the Italian Romanesque in Lombardy and Europe generally.

b.Geological. In these early times a rough use of the material at hand characterizes the style in each country and will be referred to under the same.

c. Climate. Local styles were favoured by the variations of climate north and south of the Alps, as referred to in each country.

d. Religion. The Christian Church, which was the civilizing and educating agency of the period, was striving to extend its boundaries in Northern

Europe, and the erection of a church was often the foundation of a city. thus increasing the power of the Church, with which now often rested the nomination of public functionaries and judges. As East and West drifted apart their architecture developed on opposite lines, but architecture of

Western Europe due to Eastern influence is classed as Byzantine. so that when the Turks overran Palestine, the loss of the Holy Places resulted in the long warfare known as the Crusades (1096-1270) between the Christians of the West and the Mahometans of the

East.

Until the middle of the twelfth century science, letters, art and enlightenment generally were the monopoly of religious bodies, and pupils of monks afterwards became the designers of many of the great Gothic Cathedrals.

e. Social and Political. The system of feudal tenure, or the holding of land on condition of military service, was growing up, and caused important changes in the social and political organization of states. While through its operation the class of actual slaves died out, still the poorer freemen gradually came to be serfs, bound to the land and passing with it, on a change of ownership. The growth of the towns as civilization advanced is noticeable, and the privileges which they acquired, amounting almost to independence, rapidly gave them importance. Constant warfare rendered the condition of the people unsettled during this period, and skill in craftsmanship was at the lowest ebb. Christianity and civilization gradually extended from southern to western Europe. The clergy the scholars of the period directed the building of the churches, while the influence of the freemasons produced important results.

f. Historical.

In the year A.D. 799 the Roman Empire in the West practically passed from the hands of the Romans, by the election of the first Frankish King, Charlemagne, whose election is a convenient date to mark the end of the Roman Empire as such. Till the time of Charlemagne very little Building was done, hut he in a great measure restored the arts and civilization to Western Europe before his death in A.D. 814. Before the year A.D. 1000, when it was popularly supposed that the world would come to an end, little

building was carried out, but after the millennium had passed, buildings sprang up in all parts, with many local peculiarities, which will be noticed under each country; but the change was slow, traditional forms being firstly transformed in general design and detail, and then new features created.

Nearly all the nations of Europe had at this time come into existence; France, Germany, and Spain, were becoming powerful and tending to set aside the rule of the Holy Roman Empire, which now had become only a title. In northern Europe, Denmark, Sweden, and Norway were distinct kingdoms, and England had become welded into one by the Norman kings at the end of the eleventh century.

2. ARCHITECTURAL CHARACTER.

The term Romanesque may be said to include all those phases of Western European architecture which were more or less based on Roman art, and which were being carried out, in a rough and ready way, in various parts of Europe, from the departure of the Romans up to the introduction of the pointed arch in the thirteenth century.

The general architectural character is sober and dignified, while picture squatness is obtained by the grouping of the **towers,** and projection of the transepts and choir.

As helping towards the appreciation of **the character of Romanesque architecture**, imagine an ancient civilization of vast extent, devoid of physical force, and recognisable only by the multitude of its monuments, some intact, others injured or partially destroyed, all unguarded, and most of them disused a calamity which happens in due course to every great nation or group of peoples ; and further suppose that the civilization is represented by a man, dormant, but who slowly, and with many a contortion, and many a yawn, threw off the sleep of ages and awakened to a sense of the treasure he possessed, of the wants he began to understand, of the means to the ends he would attain.

In his midst were ruins of vast edifices, some still standing among heaps of stones hewn and carved, of **sculptured capitals and friezes**, of

monoliths of porphyry and **marble,** while his own shelter afforded him little protection either from heat or cold. What happened?

As time went on he gathered up the smaller fragments and arranged them perhaps upon the foundations, still intact, of an ancient building, and as he gradually acquired a knowledge of the uses to which he might apply this and that fragment, he insensibly

4. COMPARATIVE.

A. Plans. In church architecture further developments from the type of the Early Christian Church took place. Charlemagne gathered around him artists and skilled workmen, and calling architecture out of its sleep, took the Roman basilica as a model for the new churches. Transepts were usually added, and the chancel prolonged further east than in the basilicas, the church partaking more and more of a well-defined cross on plan

1. Plans. In church architecture further developments from the type of the Early Christian Church took place. Charlemagne gathered around him artists and skilled workmen, and calling architecture out of its sleep, took the Roman basilica as a model

for the new churches.

|**The cloisters in connection with the churches are often of great beauty and have capitals and other features elaborately carved.

**The towers are special features, and of great prominence in the design, as at the Church of the Apostles at Cologne They are either square, octagonal, or circular, with well-marked stories, having windows to each, and are placed at the west and east ends and the crossing of nave and transepts.

2.Walls. Roman work and precedent, of course, influenced all constructive art in Europe, although technical skill was at a very low ebb during this period. Walls were in general coarsely built, having on the exterior, buttresses formed as pilaster strips of slight projection, connected at the top by horizontal mouldings, or by a row of semicircular arches resting on a corbel table projecting from the wall. Semicircular arxphes, resting on rudely formed capitals, also occur. Other peculiarities are referred to in the comparative table of each country.

3. Roofs. The general employment of **vaulting,** especially over the side aisles in the eleventh century, was due to the desire of fire-proofing the building, but the central nave was still often covered with a plain **wooden roof.**

4. Openings. The door and window openings are very characteristic. The principle upon which the jambs were formed was in receding planes, or rectangular recesses, known as orders," in which were placed circular columns or shafts. The arches followed the same method, being built in concentric rings (No. 94 F, H, j). A continuous abacus often occurs over these columns, and the profile of the jamb is carried round the semicircular portion of the arch in southern examples. The principal doorways are usually placed in the transepts. The characteristic rose (or wheel) window occurred over the principal door of the church in the west front, as at If Hey Church, Oxon (No. 138) ; also in Southern Italian examples, as at Palermo.

5. Columns. The shafts of .the columns have a variety of treatments, flutings being used (Nos. 98 B, 107 L), of vertical, spiral, or trellis work form, or the whole shaft is sometimes covered with sculptured ornaments. In early examples forms of the inthian or Ionic capitals occur as in the third column from the right in S. John's Chapel, Tower of London (No. 135), where Classic influence is apparent. Also see Nos. 98 j, K, L, M, and

103 D, E.

The capital in later times was often of a cushion (cubiform) shape, as in S. John's Chapel, Tower of London (No. 135), with lower corners rounded off and no carving, or is sometimes richly carved and scalloped (Nos. 146 and 148 B, c).

6.Decorative: Classical style, of which flowers or animals were occasionally carved to fill up the triangular part, The carving and ornaments were derived from many types of the vegetable and **animal** kingdom and treated in a conventional way, often but rudely carved (No. 139). In the interiors fresco is more commonly used than mosaic, which required great technical skill. **Early stained glass was influenced by Byzantine mosaic.**

Note. The above are the principal characteristics of the style as a whole. Local influences of taste, climate, geography and geological formations were instrumental in producing the different characteristics of each country.

7.Arches: The form of arch universally employed was semicircular

8.Vaults: In early examples rib mouldings were not used in the vaulting, but when introduce, were at first plain, and afterwards moulded in a simple manner (No. 94). Intersecting barrel vaults. were usual, and the difficulty in constructing these in oblong bays led to the use of pointed arches in later times.

9.Domes: When the crossing was crowned by an octagonal dome, four of the sides were carried on " squinch " arches (Nos. 94 and 105).

10. Lighting: natural lighting through high level windows and lower windows.

11. Flying Buttresses: it is structure element was used under the aisle roof

The Romanesque architects used " flying buttresses" under the aisle roof, in the case where the thrust of a vaulted roof had to be met (Nos. 94 and 100); but it was left for the Gothic architects of the thirteenth century to place them above the aisle roof and weight them with pinnacles.

12. Surfaces: squares, rectangular and circular surfaces

13. Forms: cubic forms, cylindrical forms

14. Scale: huge scale, or out of scale

Flying Buttresses:

is a specific form of buttressing most strongly associated with Gothic church architecture. It serves to transmit the lateral forces pushing a wall outwards (which may arise from stone vaulted ceilings or from wind-loading on roofs) across an intervening space and ultimately down to the

ground. Flying buttress systems have two key components - a massive vertical masonry block (the buttress) on the outside of the building and a segmental or quadrant arch bridging the gap between that buttress and the wall (the 'flyer').

The main advantage of such systems is that the outer walls no longer need to be heavy and massive enough to resist the lateral thrusts of the vault. Instead the wall surface could be reduced (allowing larger windows filled with stained glass), with the vertical mass concentrated into external buttresses. Flying Buttresses appears in the latest thirteen century.

Figure 2.2: St Remi choir from the southeast, Source: https://en.wikipedia.org/wiki/File:St_Remi_choir_from_south_east.jpg

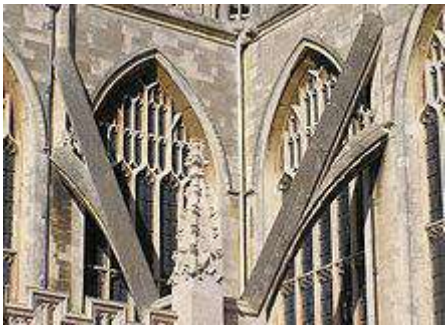


Figure2.3: Two flying buttresses at Bath Abbey, Bath, England. Source: https://en.wikipedia.org/wiki/File:Bath.abbey.flying.buttresses.closeup.arp.jpg

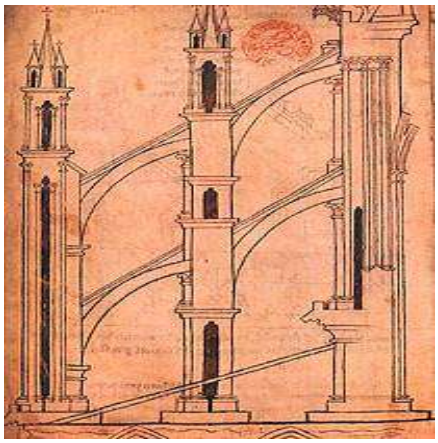


Figure 2.4: Villard de Homecourt, drawing of a buttress at Reims, Source: https://en.wikipedia.org/wiki/File:VillardButtressReims.jpg

93. S. Miniato, Florence.

Figure 2.5: S. Miniato, Florance.

Figure 2.6: S. Zenone , Verona.

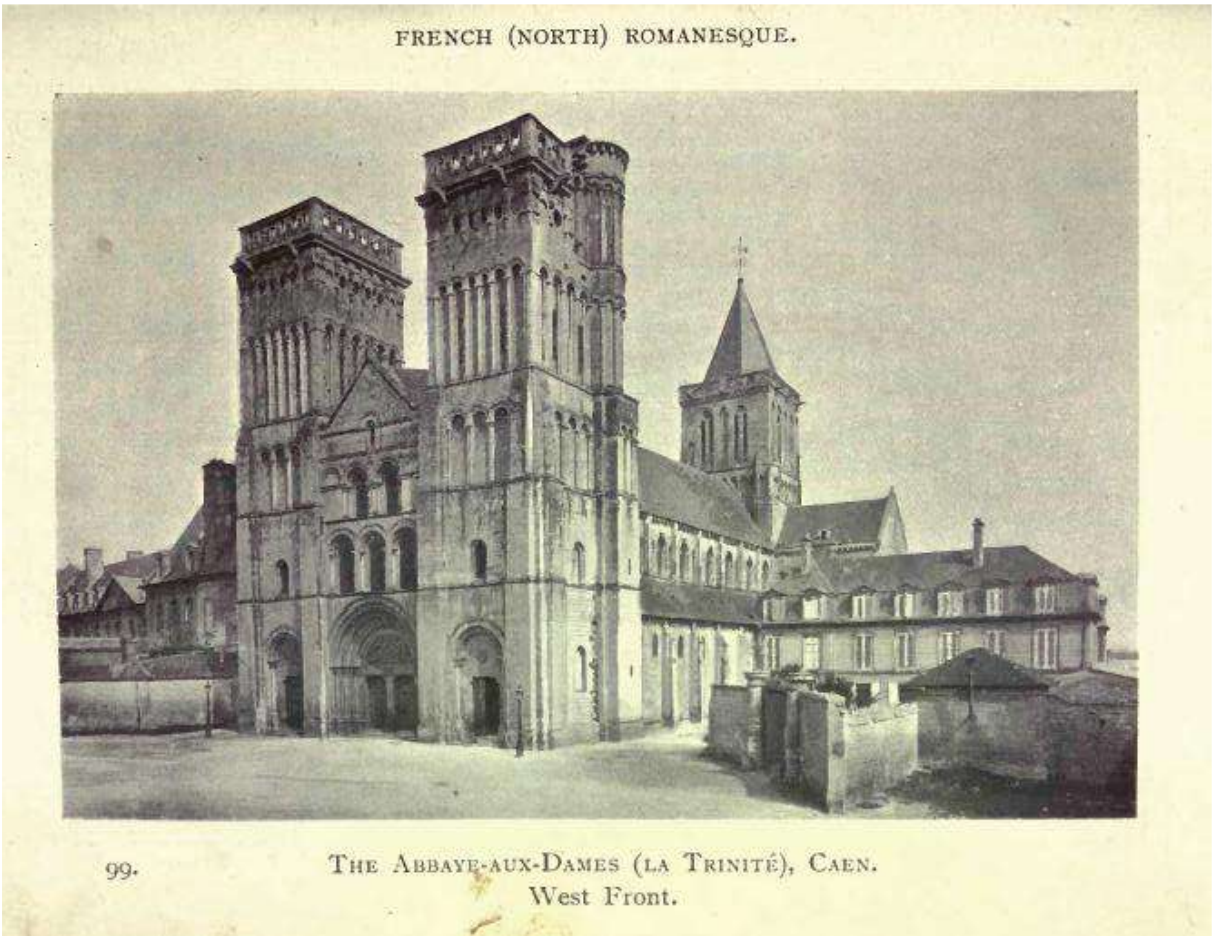


Figure 2.7: The Abbaye-AUX-West Front.

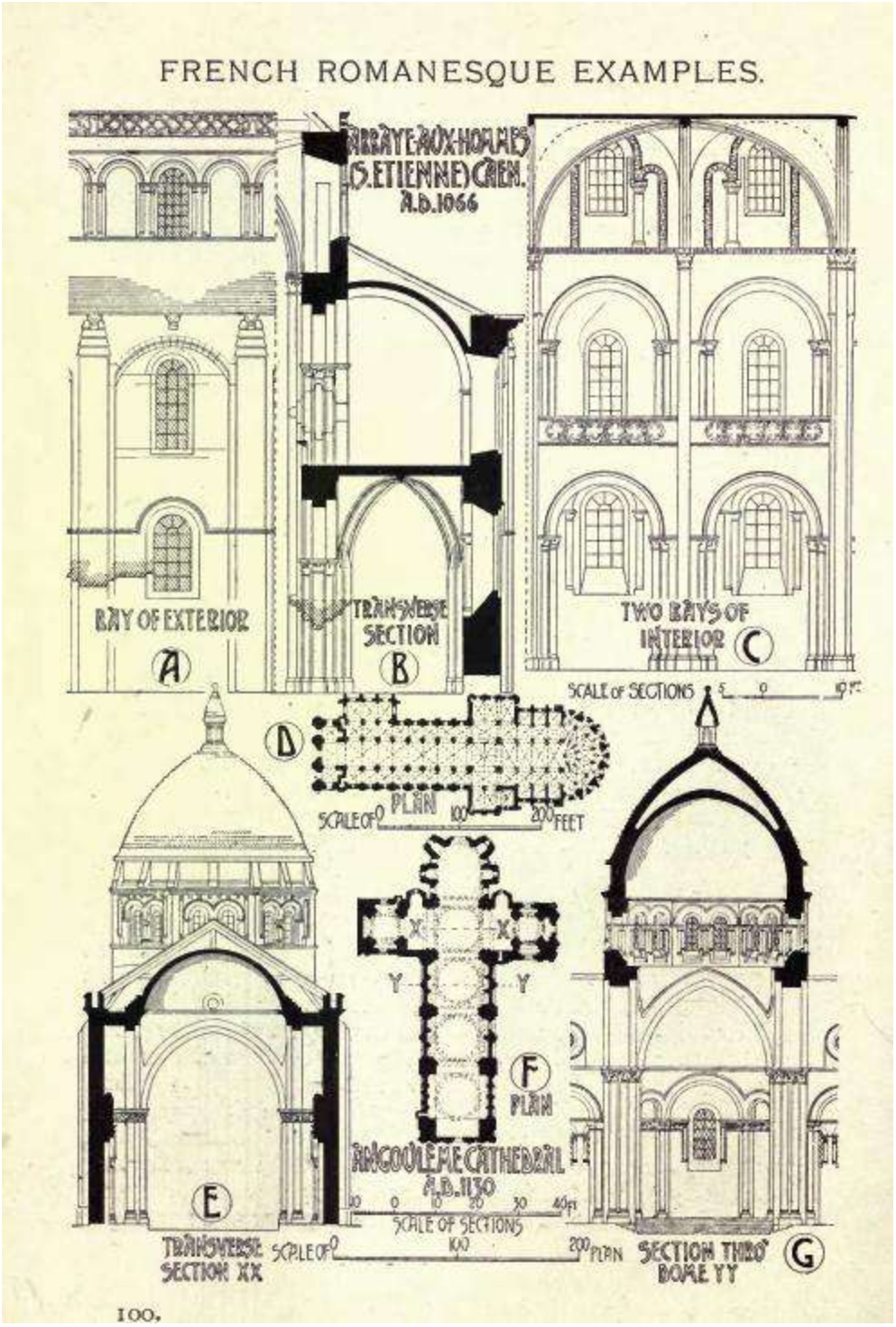


Figure 2.8: French Romanesque Examples.

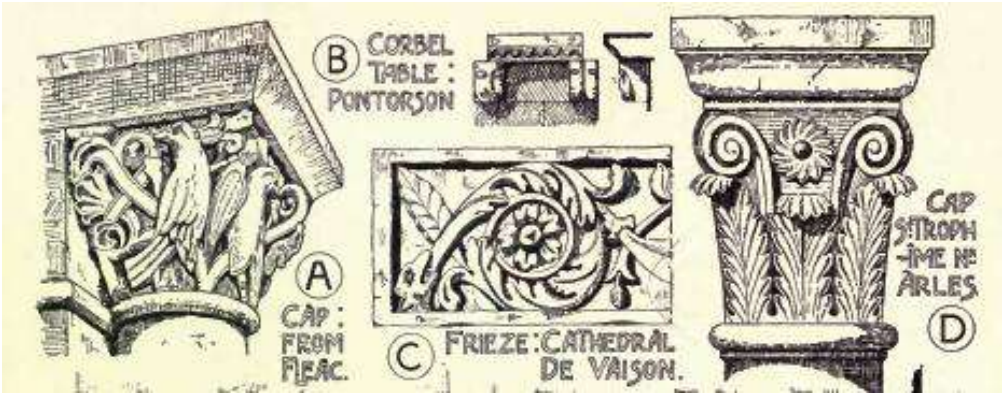


Figure 2.9: Romanesque Ornament.

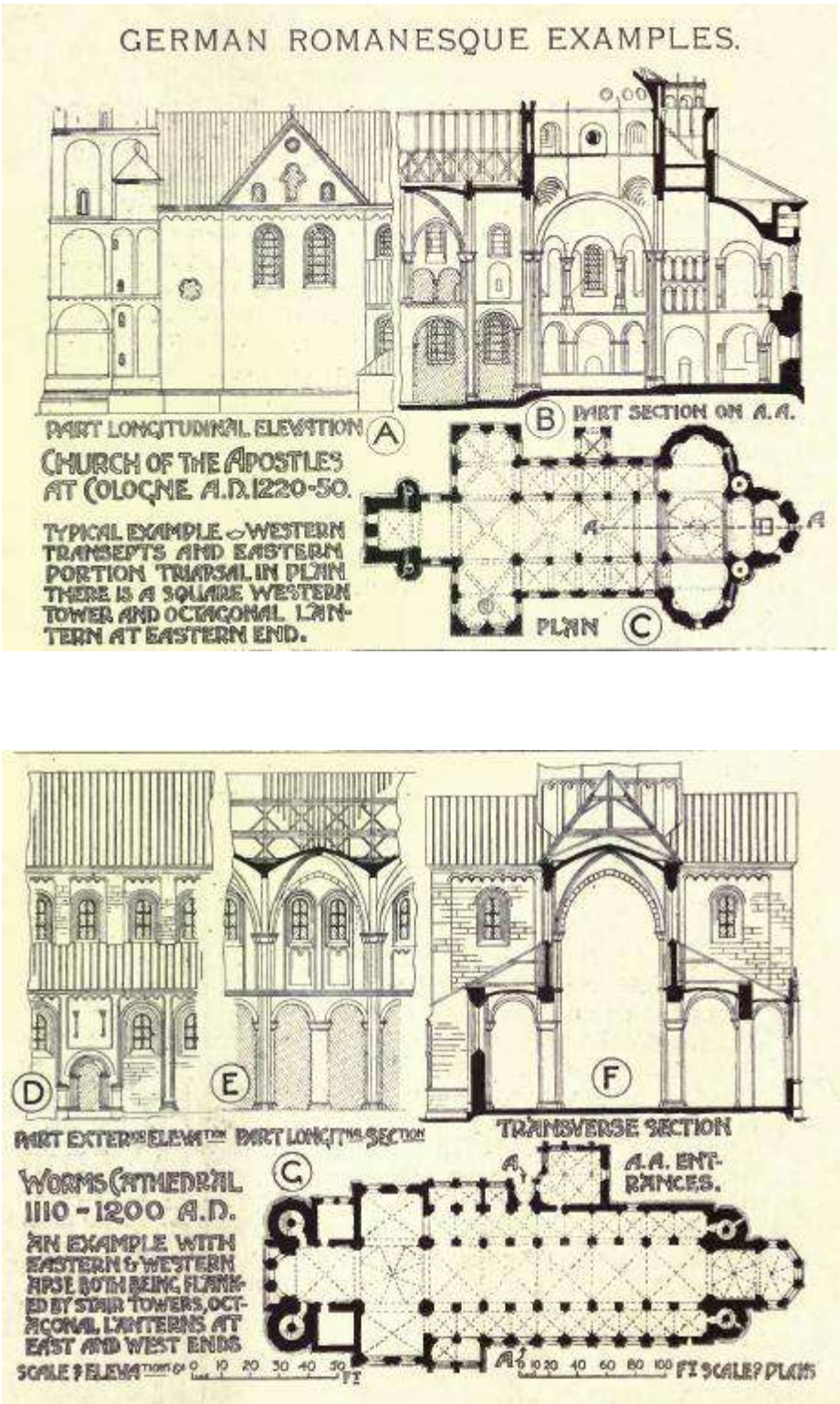
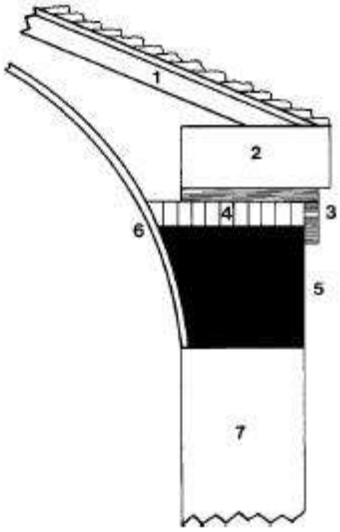


Figure 2.10: German Romanesque Examples.

55. Milan, Sant'Eustorgio, exterior, apse.



Drawing 4. Cross section of Milanese early eleventh-century apse: (1) roof beams, (2) wall with decorative string-courses, (3) corbel table with bricks laid length-wise (stretchers), (4) arches with radially laid bricks, (5) open niches, (6) half dome, (7) wall.

churches like Sant'Eustorgio in Milan (Fig. 55, Drawing 4), vault-

Figure 2.11:Charch Sant Eustorgio in Millan vault. Sourc: A. C. Edson (2004). Construction in Romanesque Architecture, Cambridge university, New York, USA.

CHAPTER THREE

ITALIAN ROMANESQUE.

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE ITALIAN ROMANESQUE ARCHITECTURE

a. Influences.

b. GEOGRAPHICAL.

c. GEOLOGICAL.

d. CLIMATE.

e. RELIGION.

f. SOCIAL AND POLITICAL.

g. HISTORICAL.

2. Architecture character

3. Examples.

4. Comparative Table.

1. Plan, or general distribution of the building.

2. Walls, their construction and treatment. -

3. Roofs, their treatment and development.

4. Openings, their character and shape.

5. Columns, their position, structure, and decoration.

6. Decorative, their form and decoration.

7. Arches

8. Vaults

9. Domes

10. Lighting

11. Construction Method

12. Surfaces:

13. Forms:

14. Scale:

15. the towers: Towers are detached

16: the colour

INFLUENCES.

a. Geographical. The boundaries of Central Italy extended to Florence and Pisa on the north and west, and to Naples on the south. Pisa was by position a maritime power, while Florence lay on the great route from south to north, commanding the passage of the Arno.

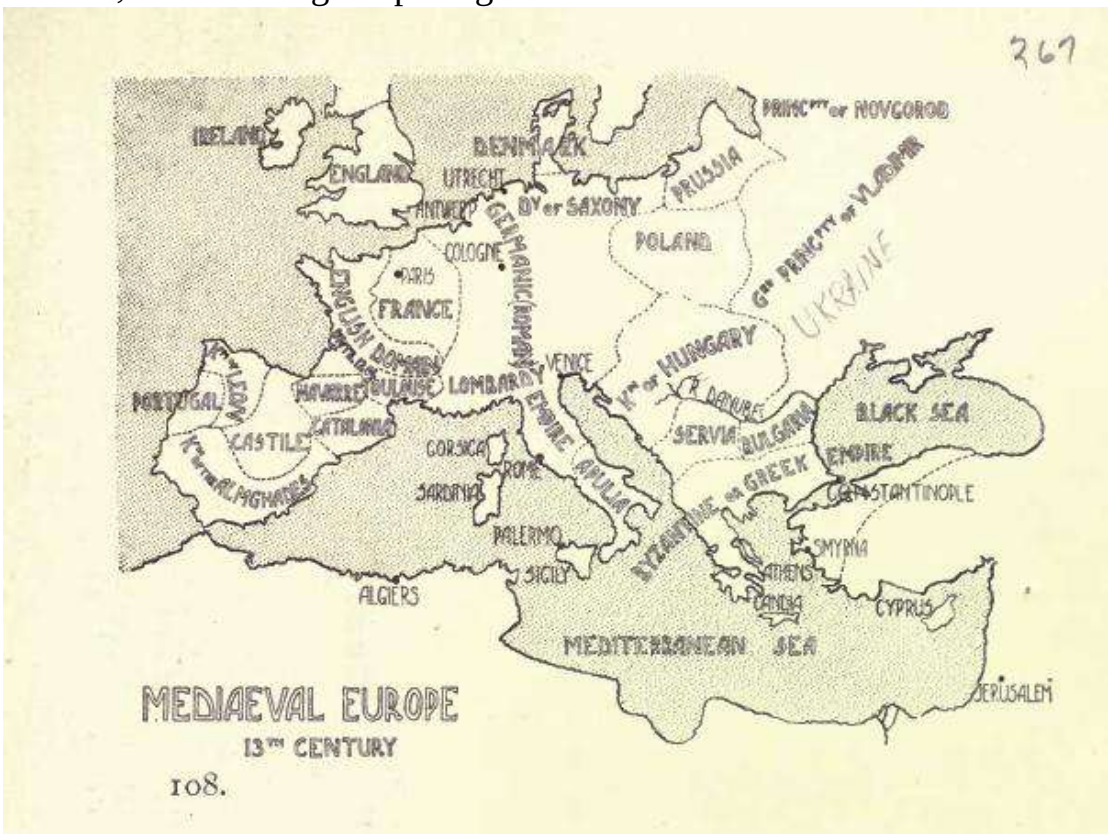


Figure 3.1: Europe map13 Century.

b. Geological. Tuscany possessed greater mineral wealth than any other part of Italy, and building stone was abundant. The ordinary building materials of Rome were bricks, local volcanic stone (tufa or peperino), and Travertine stone from Tivoli, a few miles off. Marble was obtained from Carrara, or Paros and the other Greek isles.

Milan, the capital of Lombardy, always had a high degree of prosperity, on account of its favourable situation in the centre of that state, and its proximity to several of the Alpine passes. The city is surrounded by rich plains, and the cultivation of the mulberry (for the silkworm), and the

vine, adds to the general prosperity of the district. Ravenna and Venice, as trade connecting links with the Eastern Empire, reflect the culture and architectural forms derived there from.

. **c. Climate**. Like Roman Architecture The north has the climate of the temperate region of continental Europe ; central Italy is more genial and sunny ; while the south is almost tropical. North Italy has a climate resembling that of Central Europe, i.e., a climate of extremes. Milan is near enough to the Alps to experience cold in winter, while in summer the heat is often excessive.

d. **Religion**. It was during this period that, although the Popes had only small temporal dominions, they began to make their power felt in civil government, and the disputes with the emperors began. Pippin, king of the Franks, asked by the Pope
(Stephen II.), defended the latter from the Lombards and gave him the lands they had seized and also the chief city of the Exarchate (Ravenna), which the Pope accepted in the name of S. Peter. Thus in 755 Central Italy severed its connection with the Empire and became independent, thereby inaugurating the temporal power of the papacy. Charlemagne, invited by Pope Adrian I. (772-779), advanced into Italy in 773, and, after defeating the Lombards, entered Rome for the first time in 774.

.
e Social and Political. The devastating wars in the North Italian plains led to the gradual rise of the Venetian state, the first form of government being republican, but an oligarchy in which a Duke, or Doge, was invested with supreme authority gradually grew up. Italy itself consisted of a number of separate cities which were independent commonwealths.

f. Historical. Venice from the first kept up a close alliance with Constantinople, by means of which both the naval importance and commerce of the little state continually increased, especially after the eleventh century, by which time commercial relations had extended to the Black Sea and the coast of the Mediterranean, including Dalmatia, Croatia, and Istria. The barbarians who occupied the valleys of the Rhine and Po pursued a similar development in spite of the intervening Alps, Milan being as much German as Italian. In Italy, the old Roman population eventually caused barbarian influence to wane, but until this had come to pass little building was done. The eleventh and twelfth centuries were the great building epochs in Lombardy.

2. ARCHITECTURAL CHARACTER.

The change from the Byzantine to the Mahometan dominion, and from the latter to the Nvrman in the eleventh century is traceable. Byzantine influence is shown in the plans of certain churches, as in the Church of the Martorana at Palermo, where a square space is covered by a dome supported on Four freestanding columns. Mahometan influence is evident, particularly in the decorative parts of churches, as mentioned above. Architecture developed considerably under the Norman rule by
the erection of cathedrals, and a school of mosaic was maintained in the Royal Palace during this period. The churches have either wooden roofs, or a Byzantine dome,
but are hardly ever vaulted. Dark and light stone was used in courses externally, and rich mosaics and colored marbles were employed as a facing internally. The architectural features of the interiors, of which Monreale Cathedral (No. 97) has typical examples, were subordinate to the mosaic decorations which clothe the walls.

3. EXAMPLES

Follow the pictures

4. COMPARATIVE TABLE

1. **Plan**: The Basilicas plan, circular and square plans

2. **Walls**, their construction and treatment: Stones and Bricks, red and white marbles

3. **Roofs, their treatment and development**. Wooden roof placed over circular volts, a pyramidal shaped roof,
4. **Openings**, their character and shape: openings are small, he windows Increase in number from one in the lowest story to five or more in the uppermost story, bronze doors

5. **Columns**, their position, structure, and decoration: inlaid with glass mosaic in patterns of great beauty, rude Corinthian columns carry
a round-arched arcade

6. **Decorative, their form and decoration**. Roughly carved grotesques of men
and animals (No. 98 E, F), vigorous hunting scenes, and incidents

of daily life are found in Northern sculpture. In Central Italy
greater elegance is displayed, and Classic models7. Decoration in mosaic exists

7. **Arches**: Small open Arches, semicircular arches

8. **Vaults**: **circular vaults**.

9. **Domes**: Conical dome, 60 feet diameter over the central space and supports with four piers and eight columns.

10**. Lighting**: natural lighting .

11. **Flying Buttresses: Buttressing was**
Obtained by means of the division walls between an outer range
of chapels, more often than not unmarked on the exterior

12**. Surfaces**: square and rectangular surfaces

13**. Forms**: cubic forms

14. **Scale**: out of scale and huge scale

15. **The Towers**: There was a tower, 11 feet height, or bell towers, are .important features of the period. They were not joined structurally with the church to which they belonged, as in England, France, and Germany, but were placed at some little distance, and sometimes connected with the main building by cloisters In these cases they were erected as symbols of power, in plan they are always square
16. **Colours**: natural colours from using natural building materials

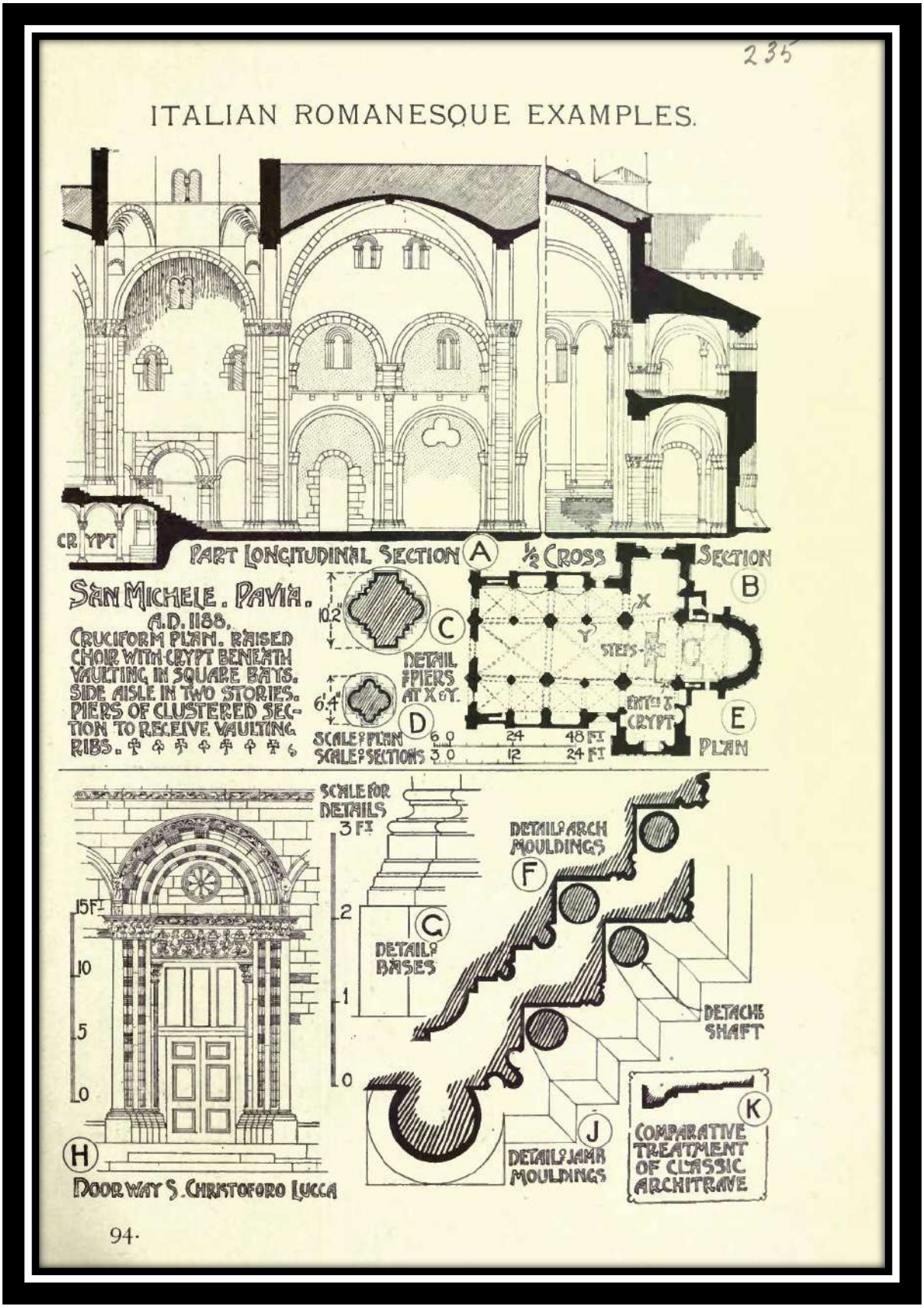


Figure 3.2: Italian Romanesque example.

Figure 3.3: Italian central Romanesque.

Figure 3.4: Italian central Romanesque, MINIATO, Florance.

Figure 3.5: Italian North Romansque S.ZENONE, Verona.

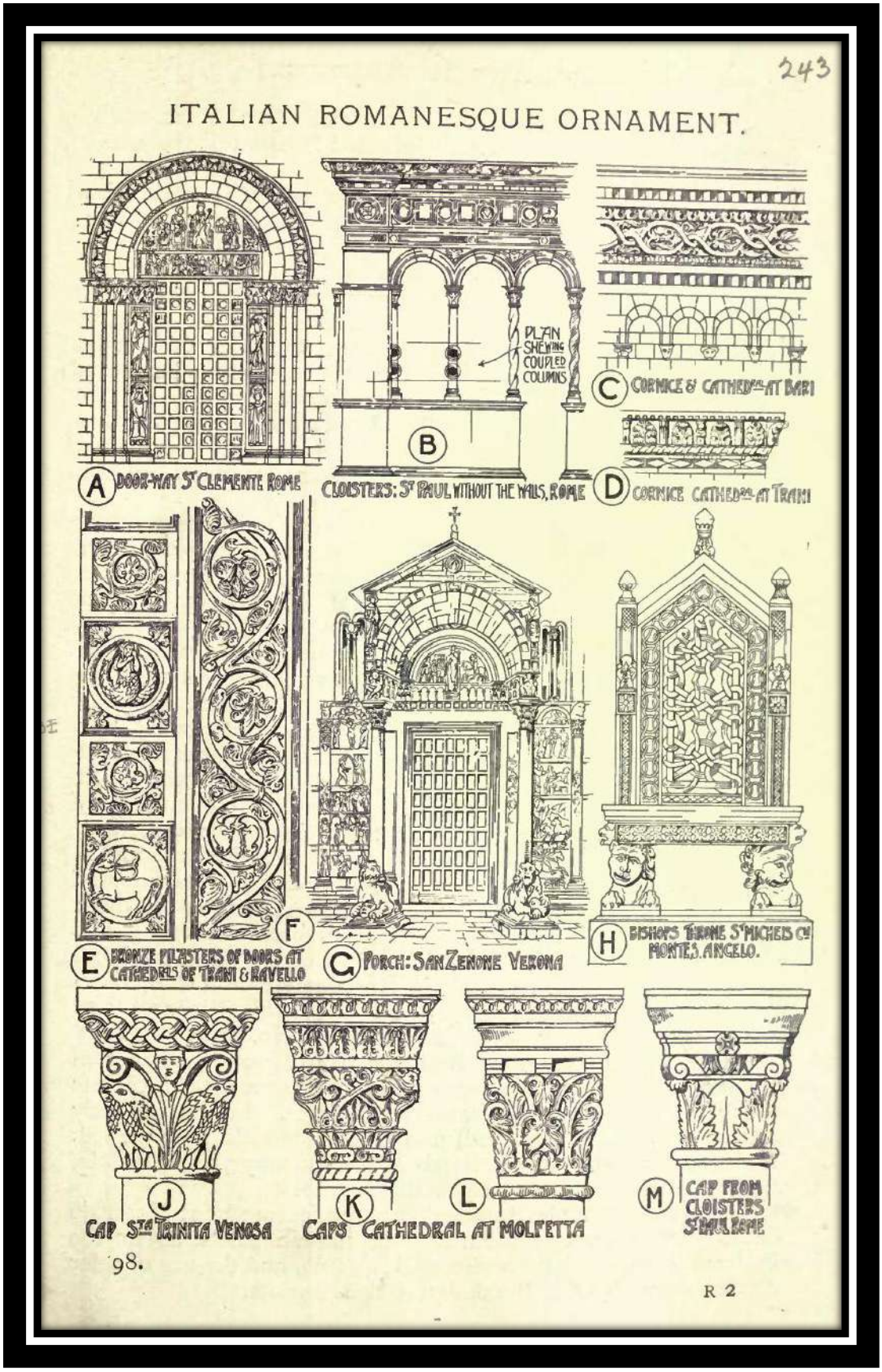


Figure3.6: Italian Romanesque Ornament.

Figure3.7: Italian South Romanesque.

CHAPTER FOUR

FRENCH ROMANESQUE.

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE FRENCH ROMANESQUE ARCHITECTURE

a. Influences.

b. GEOGRAPHICAL.

c. GEOLOGICAL.

d. CLIMATE.

e. RELIGION.

f. SOCIAL AND POLITICAL.

g. HISTORICAL.

2. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.

2. Walls, their construction and treatment. -

3. Roofs, their treatment and development.

4. Openings, their character and shape.

5. Columns, their position, structure, and decoration.

6. Decorative, their form and decoration.

7. Arches

8. Vaults

9. Domes

10. Lighting

11. Flying Buttresses:

12. Surfaces:

13. Forms:

14. Scale:

15: the towers

16: the colour

a. **Geographical**

France is practically on the high road between the south and north of Europe, and the relative position of each district influenced the various prevailing types of architecture. When Rome was a great power it was by way of Provence and the Rhone valley that civilization spread; hence the strong classical element which is there prevalent. The trade with Venice and the East introduced to the district of Perigueux a version of the Byzantine style in stone.

b. **Geological.** France is exceedingly rich in building materials, especially stone, of which most of the towns are built. The soft, fine-grained stone of Caen, used throughout N.ormandy, was also exported to England. In the volcanic district of
Auvergne walling was executed in a curious inlay of colours material.

c**. Climate**. I-n France there are three climates (a.) the north resembles that of the south of England; (b.) the west on the Atlantic coasts is warmer, owing to the Gulf Stream and warm S.W. winds ; (c.) the south, on the Mediterranean, with a landscape
Almost African in its aspect, is sub-tropical.

d. **Religion**. Christianity, when introduced, took a strong hold in the Rhone Valley, Lyons contributing martyrs to the cause. In this district the most interesting event was the rise of the Cistercians (page 219), the severity of whose rules as to church building, caused a reaction from the decorative character of the later Romanesque, as in the fa9ades of S. Gilles, and of S. Trophime, Aries. Attention was then concentrated upon the means of producing grand and severe effects, and the change to the pointed style was promoted, by the effort to solve the problems of vaulting.

v. **Social and Political**. Hugh Capet ascended the Prankish throne towards the close of the tenth century, Paris being made the capital of the kingdom. At this period the greater part of the country was held by independent lords, and the authority of the king extended little beyond Paris and Orleans. Lawlessness and bloodshed were rife throughout the century; hence architectural progress was impossible until a more settled state of society was established.

vi. Historical. On the death of Charlemagne, Northern France was invaded by the North men, from whom Normandy was named, and their ruler Rollo was the ancestor of the Norman kings of England. The conquest of England in 1066 marked the transference of the most vigorous of the Normans to England, Normandy becoming an English province until the time of King John. The hold, however, which they retained on their possessions in France, was the cause of continual invasions and wars in the two countries, until the complete fusion of races in both was marked by the loss of the English possessions in France.

2. EXAMPLES: see the pictures

3. COMPARATIVE TABLE

1. **Plan**, or general distribution of the building.

2. **Walls,** their construction and treatment.: Massiveness is the characteristic of all the early work. Walls were of rubble with facing stones m3. Roofs their treatment and development. Pyramidal roofs, the vault in the southern examples frequently supports the roofing slabs direct, while in the northern examples above the stone vault were constructed wooden roofs, which supported the covering independent of the vault.

4. **Openings**, their character and shape: narrow openings, with window lights in pairs or groups. Small, clear-glazed openings Flying buttresses, admitting of high clerestories with windows lighting the nave, were introduced between A.D. 1150-1200.

5. Columns, their position, structure, and decoration. Usually having double columns. Circular or octagonal, Corinthian order.

6. Decorative, their form and decoration. Zigzags. Cubical blocks, Painted glass.

7**. Arches**: round arches, of the Narrow bays but on the introduction of the pointed arch.

8. Volts: vaulting ribs.

9. Domes: Conical dome, 60 feet diameter over the central space and supports with four piers and eight columns.

10. Lighting: Medium lights through small windows ended by circular arches in between the flying buttresses.

11. Flying Buttresses: Obtained by means of the division walls between an outer range of chapels, often unmarked on the exterior.
12. Surfaces: square and rectangular surfaces.

13. Forms: cubic forms.

14. Scale: Out of scale.

15: the towers: There was a tower, 11 feet height, or bell towers, are .important features of the period. They were not joined structurally with the church to which they belonged, as in England, France, and Germany, but were placed at some little distance, and sometimes connected with the main building by cloisters In these cases they were erected as symbols of power, in plan they are always square.

16: the colour: natural colours from using natural building.

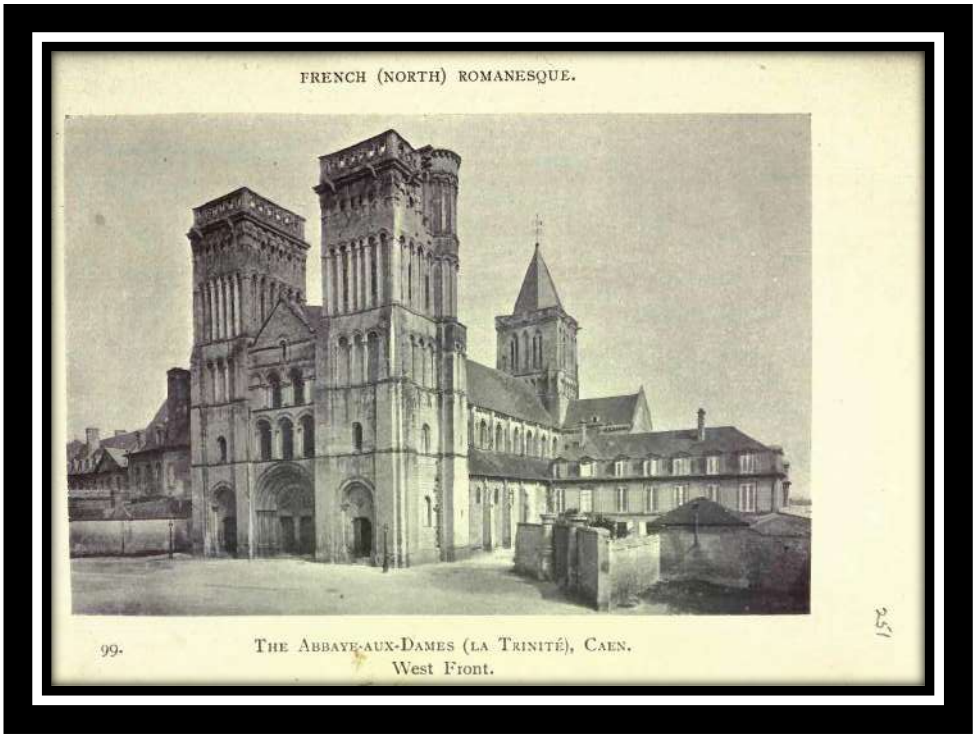


Figure 4.1: French North Romanesque.

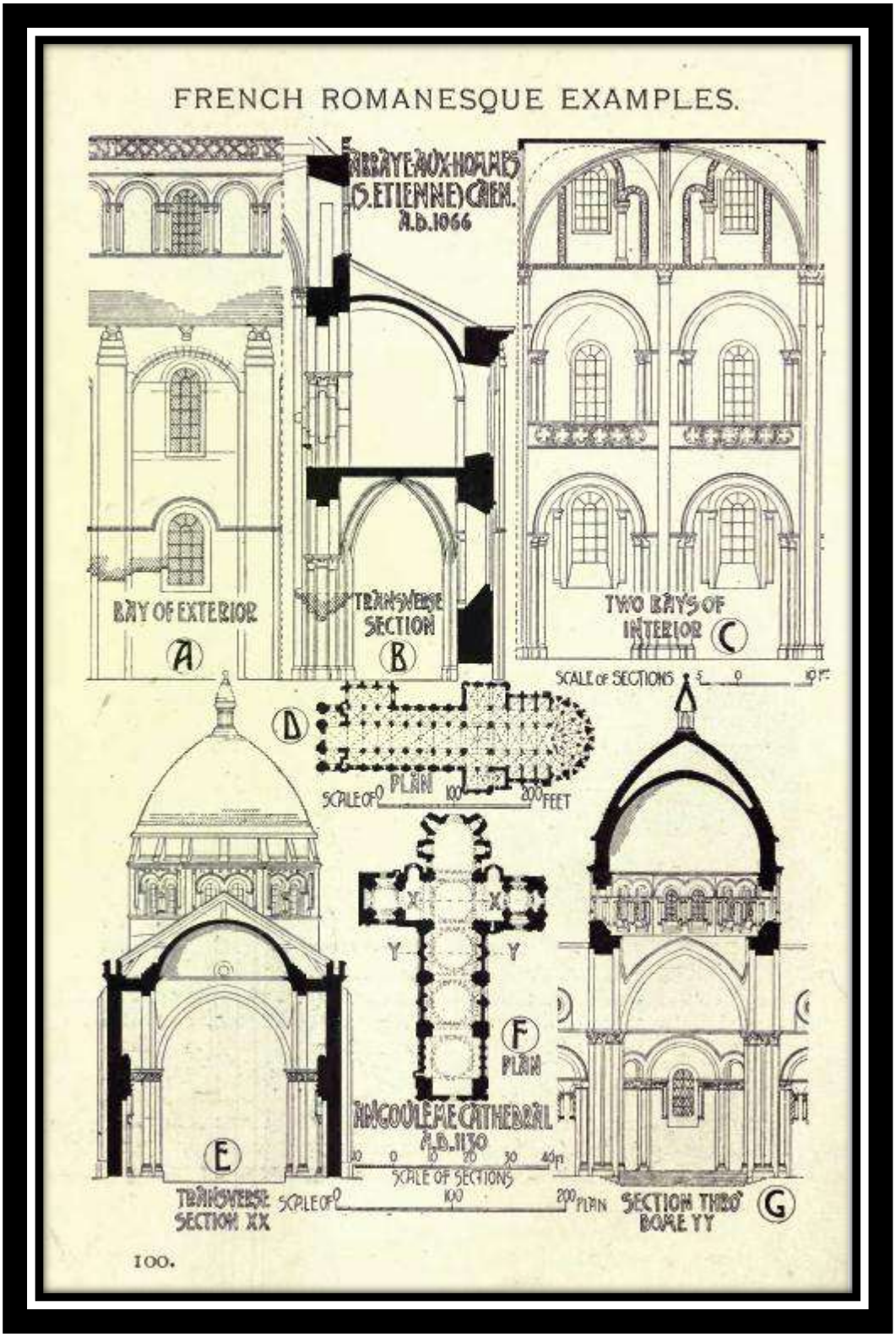


Figure 4.2: French Romanesque examples

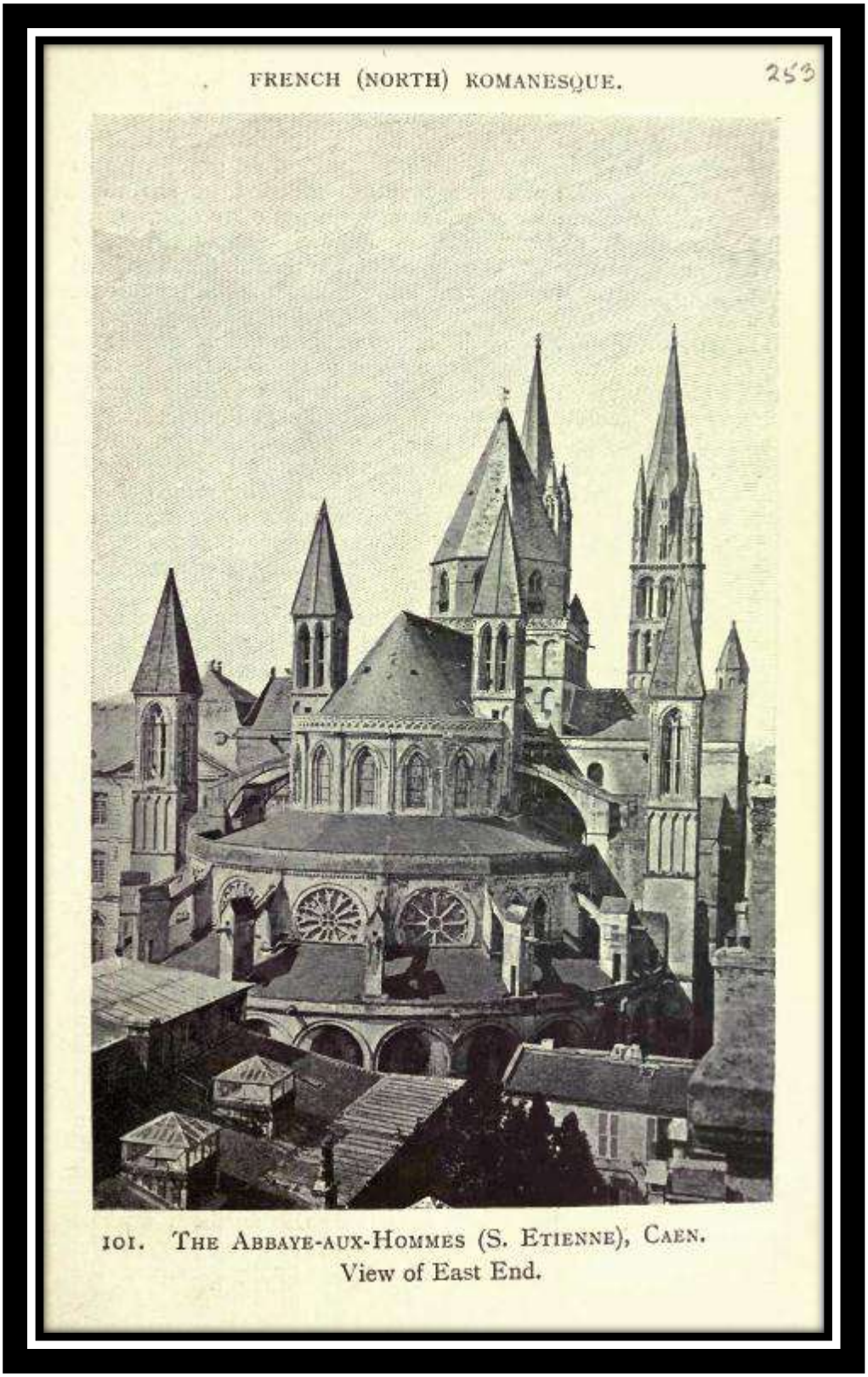


Figure 4.3: French North Romanesque.

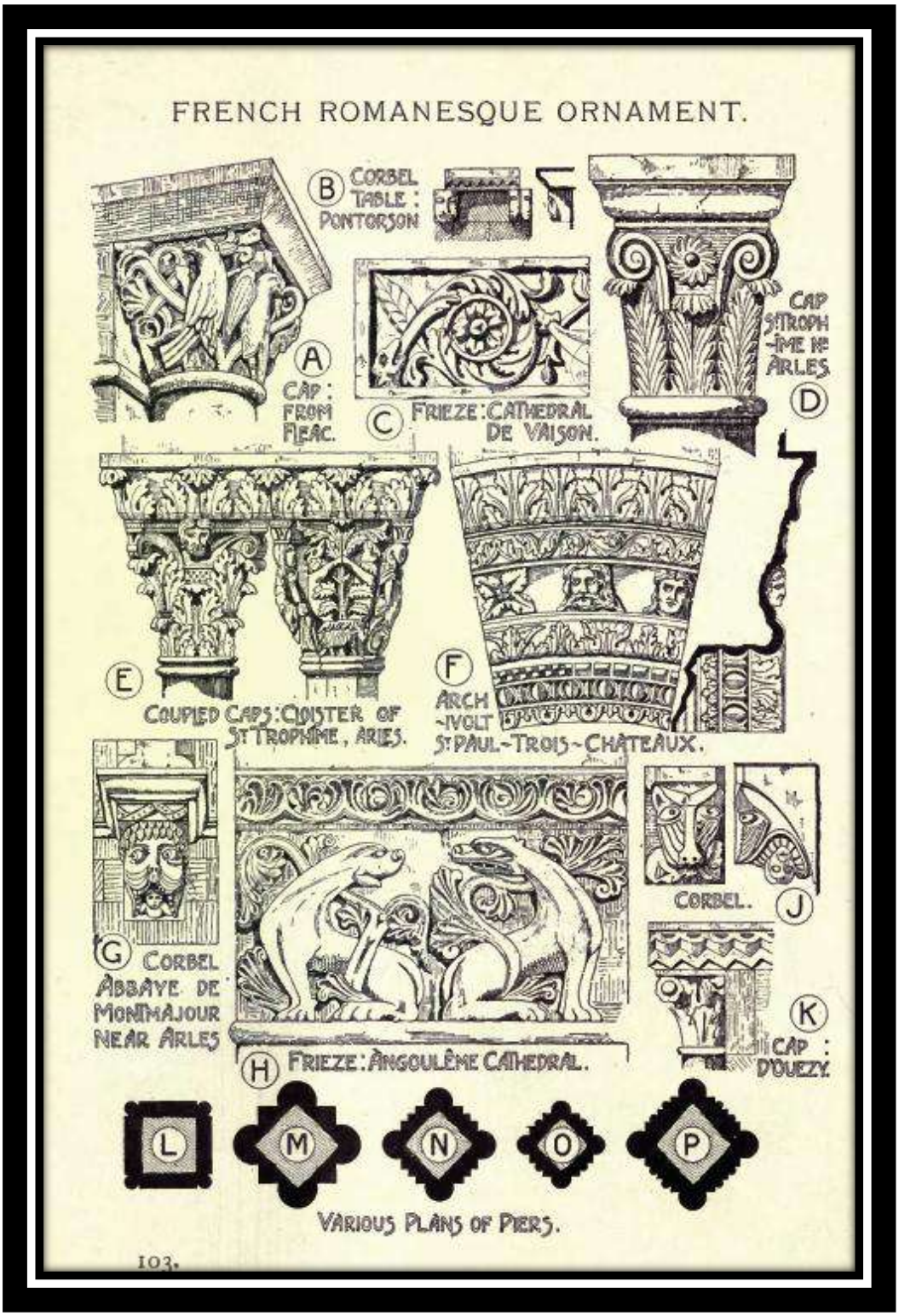


Figure 4.4: French Romanesque Ornament.

CHAPTER FIVE

GERMAN ROMANESQUE.

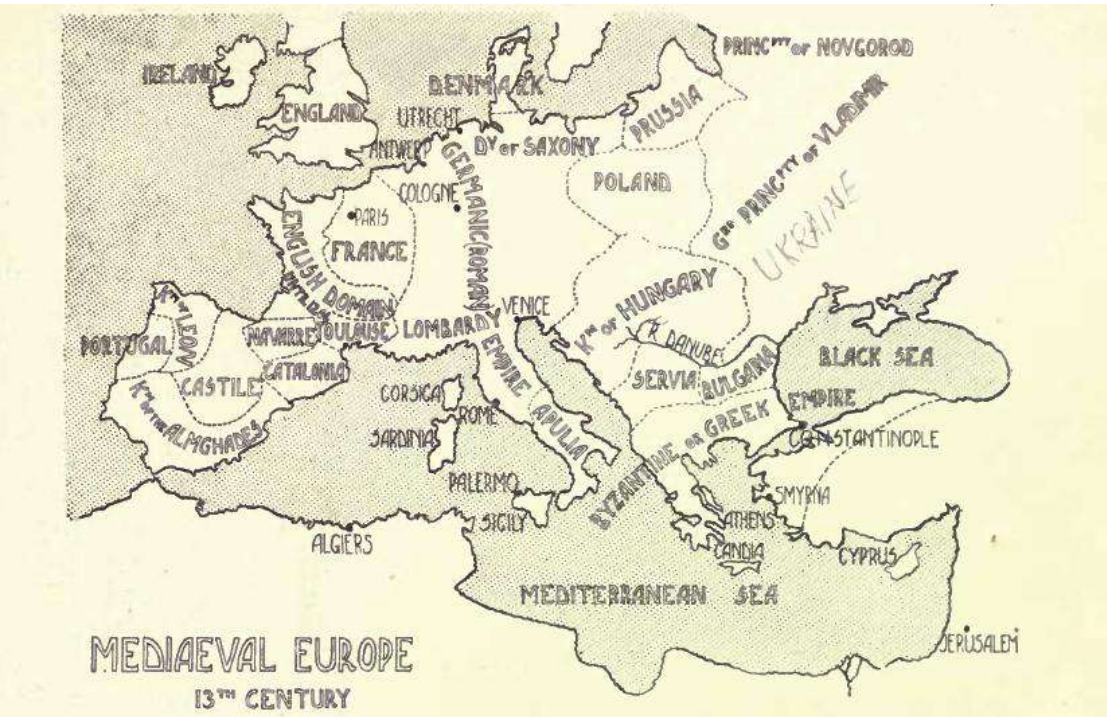


Figure 5.1: Europe 13th Century.

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE GERMAN ROMANESQUE ARCHITECTURE

a. Influences.

b. GEOGRAPHICAL.

c. GEOLOGICAL.

d. CLIMATE.

e. RELIGION.

f. SOCIAL AND POLITICAL.

g. HISTORICAL.

2. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.

2. Walls, their construction and treatment. -

3. Roofs, their treatment and development.

4. Openings, their character and shape.

5. Columns, their position, structure, and decoration.

6. Decorative, their form and decoration.

7. Arches

8. Vaults

9. Domes

10. Lighting

11. Flying Buttresses:

12. Surfaces:

13. Forms:

14. Scale:

15: the towers

16: the colour

1. INFLUENCES.

a. Geographical. On the banks of the Rhine, and in the south, cities had been established during the Roman occupation, and it was in these parts that Christianity took root, while, in the north and east, paganism still existed.

b. Geological. The existence of stone in the Rhine valley facilitated the erection in this material of churches, rendered permanent and fireproof by the early introduction of vaulting. No stone being found on the sandy plains of Northern Germany, brick was there employed, and the style of that district is consequently varied from that of the Rhine valley.

c. Climate. The average temperature of Central Germany may be said to be the same as Southern England, but with wider extremes, as the heat in the summer is ten degrees higher, and in the winter correspondingly lower, so that carriages in Berlin are converted into sledges.

d. Religion. In the early period the Germans looked much to Rome, and Charlemagne, being a strong supporter of Christianity, forced the people of Saxony to embrace that religion. The plan of a typical church of this period is peculiar in having eastern and western apses. There are also a number of important circular churches, built as tombs, or more especially as baptisteries, the conversion of the tribes giving great importance to that ceremony.

e. Social and Political. Germany united under Charlemagne afterwards split up into small principalities, whereas.
France, originally divided into many distinct nationalities, became fused into an absolute monarchy and has remained, in .spite of all changes, the most united of continental powers. In the later portion of this period, Germany was troubled by the dissensions of the two rival parties, the Guelphs and Ghibellines, the one supporting the Church and municipal rights, and the other representing the Imperial authority, but the conflict between the two took place mainly in North Italy.

f. Historical. Charlemagne (A.D. 768-814), the first Prankish king who became Roman Emperor, was crowned by the Pope at Rome, and ruled over the land of the Franks, which included all Central Germany and Northern Gaul. In addition, he established the Prankish dominion over Southern Gaul and Northern Italy (No. 90). In a great measure, he restored the arts and civilization to Western Europe, resulting in the erection of many important buildings in his dominions. On Charlemagne's death in A.D. 814 this empire crumbled to pieces through internal wars, and in the unsettled state of the country, the German princes pushed themselves into prominence by demanding the right to elect their own sovereign Conrad the First, reigning as King of Germany at the beginning of the tenth century. His successor, Otho, extending the boundary of the German Empire southwards into Lombardy, was crowned Emperor of the West at Rome, an event which shows the leading position of the Prankish emperors at the period, and was not without its influence on the architecture of these regions. The political relations of the Hohenstaufen (or Swabian) Emperors (A.D. 1138-1273) with Lombardy, is evidenced in the similarity of the architecture of the two countries. The house of Hapsburg succeeded the Hohenstaufen dynasty in 1273, when French Gothic architecture was introduced, and henceforth copied.

2. ARCHITECTURAL CHARACTER.

The style bears a strong resemblance to North Italian Romanesque, due to certain influences dealt with previously.

(page 234 and above). The Rhine districts possess the most fully-developed Romanesque architecture, and the style lias_fe_wejl local - ^axieiies than that_pf France. The plans of the churches are peculiar in having western and eastern apses, and no great western entrance as in France. The general architectural character is rich in the multiplication of circular and octagonal turrets, in conjunction with polygonal domes, and the use of arcaded galleries under the_eayes. The mosFncKIy" ornamented parts are the doorways_aiid_capitals, which are bold and effective in execution. Vaulting appears to have been first adopted in the Rhenish churches some fifty years after its general adoption in France.

3. EXAMPLES
See the pictures.

3**. COPARATIVE POINTS**

1. Plan. Square bays, and over
the crossing a tower, sometimes octagonal

2. Walls, their construction and treatment. The blank walls are cut up by flat pilaster strips, connected horizontally by ranges of small arches were built by bricks

3. Roofs, their treatment and development.: In the Rhine district a central semicircular barrel vault was supported by half-barrel vaults over the aisles, a system which led by degrees to complete Gothic vaulting. Timber roofs were also employed for large spans.

4. Openings, their character and shape. The windows are usually single, being rarely grouped
5. Columns, their position, structure, and decoration. The nave arcades were generally constructed of square piers, with half columns attached.

6. Decorative, their form and decoration. Internally the flat plain surfaces were occasionally decorated in fresco, Christian and Byzantine mosaic decorations.

7. **Arches**: Open arcades, occur under the eaves of roofs, especially round the apses

8. Vaults: two intersect volts

9. Domes : Conical dome

10. **Lighting:** Medium lights through small windows ended by circular arches 11.

11.Flying Buttresses: they are not found

12. Surfaces: square surface

13. Forms: cubic forms

14. **Scale**: Out of scale

15: The towers: square, circular, or polygonal, producing a rich and varied outline. Tower roofs, and spires of curious form, are a special feature of the style.

16: the colour: natural colours from using natural building

104. CHURCH OF THE APOSTLES, COLOGNE.
View of Apse.

Figure 5.2: German Romanesque, Church of the Apostles.

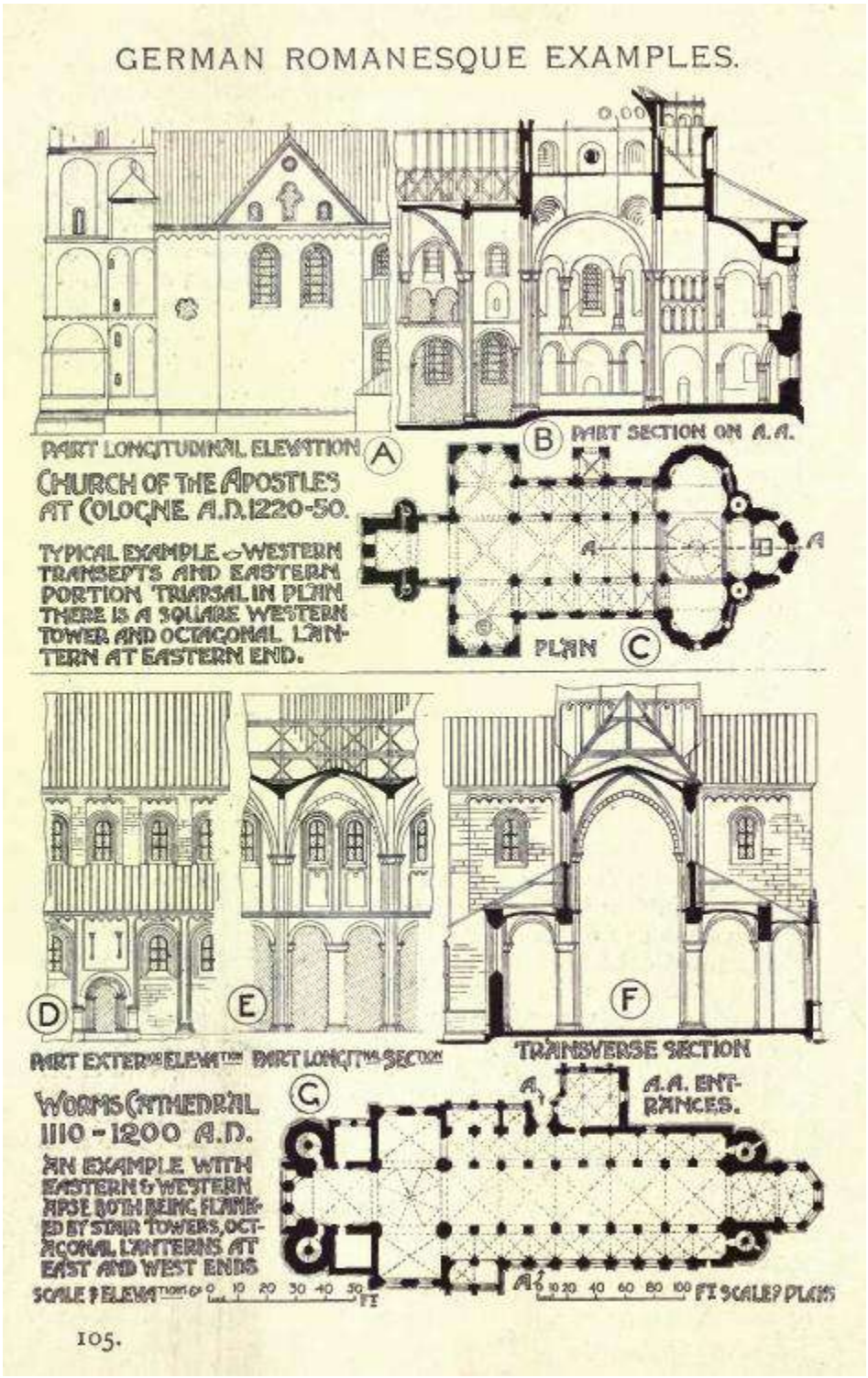


Figure 5.3: German Romanesque examples.

Figure 5.4: German Romanesque.

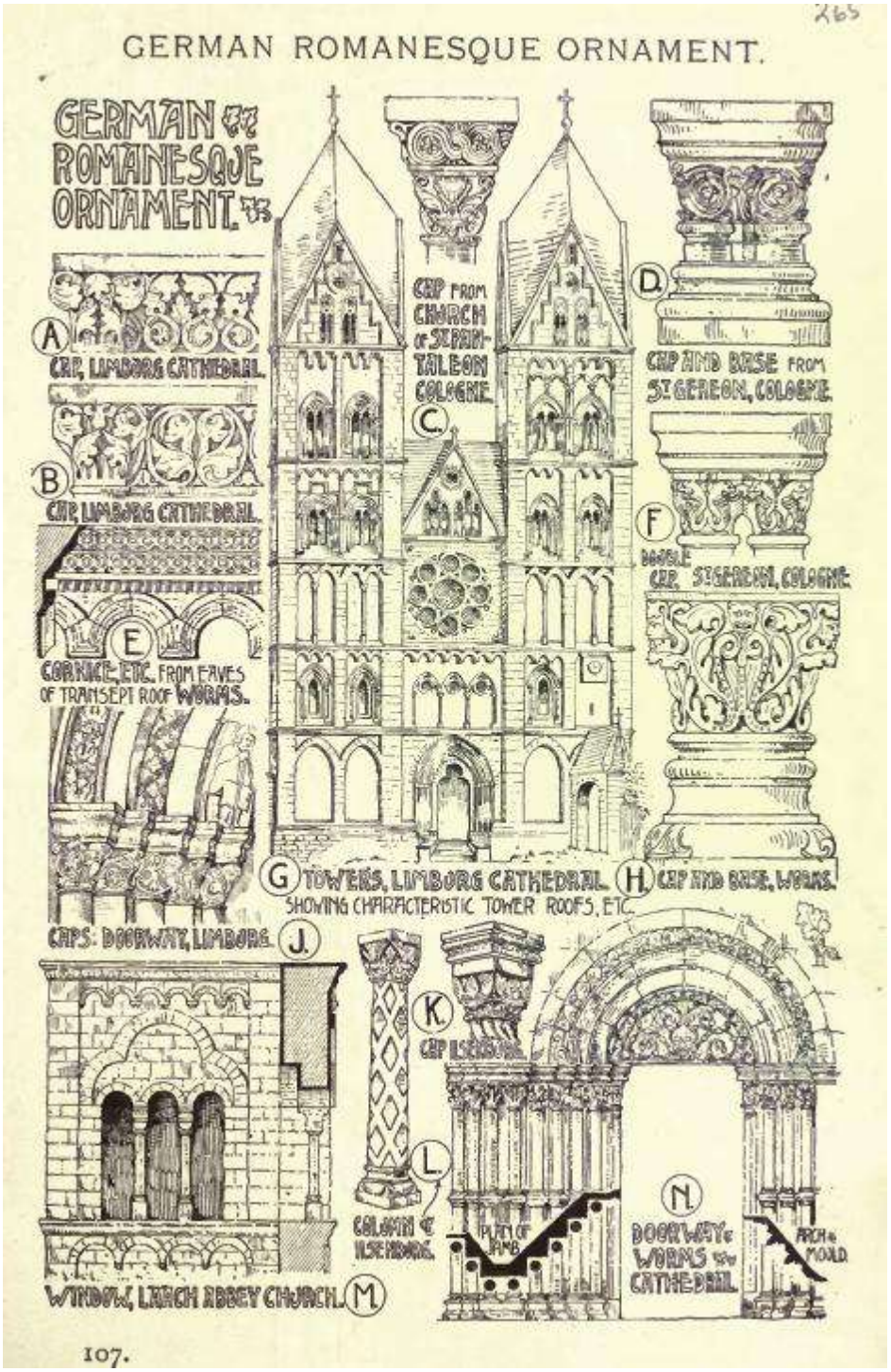


Figure5.5: German Romanesque Ornament.

CHAPTER SIX
GOTHIC ARCHITECTURE IN EUROPE.

1200-1600 AC

1.THE MAIN FACTORS THAT AFECTING IN APPEARANCE BYZANTINE ARCHITECTURE ARCHITECTURE:

a. Influences.
b. GEOGRAPHICAL.
c. GEOLOGICAL.
d. CLIMATE.
e. RELIGION.
f. SOCIAL AND POLITICAL.
g. HISTORICAL.

2. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.
2. Walls, their construction and treatment. -
3. Roofs, their treatment and development.
4. Openings, their character and shape.
5. Columns, their position, structure, and decoration.
6. Decorative, their form and decoration.
7. Arches
8. Vaults
9. Domes
10. Lighting
11. Flying Buttresses:
12. Surfaces:
13. Forms:
14. Scale:
15: the towers : Towers are detached
16: the colour

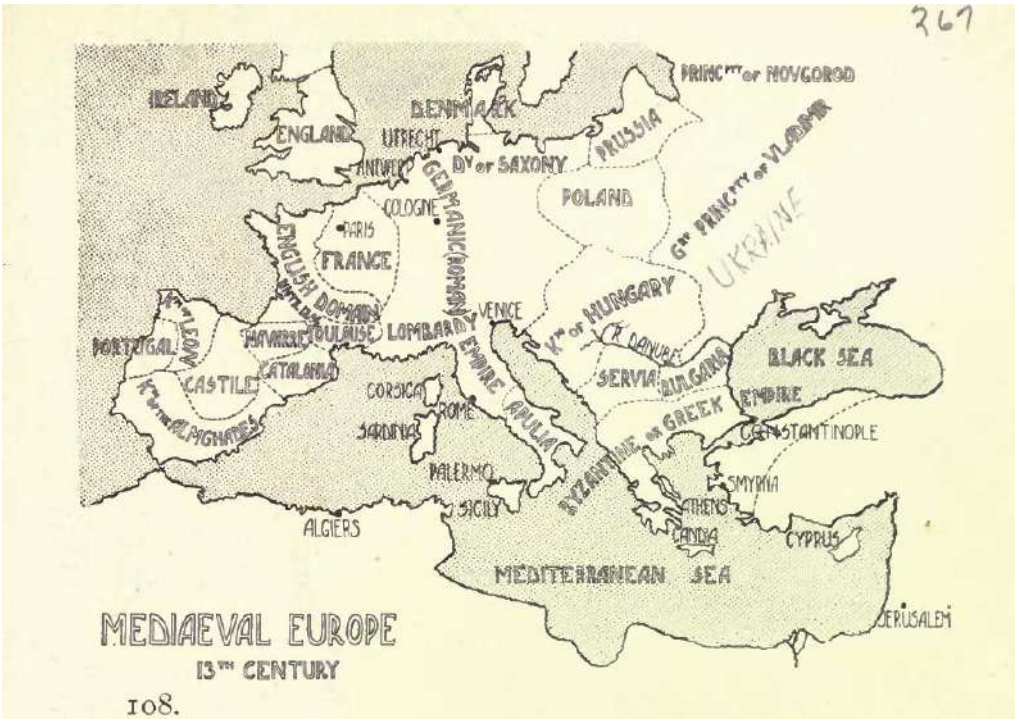


Figure 6.1:Europe 13th Century.

a. Geographical. The nations of Western Europe had come into existence. Germany was the centre of the Western Empire and the Kingdoms of France, Italy and Spain were also becoming strong United States. Russia, Sweden and Norway had little to do with Western Europe. England had become thoroughly united under the Norman Kings. The map (No. 108) gives the general distribution of the various countries in the thirteenth century.

b.. Geological. Refer to each country.

c. Climate. Refer to each country. It has been pointed out that the sun, in Northern Europe, is more suitable for Gothic than Classic Architecture, for it is a sun wheeling somewhat low on an average round the sky, and shadows are better caught by outstanding buttresses and the flying lateral members of a Gothic.

d. Social and Political. Refer to each country. The growth of towns which developed into important cities brought.

about an increase of riches and the erection of magnificent ‘buildings

owing to municipal rivalries. In Italy, the country was divided into different portions belonging to the larger towns, which afterwards became principalities, whereas in Germany, towns joined together for mutual defence, amongst the most famous being those forming the Hanseatic league.

e. Historical. Refer to each country.

3. Comparative Table.

1. Plan, or general distribution of the building. Square and rectangular shapes, inter sect volts.
2. Walls, their construction and treatment. –a structure of small stones with thick mortar joints and bricks and became thinner afterwards. The marble of Pentelicus or the blocks of granite which the Romans procured from Corsica, the Alps, and the East.
3. Roofs, their treatment and development. The gable forms a distinctive Gothic feature
4. Openings, their character and shape. Bright coloured windows. And there is a **Tier window** on the south elevation at main entrance, built from stones and decorative and painted with art and colours.
5. Columns, their position, structure, and decoration. Circular or octagonal, Corinthian order
6. Decorative, their form and decoration: style. The invention of painted glass was an important factor in the development of the style, for traceried windows came to be looked upon merely as frames in which to exhibit painted transparent pictures displaying the incidents of Bible History, the walls were kept internally as flat as possible .
7. Arches: Pointed arch .
8. Vaults: The method was an extension of the Romanesque system, which was evolved from that of the Romans, which supported thin panels of stone. The difficulties of vaulting oblong compartments were now overcome by the introduction of the pointed arch, which was used to cover the shorter spans, while the semicircular arch was still used for some time for the diagonal ribs and used of ribbed vaults on large spans.
9. Domes: Conical dome
10. Lighting: Large amount of lights through the large windows covered with pointed arches.
11. Flying Buttresses: there are flying buttresses used to: *support the walls and to avoid the expense of labour which the carrying of material of large size involved. **Flying Buttresses:**
is a specific form of buttressing most strongly associated with Gothic church architecture. It serves to transmit the lateral forces pushing a wall outwards (which may arise from stone vaulted ceilings or from wind-loading on roofs) across an intervening space and ultimately down to the ground. Flying buttress systems have two key components - a massive vertical masonry block (the buttress) on the outside of the building and a segmental or quadrant arch bridging the gap between that buttress and the wall (the 'flyer').

The main advantage of such systems is that the outer walls no longer need to be heavy and massive enough to resist the lateral thrusts of the vault. Instead the wall surface could be reduced (allowing larger windows filled with stained glass), with the vertical mass concentrated into external buttresses. Flying Buttresses appears in the latest thirteen century.

12. Surfaces: square and rectangular surfaces

13. Forms: cubic forms

14. Scale: out of scale

15: the towers: There was a tower, 11 feet height, or bell towers, are .important features of the period. The gable and the tower are developments of the walls of the building, Many towers were built detached from all other buildings, but no great Gothic building is complete without one main tower and some subordinate ones.

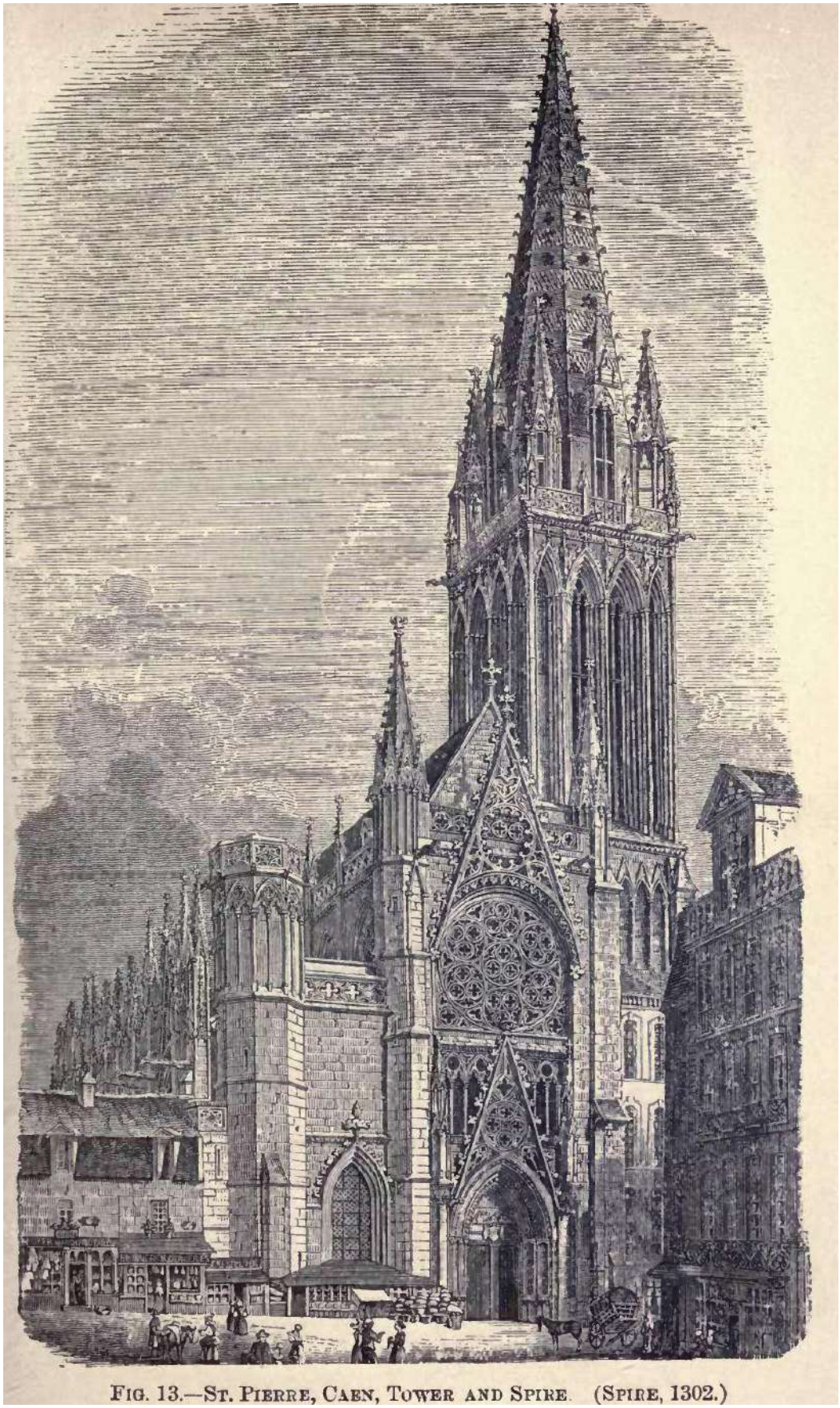


FIG. 13.—ST. PIERRE, CAEN, TOWER AND SPIRE. (SPIRE, 1302.)

Figure 6.2: Sr. Pierre, Caen, Town and Spire, 1302.

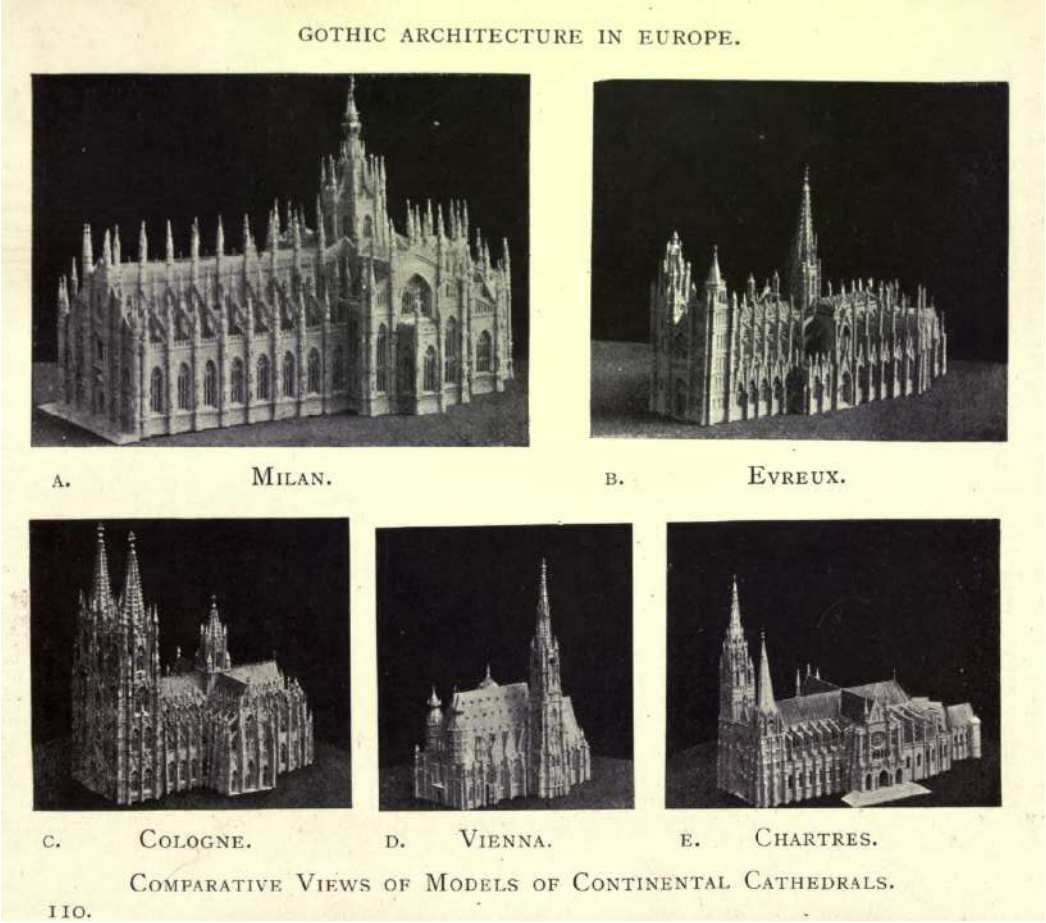


Figure 6.3: Gothic Architecture in Europe.

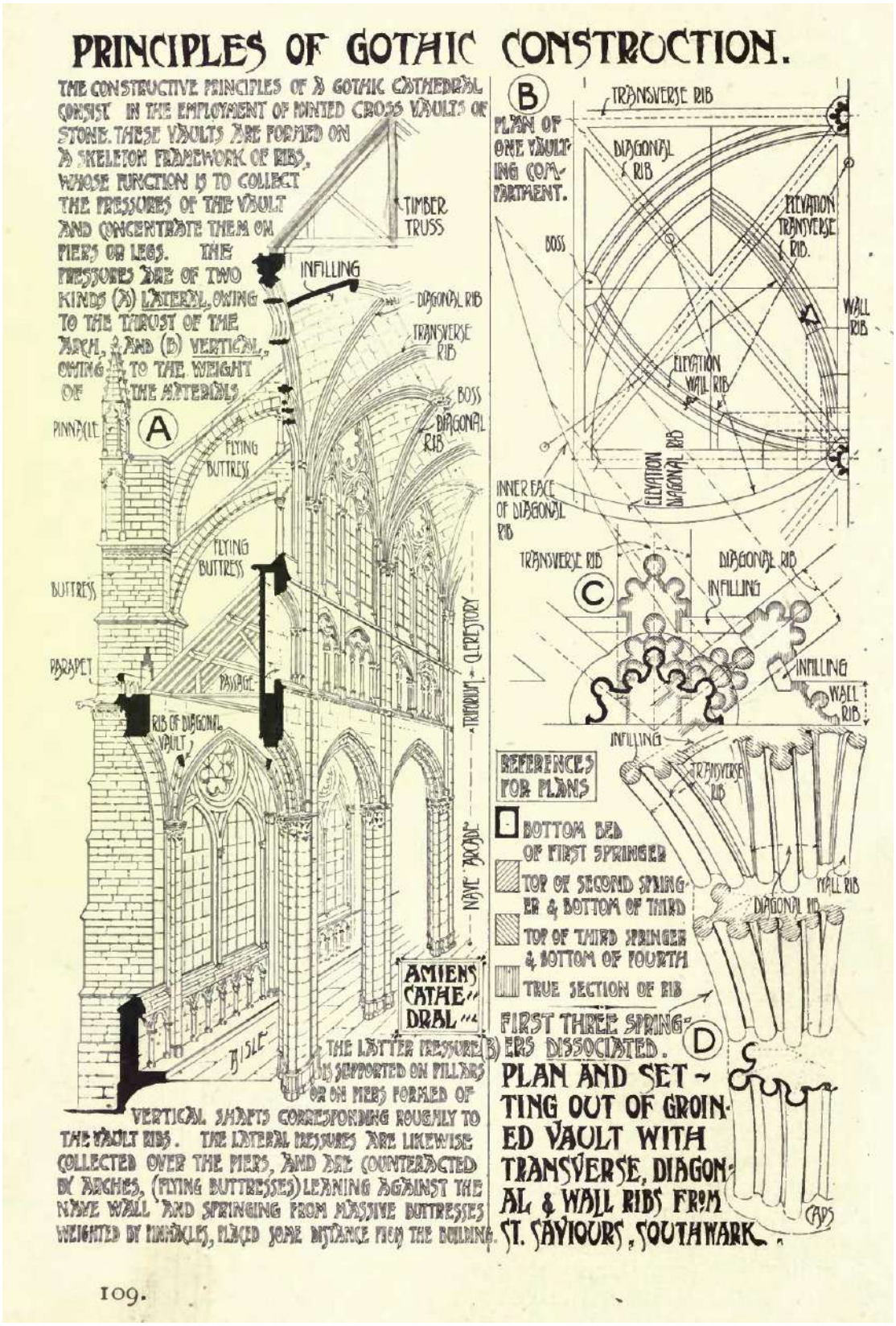
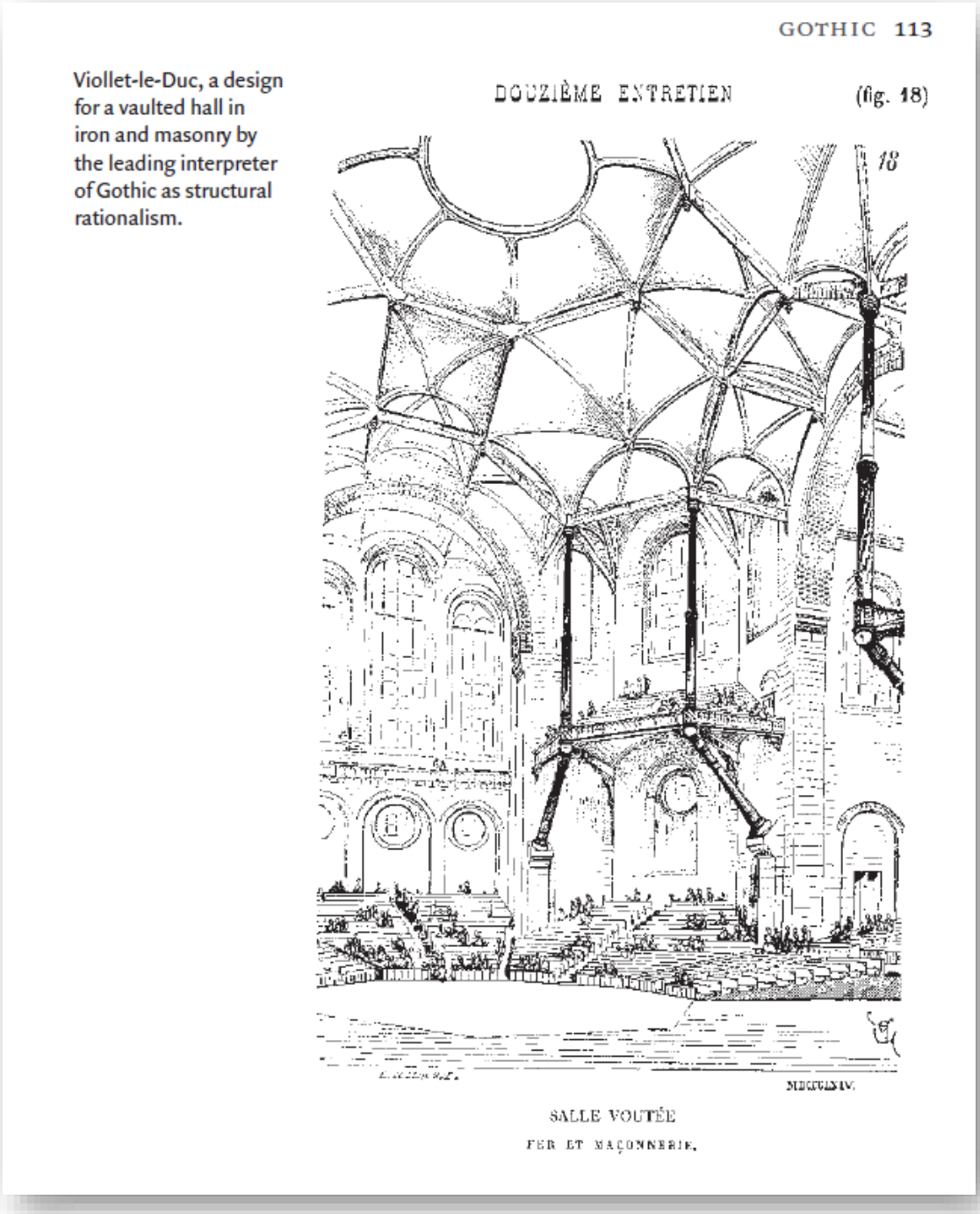


Figure 6.4: Principles of Gothic Construction.



GOTHIC 113

Viollet-le-Duc, a design for a vaulted hall in iron and masonry by the leading interpreter of Gothic as structural rationalism.

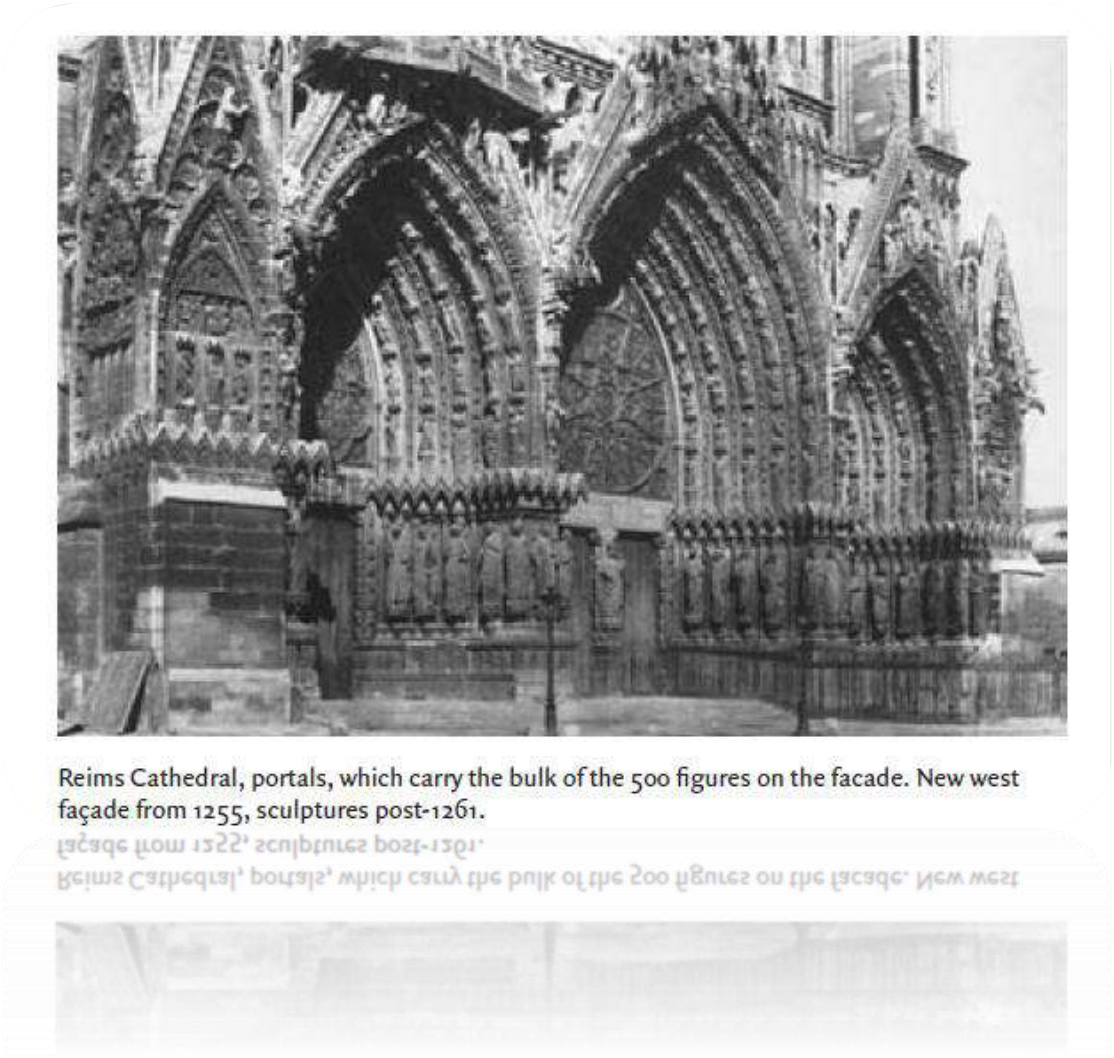
DOUZIÈME ENTRETIEN (fig. 18)

18

SALLE VOUTÉE

FER ET MAÇONNERIE.

Figure 6.5: Viollet Design for vault hall, Source: Travel in History of Architecture, P.115.



Reims Cathedral, portals, which carry the bulk of the 500 figures on the facade. New west façade from 1255, sculptures post-1261.

Figure 6.6: Reims Cathedral, newest façade, 1255. Source: Travel in History of Architecture, P.115.

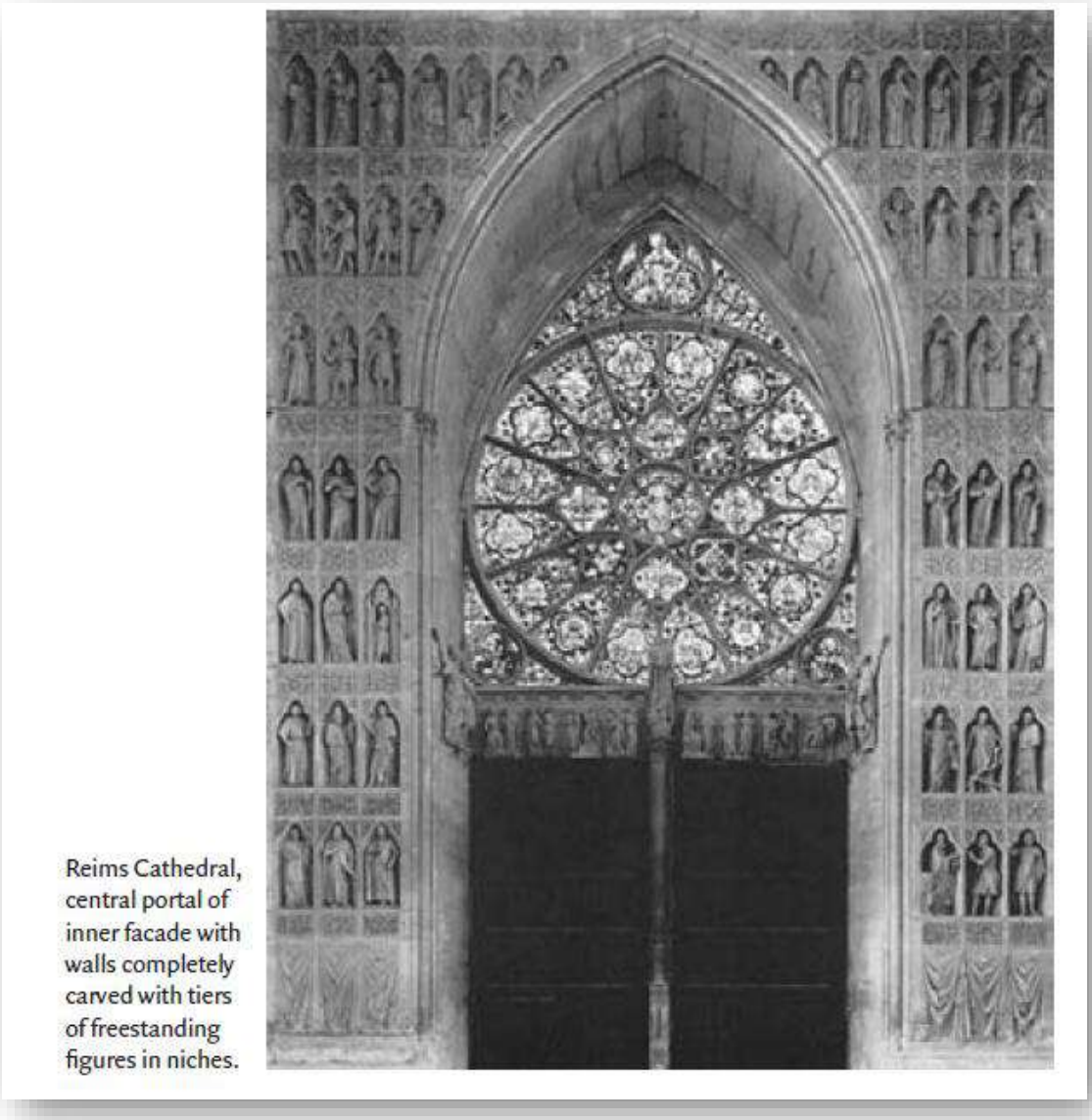
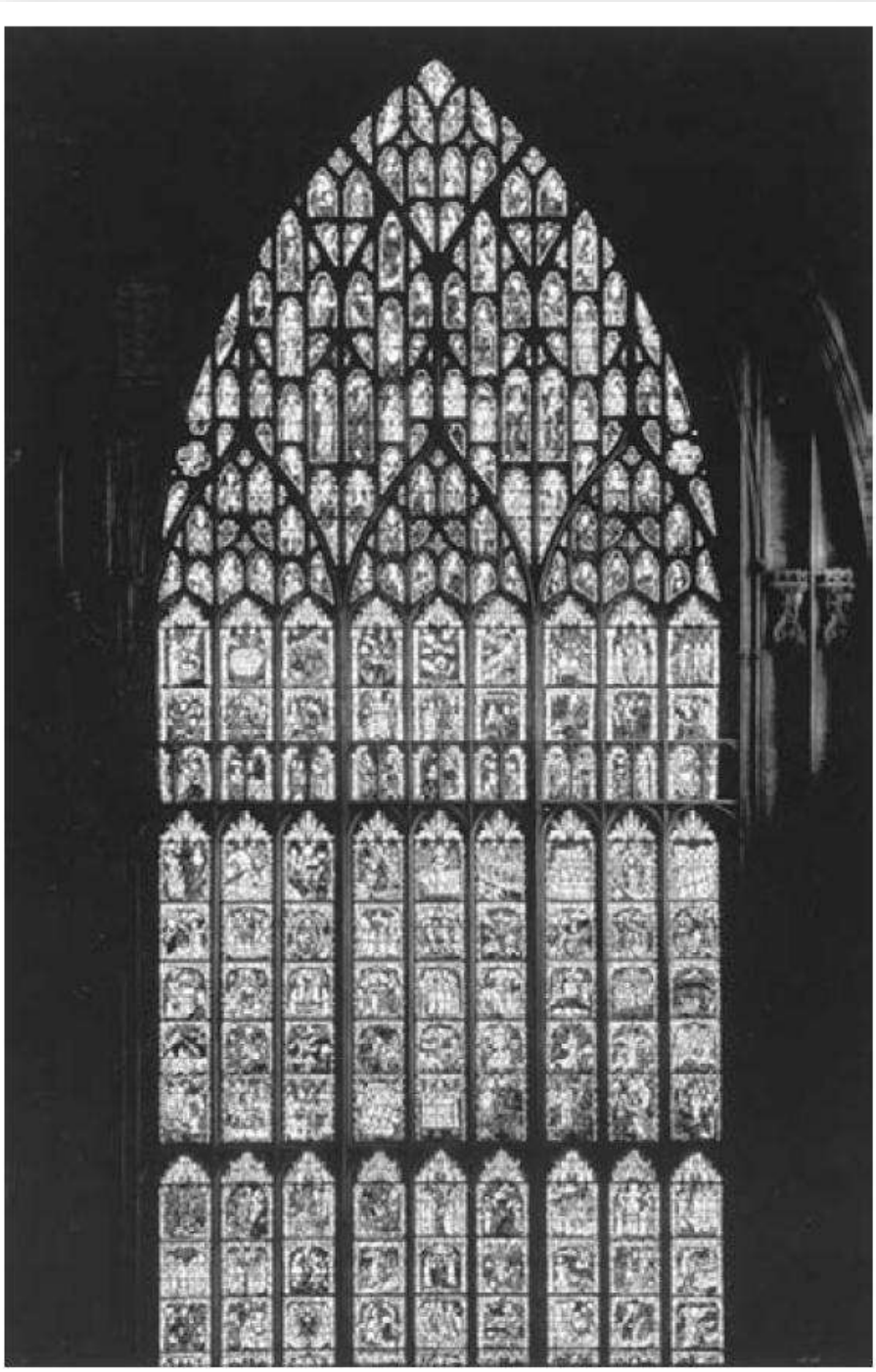


Figure 6.7: Reims Cathedral, central portal of inner façade. Source: Abert. H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK, P.119.



York Minster, great east window of 1405–8 divided below the top tracery into 117 scenes depicting Genesis and the Apocalypse.

Figure 6.8: York Minster, greateast window of 1405. Source: Abert.H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK,P.121.

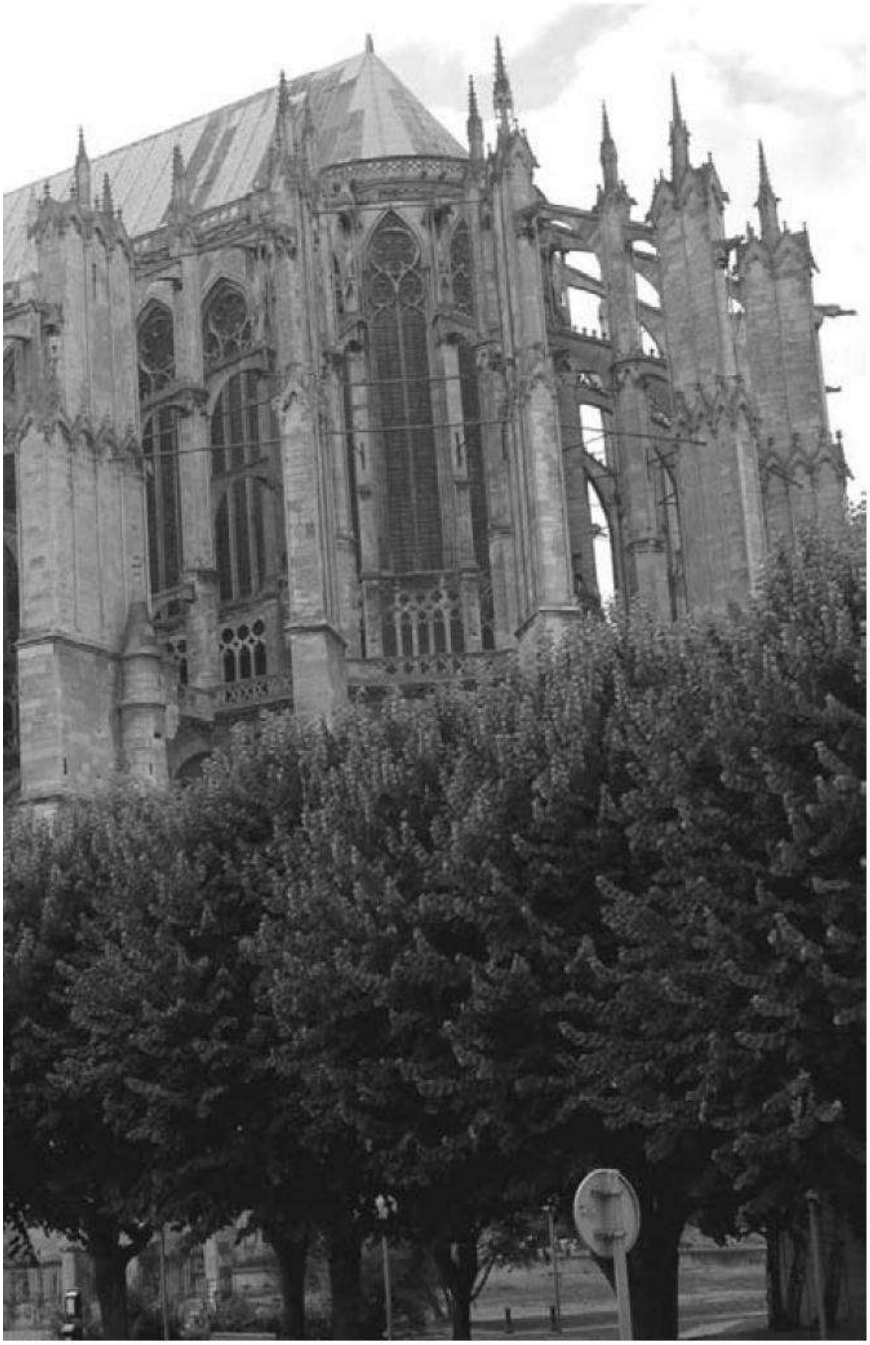
Amiens Cathedral, interior at crossing showing the soaring height and slenderness of the fabric, begun 1220.

Figure 6.9: Amiens Cathedral, 1220. Source: Habert.H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK,P124.

Amiens Cathedral, chevet, a concentrated vision of a heavenly city in miniature.

Figure 6.10: Amiens Cathedral. Source:
Habert.H.(2009). *Travel in the History of Architecture*",
Reaktion Book LTD., UK,P125

Figure 6.11: Habert.H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK,P



Beauvais Cathedral from the south-east showing the exo-skeleton of flying buttresses that makes the high walls of glass possible, choir rebuilt 1284–1338.

Figure 6.12: Beauvais Cathedral, 1284-1338.Source Habert. H.(2009).

Tewkesbury Abbey, chancel vault whose rib pattern resembles window tracery, after 1288.

Figure 6.13: Tewkesbury Abby, 1288. Source Habert. H. (2009).

Gloucester Cathedral, late Gothic screen wall inserted to hide older Romanesque fabric behind, *c.* 1337–57.

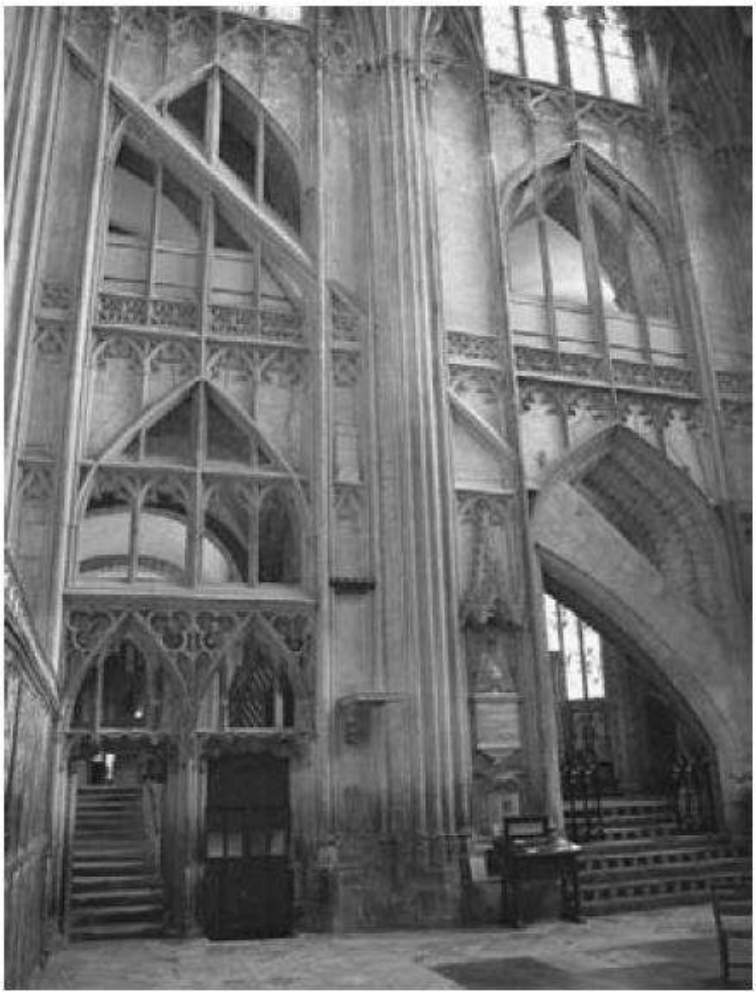
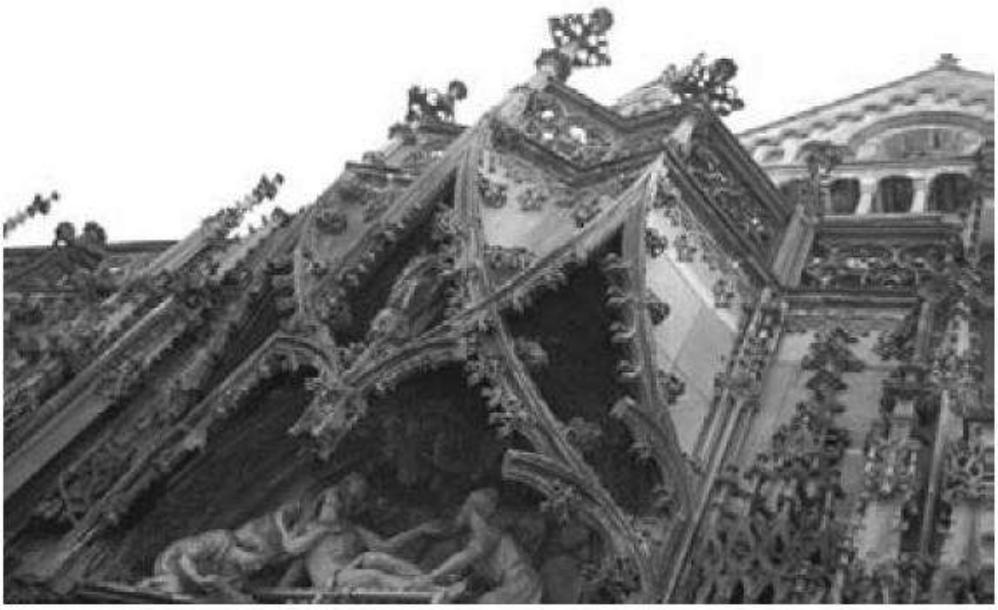


Figure 6.14: Gloucester Cathedral, 1337. Source: Habert.H.(2009).

Gloucester Cathedral, fan vault in the cloister, an important English innovation, 1351–64.

Figure 6.15: Gloucester Cathedral, 1331. Source: Habert.H.(2009).



Strasbourg Cathedral, north porch, pierced canopy looking something like a work under construction, by Jakob von Landshut, 1495–1505.

Figure 6.16: Strasbourg Cathedral, 1495-1505. Source: Habert.H.(2009).

CHAPTER SEVEN
GOTHIC ARCHITECTURE IN

England

1200-1600 AC

2. Examples.

3. Comparative Table.

1. **Plan,** or general distribution of the building. features. The plans are long and narrow, and the choir is often of nearly the same length as the nave. The extreme length is often as much as six times
2. Walls, their construction and treatment. -
3. **Roofs**, their treatment and development.: of the boss. The open timber roofs of the Middle Ages are a special English feature and may be classed in the following five divisions, being illustrated
(i.) Tie-beam Roofs.
(2.) Trussed rafter or single-framed Roofs.
(3.) Hammer-beam Roofs of various forms.
(4.) Collar-braced Roofs, including arch-braced roofs.
(5.) Aisle Roofs of several forms. (Page 5)
4. **Openings**, their character and shape: doors and windows, and tracery work in panelling, possibly with a desire to harmonize with the important superstructure of vaulting ending with pointed arch.
5. Columns, their position, structure, and decoration.
6. **Decorative**, their form and decoration. Decorative in fourteen century is intermediate rips.
7. Arches: segmental arches and pointed arches was used firstly for the transverse and wall ribs only.
8. **Vaults**: circular volts vary in their size. The curvature of the ribs was obtained from arcs struck from one or more centres and designed without reference to the curvature of adjoining ones, as is seen in the setting out of Gothic vaulting compartment (No. in D). In this lies the whole difference between the Roman and mediaeval systems, for in the former the vaulting surface is everywhere level in a direction parallel to the axis of the vault, and any horizontal section of a spandrel or meeting of two cross vaults would be a rectangle. The vaulting of this period therefore consisted of transverse,
diagonal, intermediate, ridge and lierne ribs. English type of vaulting in this century known as fan, palm or conoidal vaulting.
There are deferent types of volts:
-Fan Volts 15C.
- palm or conoidal vaulting 13 C.
- polygonal (hexagonal) pyramid 14.C

9. Domes
10. Lighting:
11. Flying Buttresses:
Flying buttresses are not nearly as common as in France, Owing to the comparative lowness of the nave vault.

12. Surfaces: squares and rectangular
13**. Forms:** cubic forms
14. **Scale**: out of scale
15: The towers: Towers are detached: groined cross nave. The central tower is generally accompanied by two western towers, and is sometimes crowned with a high tapering spire, as at Salisbury and Norwich vaulting in square bays.

16: The colour: natural colours.

17: types of buildings:

1. CATHEDRALS.

Refer to the General Introduction to Gothic Architecture The constitution and foundation of English Cathedrals is important and is largely responsible for their monastic character and general arrangement.

They may be divided into three classes :
(a.) Cathedrals of the Old Foundation.
(&.) Cathedrals of the Monastic Foundation.
(c.) Cathedrals of the New Foundation.

(a.) The Cathedrals of the old foundation are those which, being served by secular clergy, were not affected by the reforms of Henry VIII. The following is a list : The Cathedrals of York, Lichfield, Wells, Exeter, Salisbury, Chichester, Lincoln,
Hereford, S. Paul, London, and the Welsh Cathedrals of Llandaff, Bangor, S. David's, and S. Asaph.

(b.) The Cathedrals of the monastic foundation are those which were originally served by regular clergy or monks, and which were reconstituted at the dissolution of the monasteries as chapters of secular canons. The following is a list: The Cathedrals of
Canterbury, Durham, Rochester, Winchester, Worcester, Norwich, Ely, Carlisle, Peterborough, Gloucester, Chester, Oxford, and Bristol.
Westminster Abbey was a Cathedral Church from A.D. 1540-1545.
When the change in these monastic establishments.

(c) The Cathedrals of the new foundation are those to which bishops have been appointed, viz., Ripon and Southwell, which are old Collegiate Churches, and the following Parochial Churches:
S. Albans, Newcastle, Wakefield, Manchester, and Truro.

2. THE CASTLES OF THE NOBLES.

These form an important part of the architecture of the Middle Ages, and were fortified up to the end of the fourteenth century. They were generally residences as well as military posts ; thus, while complying with the ideas of defence, the planning also illustrates the relation of the vassal to his lord, who, while exacting the former's service, was theoretically bound to maintain him. In the twelfth century, military structures were all-important, over 1,100 castles being constructed during the reign of Stephen alone. These consisted of (a.) an outer "bailey" or court, (b.) an inner bailey, and (c.) the donjon or keep, several stories in height; all being surrounded by a lofty wall with ramparts and parapet and a deep moat, as in the Tower of London (A.D. 1081-1090). (No. 131 A), and Kenilworth Castle (No. 131

Gothic Vaulting in England.

The problems of vaulting during the Romanesque period have been already explained, where the essential differences between Roman and Mediaeval vaulting are compared.

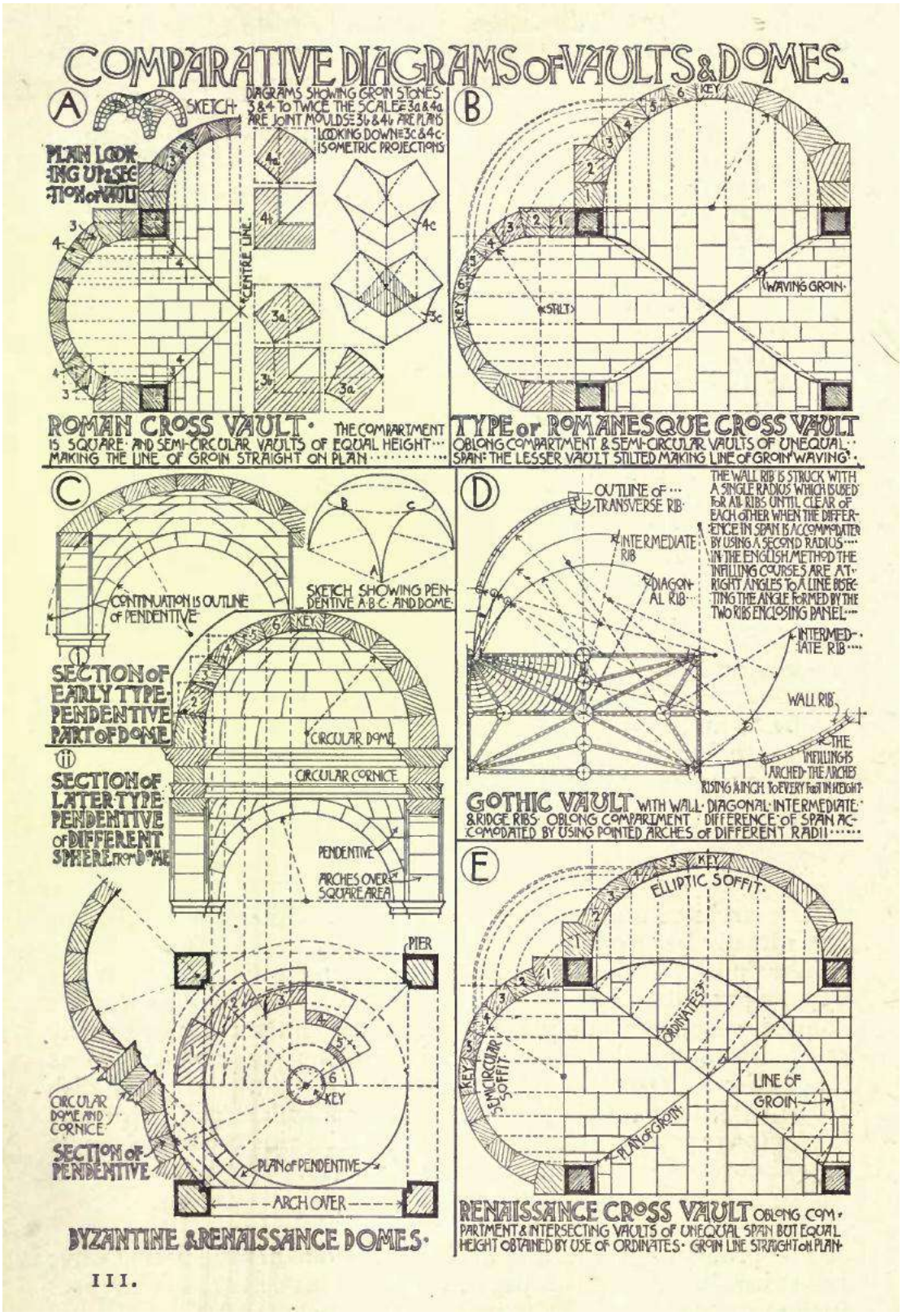


Figure 7.1: Comparative for vaults and domes.

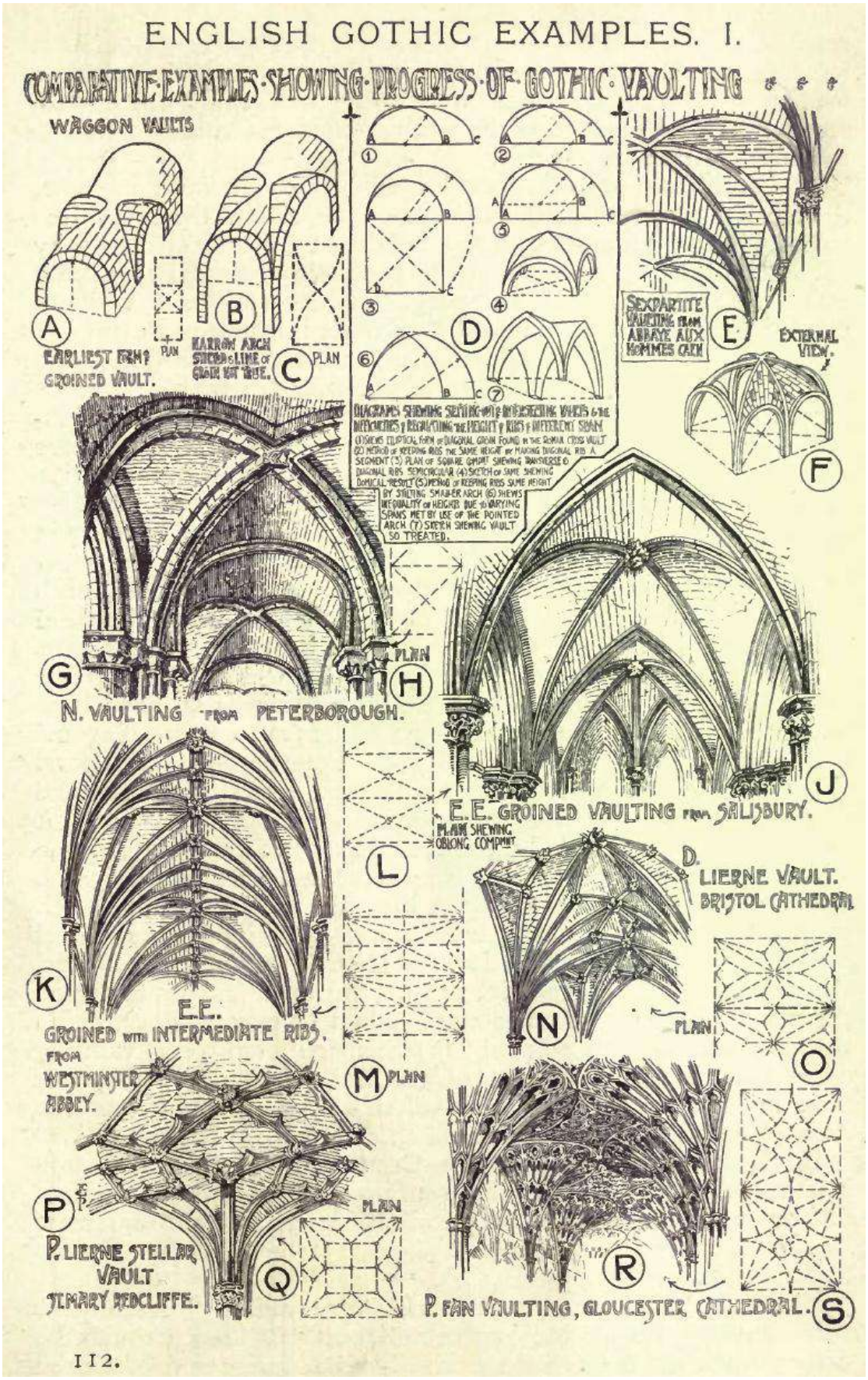


Figure 7.2: English Gothic Examples.

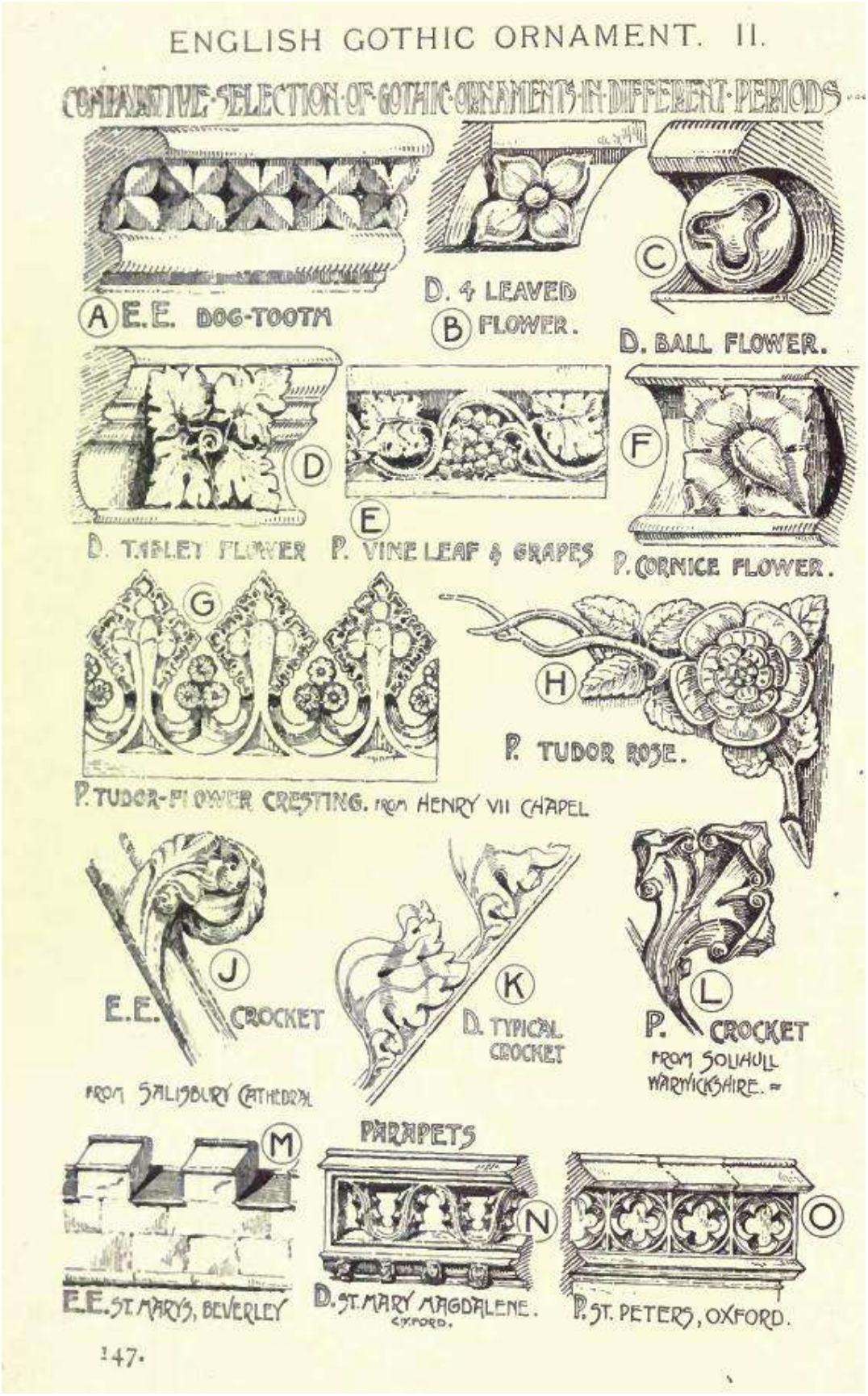


Figure 7.3: English Gothic Ornament.

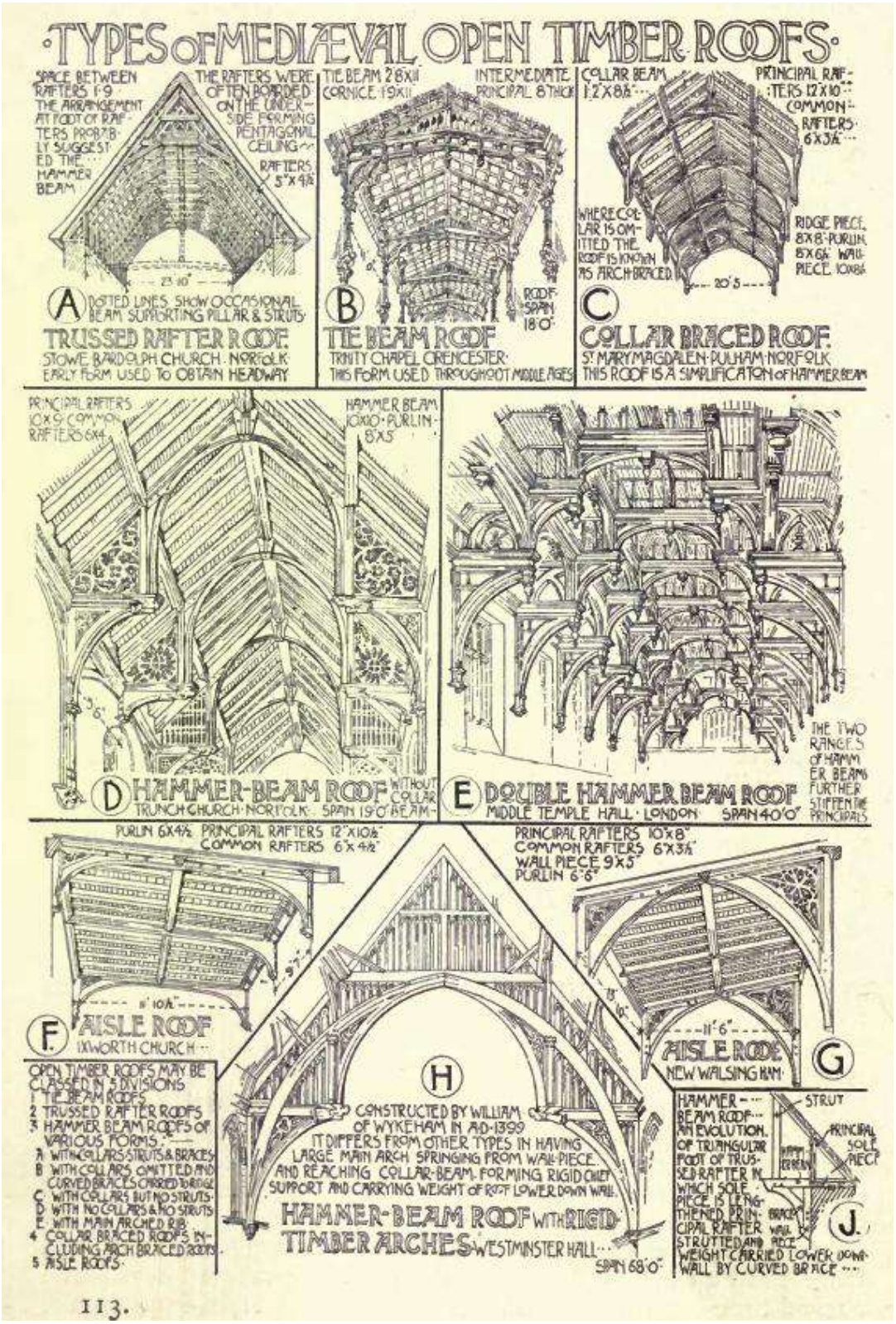


Figure 7.4: Types of Mediaeval open tember roaf.

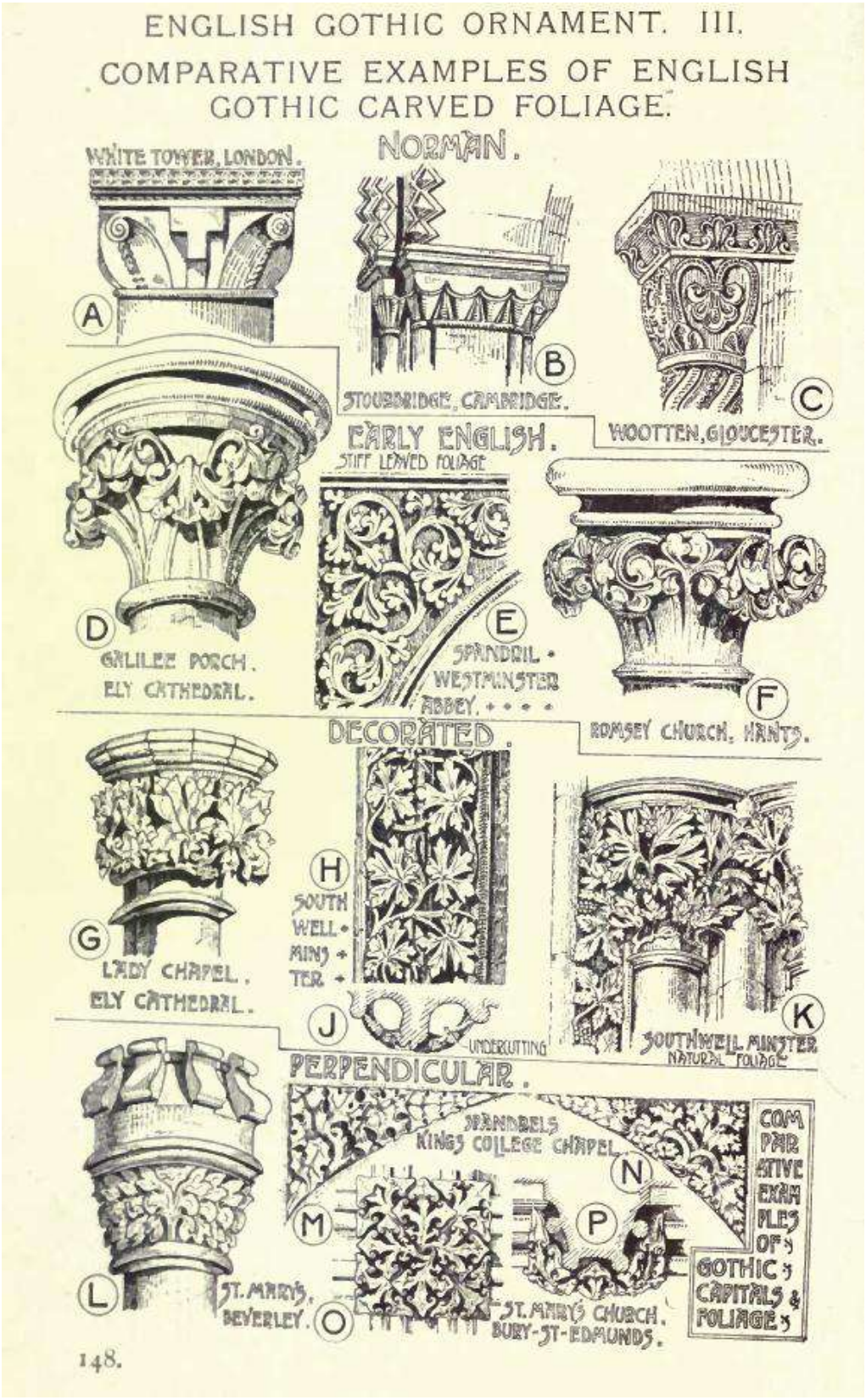


Figure 7.5: English Gothic Ornament.

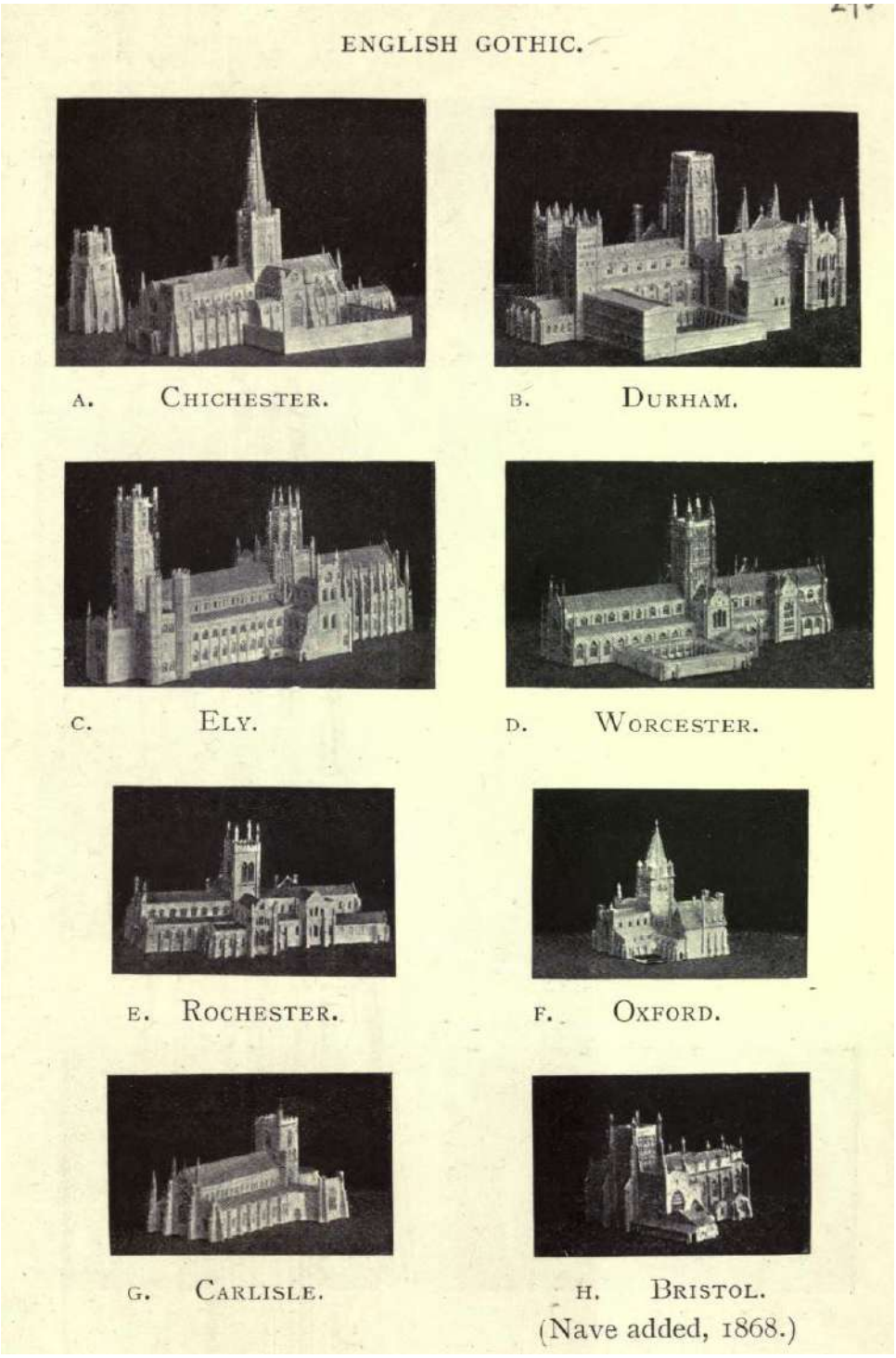


Figure 7.6: English Gothic Church.

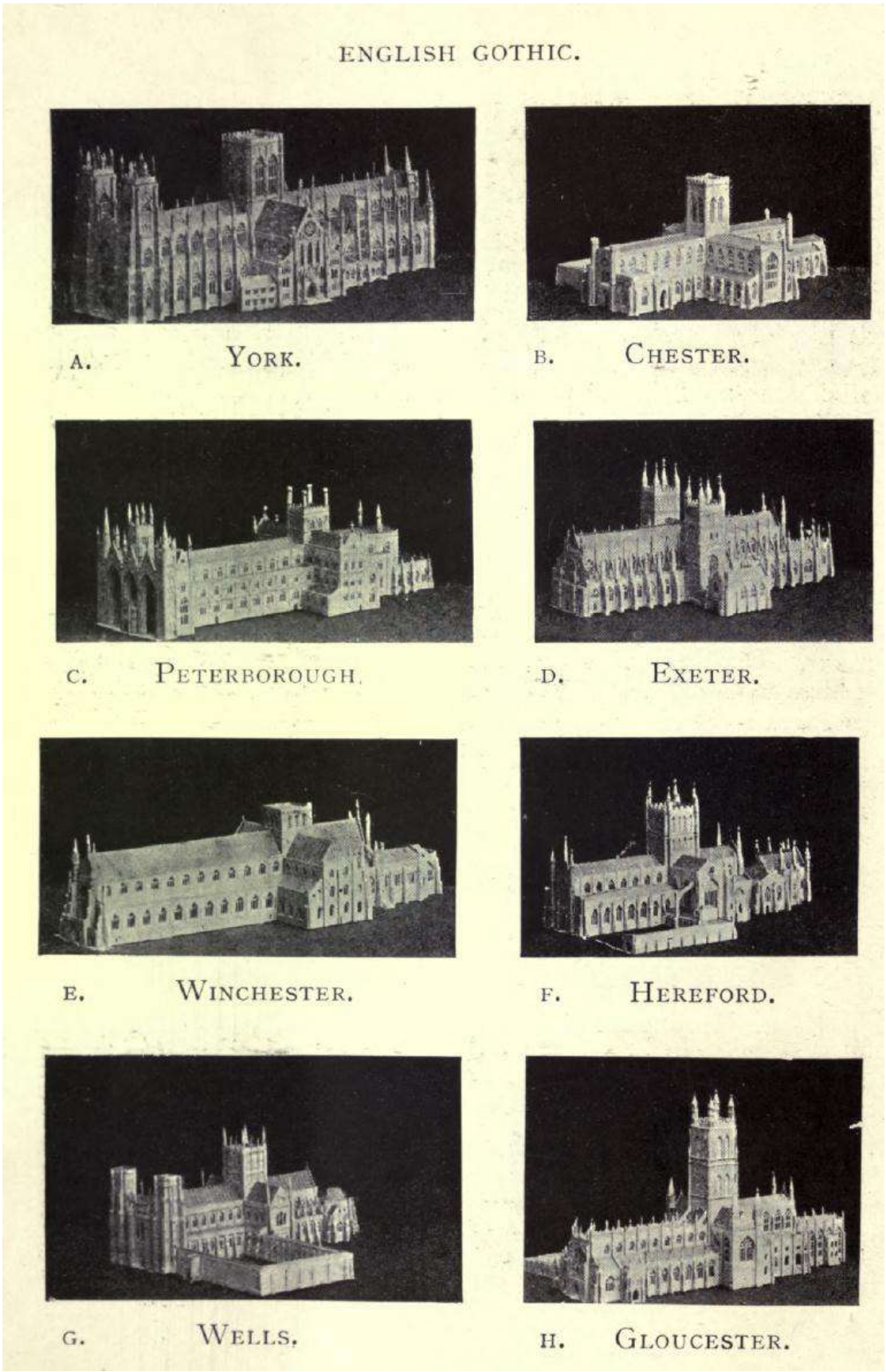


Figure 7.7: English Gothic Church.

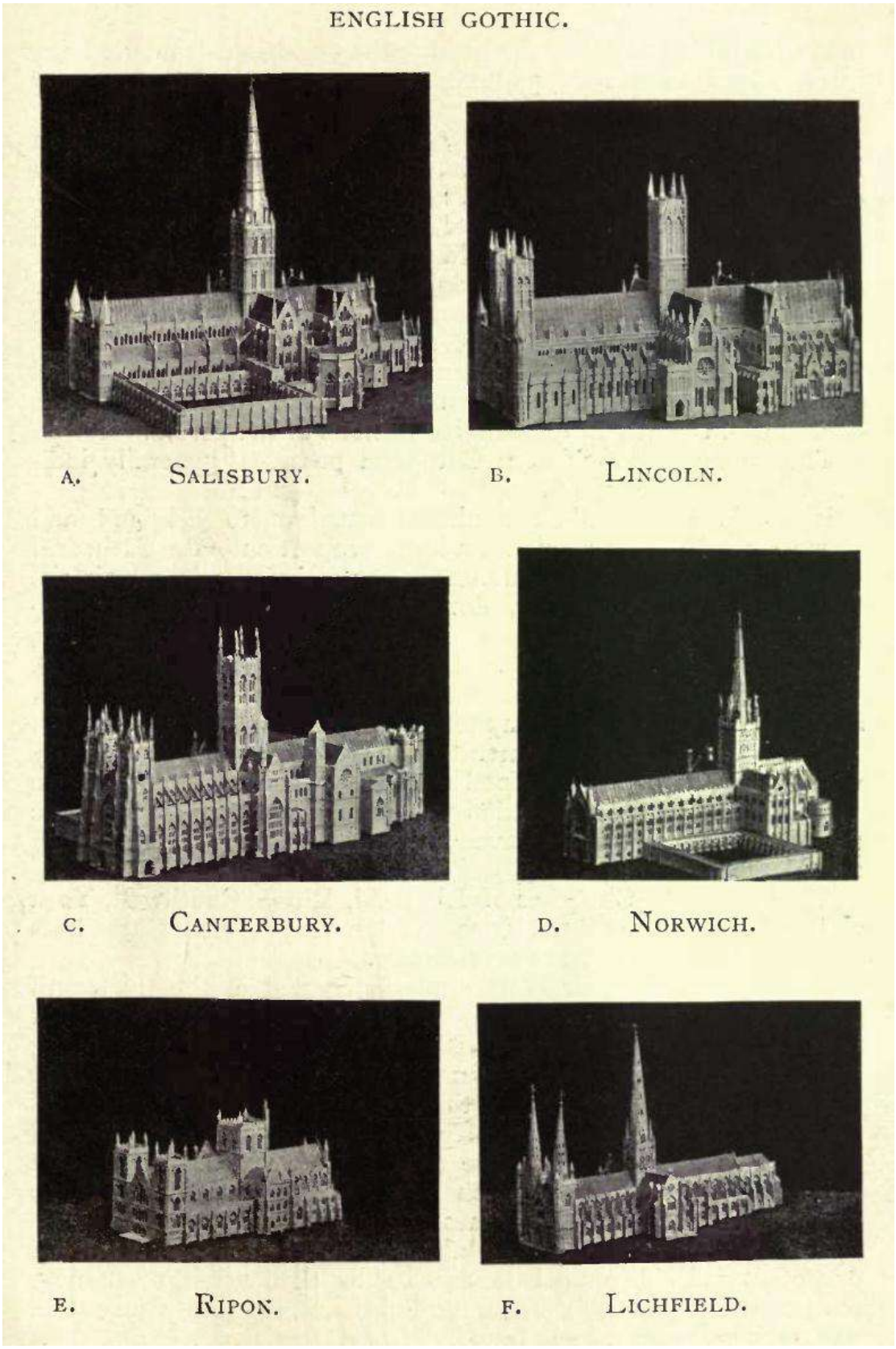


Figure 7.8: English Gothic Church.

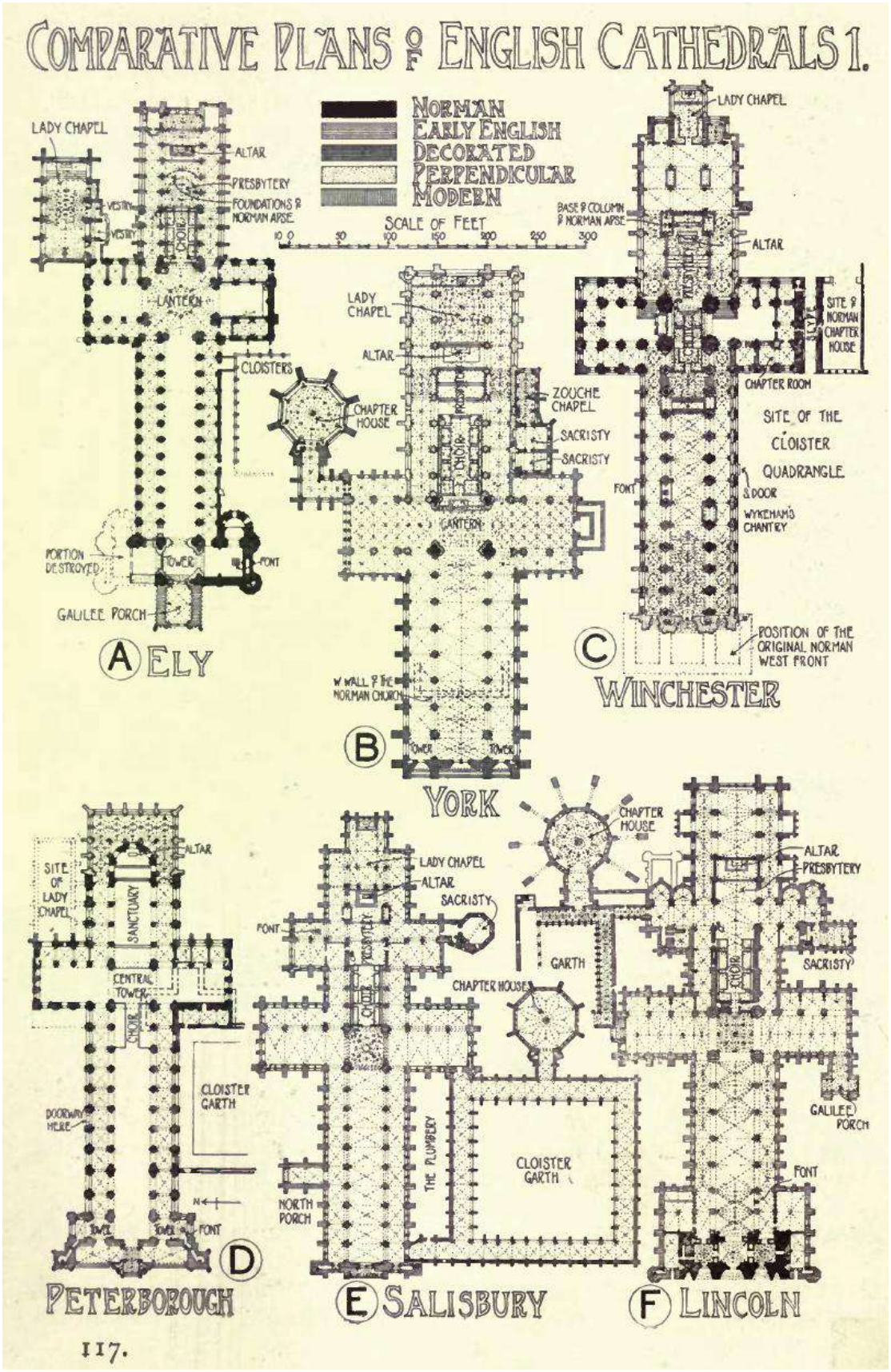


Figure 7.9: Comparative English Cathedral.

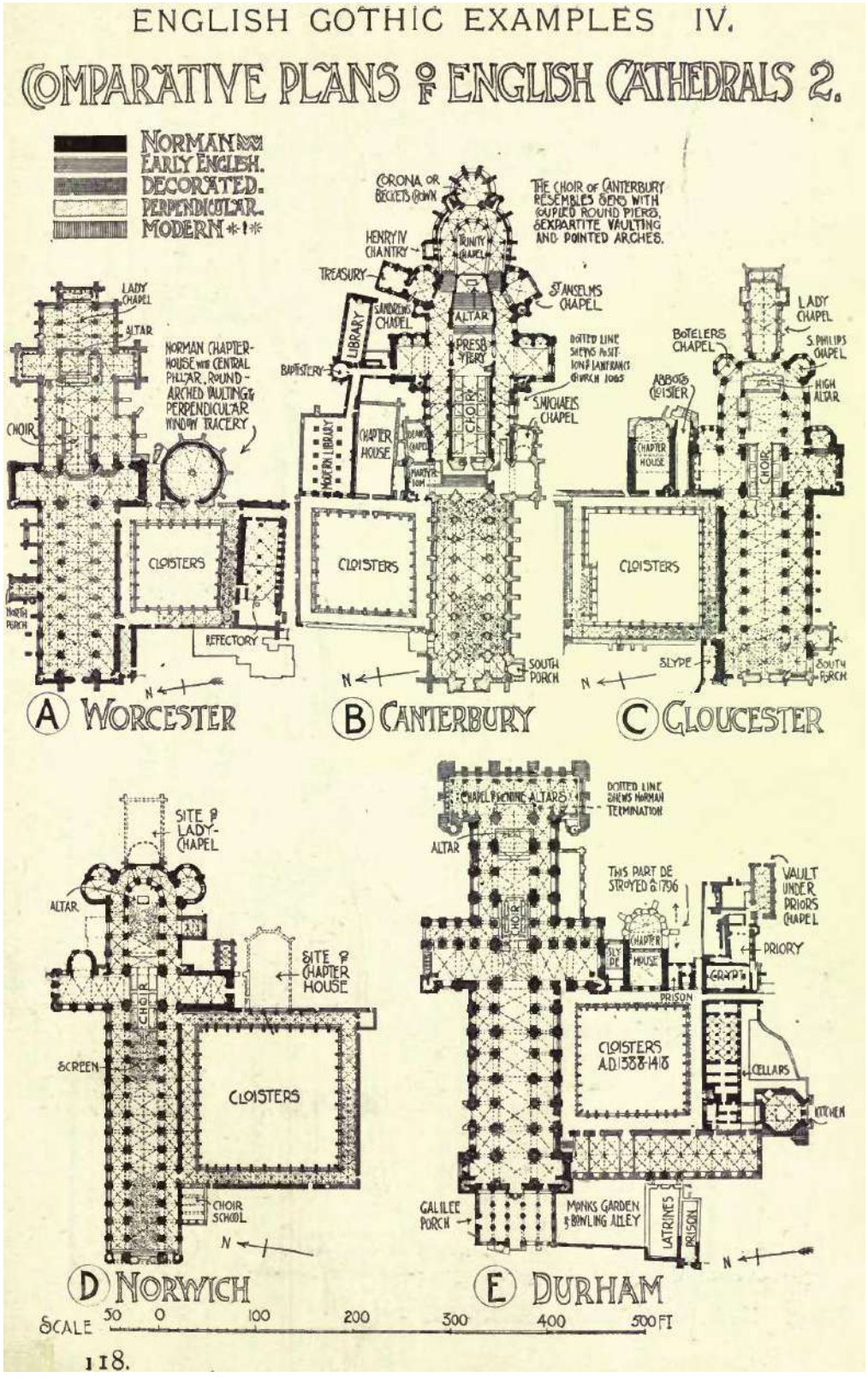


Figure 7.10:English Gothic Examples.

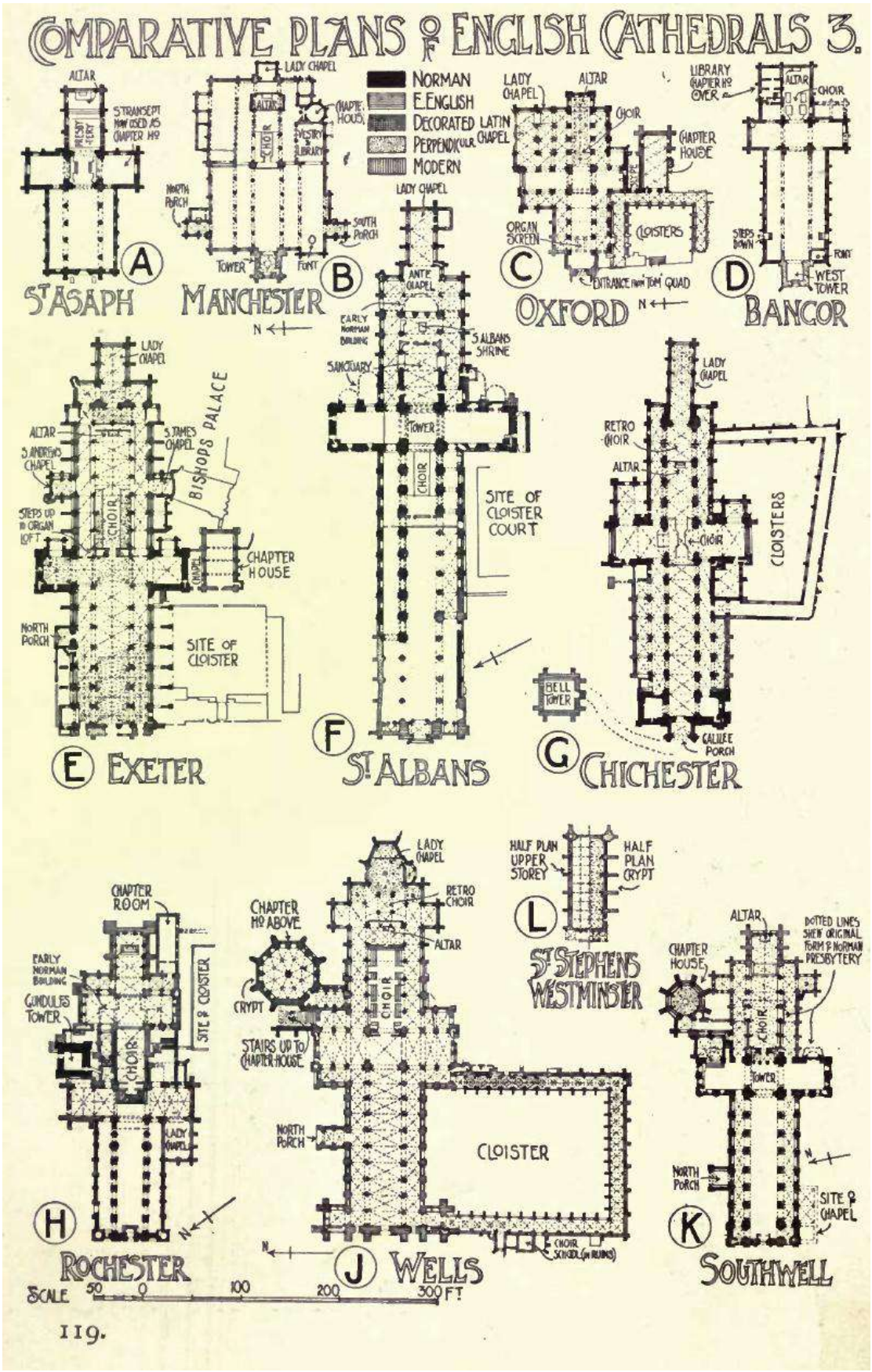


Figure 7.11: Comparative Plans, Gothic Cathedral.

Figure 7.12: Salisbury Cathedral.

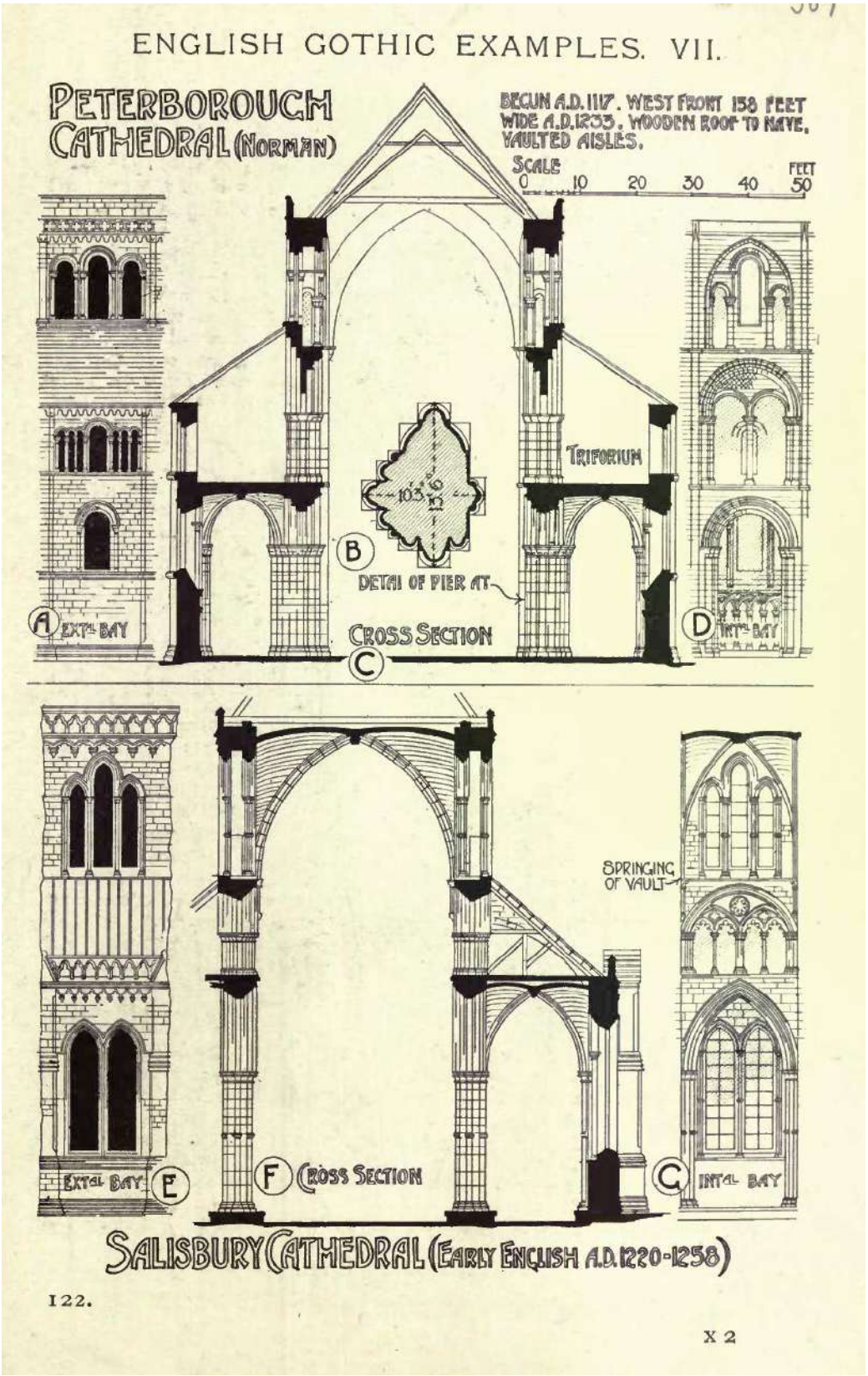


Figure 7.13: Salisbury Cathedral1220-1258.

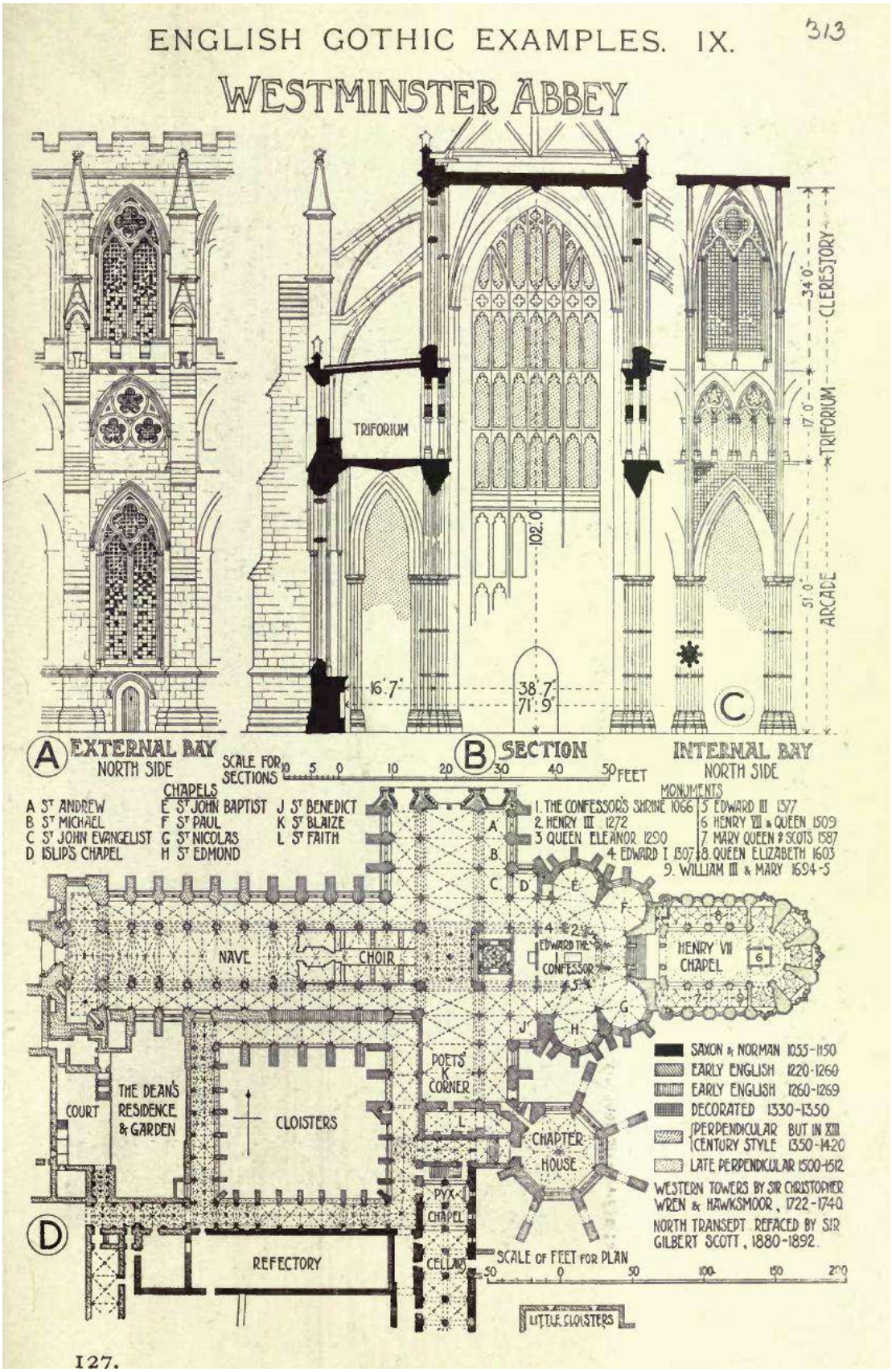
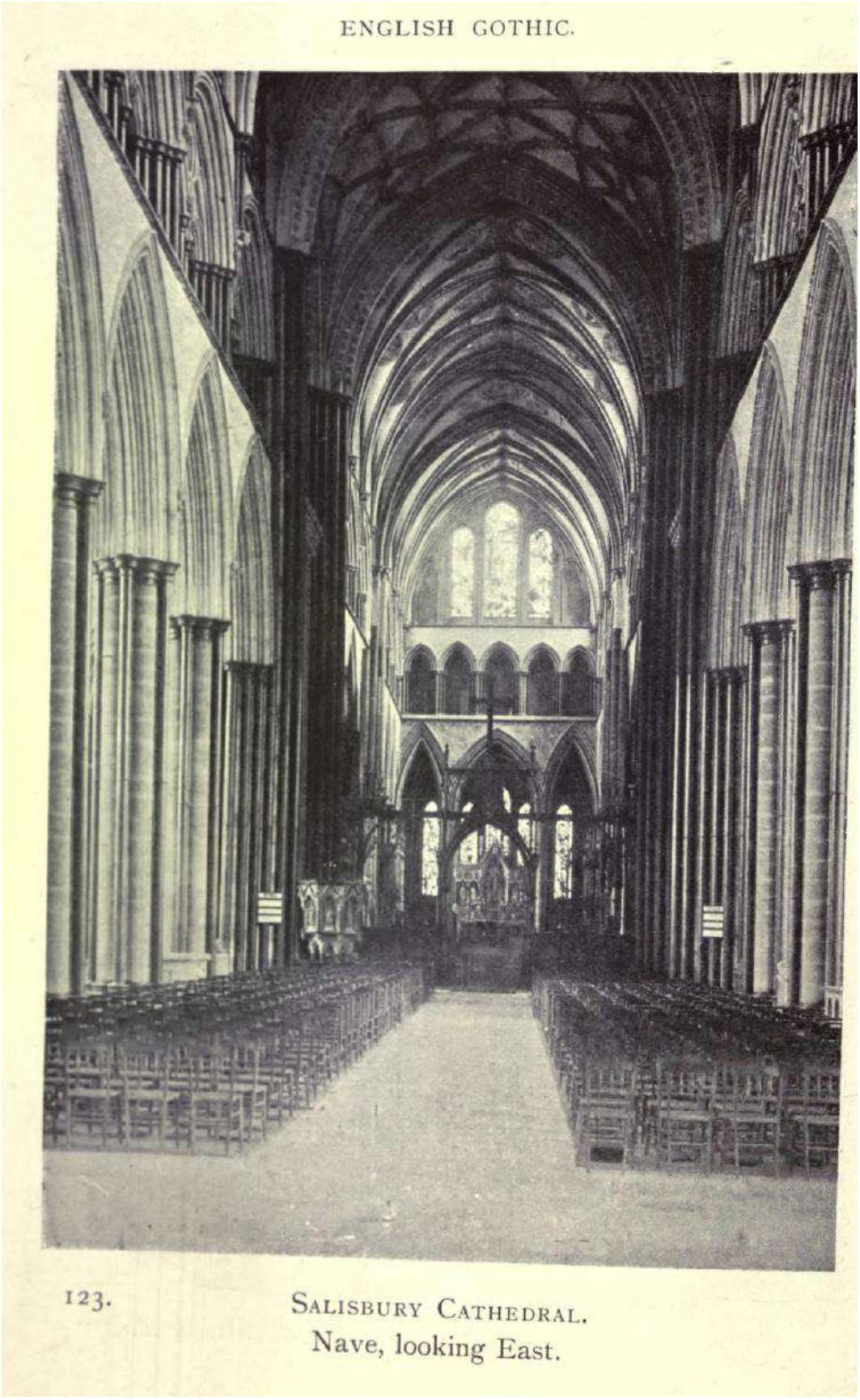


Figure 7.14: English Gothic Cathedral, West Abby.



123. SALISBURY CATHEDRAL.
Nave, looking East.

Figure 7.15: Salisbury Cathedral, Nave, Looking East.

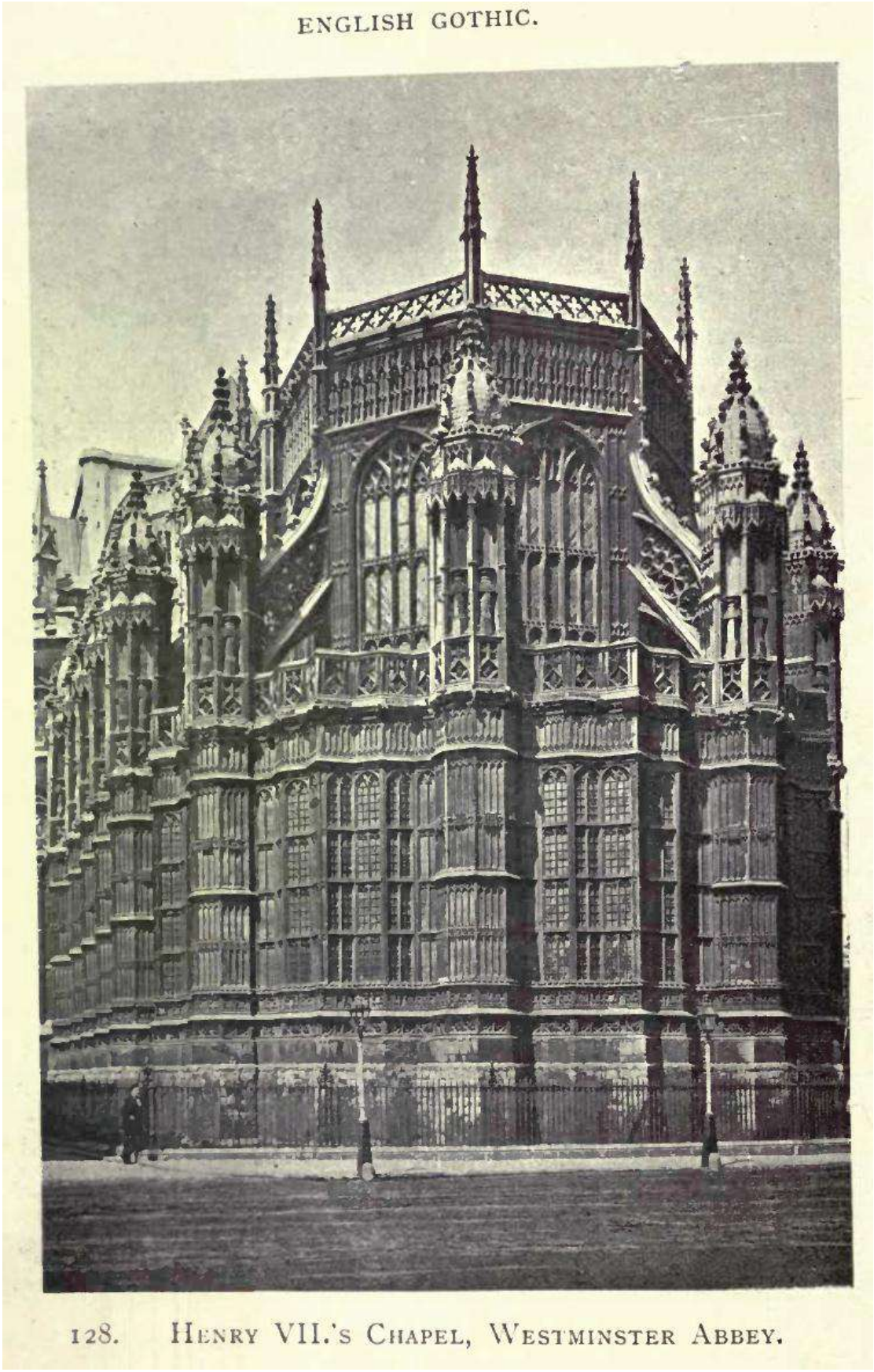
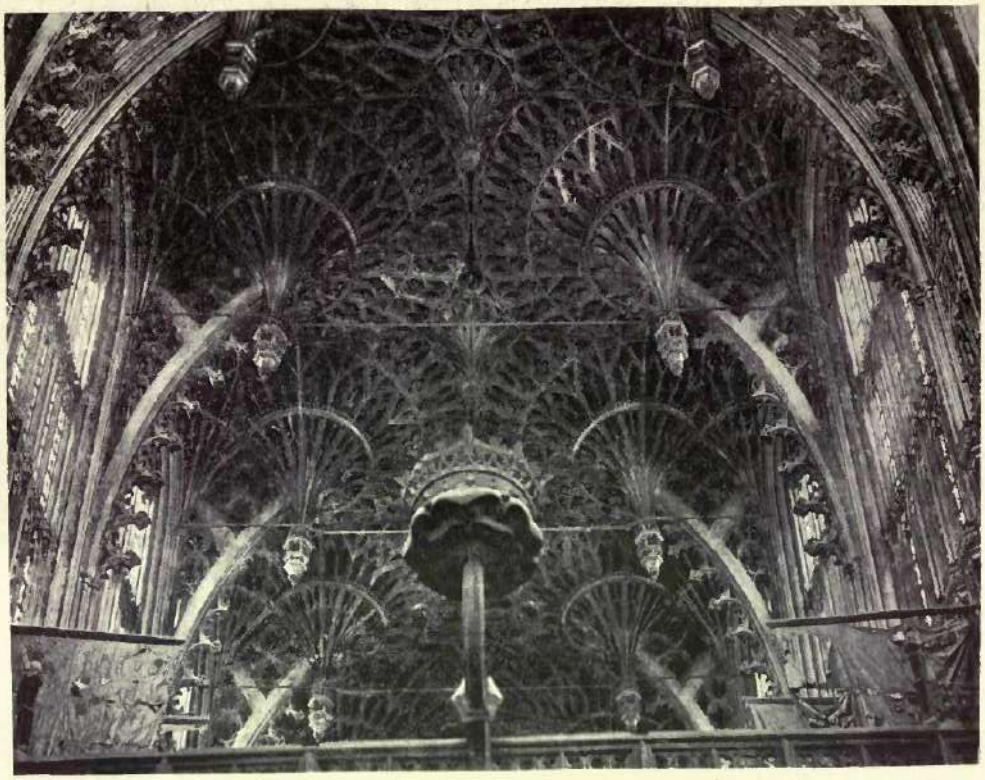


Figure 7.16: Henry V11 Chapel, Westminster Abby.



129. FAN VAULTING, HENRY VII.'S CHAPEL, WESTMINSTER ABBEY.

Figure 7.17:Fan Vaulting, Henry V11s, Westminster.

Figure 7.18: English Gothic.

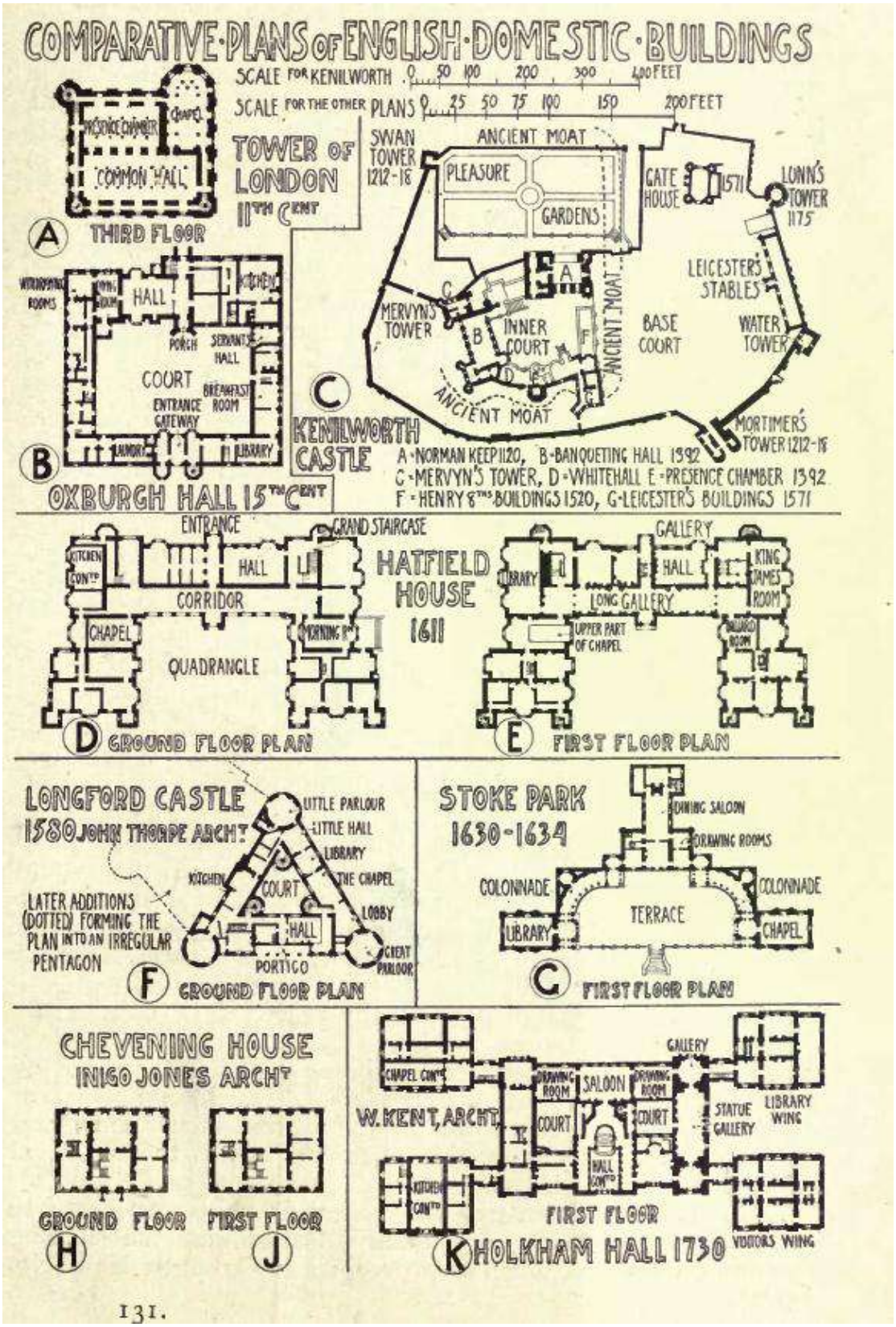


Figure 7.19: English Gothic Comparative Plan

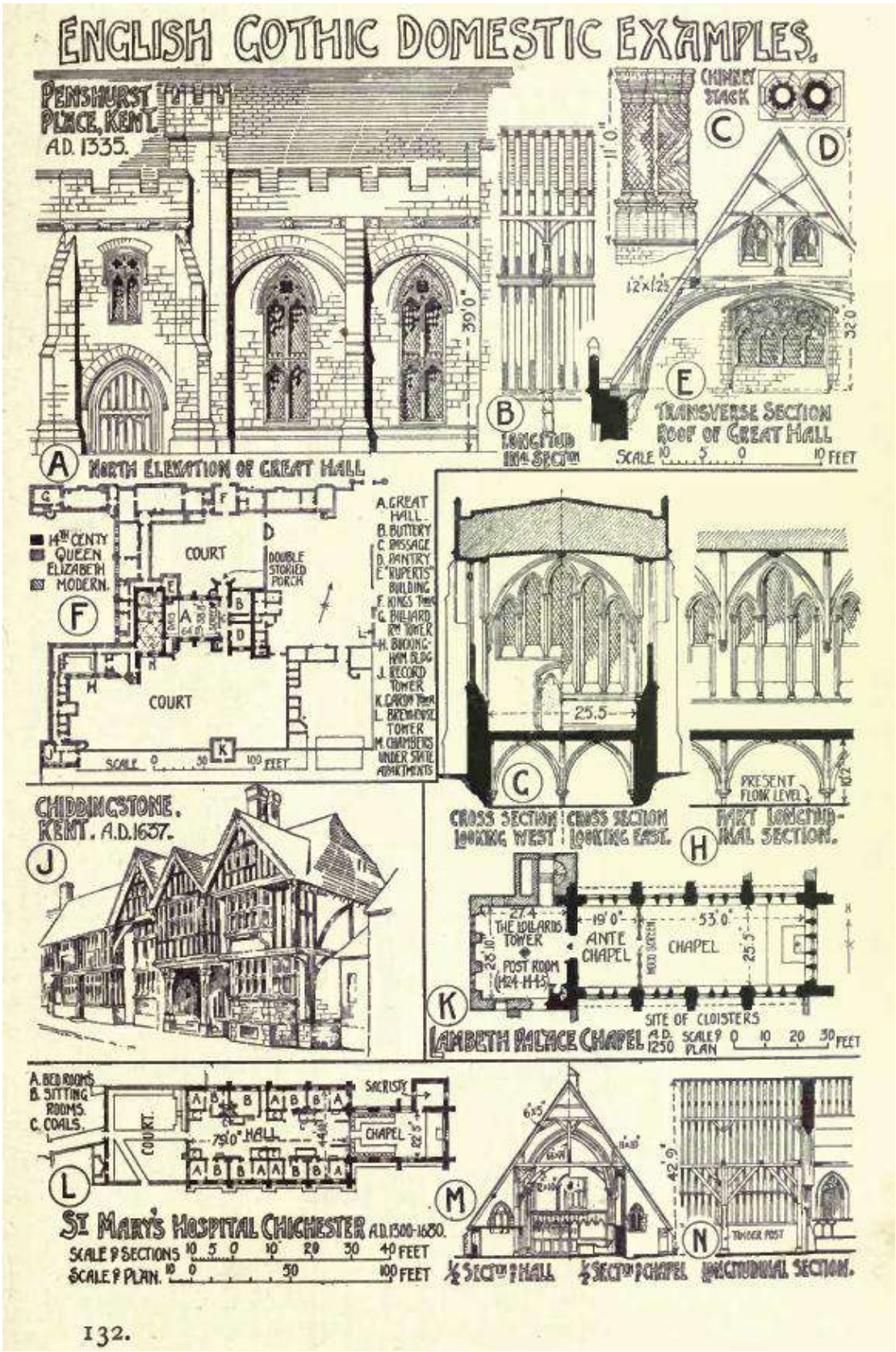


Figure 7.20: Comparative English Gothic, plan, section, elevation.

In the sixteenth century the typical Tudor house consisted of buildings grouped around a quadrangular court,- as at Layer Marney (A.D. 1520), Compton Wyn Yates (A.D. 1520) (No. 150), and Sutton Place (A.D. 1521-1527). The entrance was in the centre of one side under a gatehouse, which gave it prominence; on the opposite side were the hall and offices, the living and sleeping-rooms being ranged along the other two sides, and such rooms were usually " thoroughfare " rooms or, in some cases, only entered from the courtyard. In the latter part of the century the common dining-hall began to decline in importance, owing to modern ideas of privacy being introduced; but the salient characteristics of the Elizabethan house are dealt with in English Renaissance,

C8HAPTER EIGHT

RENAISSANCE ARCHITECTURE IN EUROPE.

1.THE MAIN FACTORS THAT AFECTING IN APPEARANCE RENAISSANCE ARCHITECTURE IN EUROPE

a. Influences.

b. GEOGRAPHICAL.
c. GEOLOGICAL.
d. CLIMATE.
e. RELIGION.
f. SOCIAL AND POLITICAL.
g. HISTORICAL.

2. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.
2. Walls, their construction and treatment. -
3. Roofs, their treatment and development.
4. Openings, their character and shape.
5. Columns, their position, structure, and decoration.
6. Decorative, their form and decoration.
7. Arches
8. Vaults
9. Domes
10. Lighting
11. Flying Buttresses:
12. Surfaces:
13. Forms:
14. Scale:
15: the towers: Towers are detached
16: the colour

GENERAL INTRODUCTION.

THE causes which led to the re-introduction, or re-birth (Renaissance), of Classic Architecture in Europe at the beginning of the fifteenth century, are instructive, and must be grasped in order fully to understand so great a change. In this section the Renaissance movement as affecting the whole of Europe will be dealt with.

INFLUENCES.

١. Geographical. The Renaissance movement, arising in Italy in the fifteenth century, spread from thence to France, Germany, and England, and over the whole of Western Europe over what had been the Roman empire in the West. The Eastern empire did not come under its influence, for the Greeks in the East, who had been the most civilized people in Europe, were now falling before the Turks.

2.climate: like Roman Architecture The north has the climate of the temperate region of continental Europe central Italy is more genial and sunny; while the south is almost tropical.

3.geological: the use of stones and marbles and mosaic in decoration

4.Religion. The invention of printing, which aided the spread of knowledge, the spirit of inquiry, and the diffusion of freedom of thought, led, among the Teutonic races, to a desire to break away from Romish influence. This desire was originally fostered by Wycliffe in England (A.D. 1377), and by Martin Luther in Germany (A.D. 1517), in which countries Reformation in religion proceeded side by side with Renaissance in architecture. This renewed vigour in thought and literature was accompanied by a fresh building era in northern Europe. In England, civil and domestic architecture received a special impulse from the diffusion among laymen of the wealth and lands of the monasteries dissolved by Henry VIII. In Italy, on the other hand, where the Reformation took no hold, and where comparatively few churches had been built in the Gothic manner during the Middle Ages, a revival of ecclesiastical architecture took place, and in every important town Renaissance churches were carried out on a grand scale and in a most complete manner. The Jesuits who headed the counterreformation carried the style into all parts, at the same time giving it a special character .

5. Social and Political. A new intellectual movement manifests itself sooner in literature than in architecture, and thus the former influences the public taste. Dante (1265-1321), Petrarch (1304-1374), and Boccaccio (1313-1375) aided in the spread of the newly-discovered classic literature,

which caused a revolt against mediaeval art, and the subsequent fall of Constantinople in A.D. 1453 caused an influx of Greek scholars into Italy, whose learning was an important influence in an age which was ripe for a great intellectual change. Thus a revival of classic literature produced a desire for the revival of Roman architecture. Again, among the MSS. of Greek and Latin authors brought to light about this time, was Vitruvius' book of Architecture,
written in B.C. 50, which was translated into Italian in A.D. 1521.
Erasmus (1467-1536), one of the few Greek scholars of the period, worked hard to direct the public attention to the original text of the New Testament, and to the Greek classics, as a set-off to the writings of the mediaeval philosophers, whose authority had for so long borne an exclusive sway. Italian architecture was naturally the first to be affected, because the Gothic style had never taken a firm hold on the Italians, who had at hand the ancient Roman remains, such as the Pantheon, the Basilica of Maxentius, the Colosseum, the remains of the great baths, and the Roman fora. In Italy, therefore, where feudalism had never fully established itself, and where the municipalities had developed a spirit of municipal enterprise, practically AD.

7.. Historical. At the beginning of the sixteenth century there was a general grouping together of the smaller states into independent kingdoms, under powerful rulers, who governed with authority, and kept large standing armies. Three great inventions had an important influence gunpowder, which had changed the whole method of warfare; the mariner's compass, which led to the discovery of the West Indies (1492) and America, and the foundation of colonies by European states; and, lastly, printing, which favoured that stirring of men's minds which caused the reformation in religion, and the revival of learning. Copperplate engraving was discovered in the third quarter of the fifteenth century. Galileo (1564-1642) proved that the earth was not the centre of the universe, but merely a minute planet in the solar system.

3. Comparative Table.

1. Plan, or general distribution of the building. Symmetry and proportion of part to part carefully studied, simplicity, Fewness and largeness of parts tend to make the building appear less in size than it really is.

Interiors of churches were planned on Roman principles, and covered with domes and pendentives. The parts are few, the nave being divided into three or four compartments by which a general effect of grandeur is produced.

٢. Walls:

their construction and treatment. – were built from large blocks of stones and marbles.:

In the Gothic period each stone was finished, moulded, and sculptured in the workshops before being laid a method which produced skilful and intelligent masons and stone dressers, and

obliged the sculptor to make the decoration suit each piece of stone. In the Renaissance period the new mouldings and carvings could be executed with more exactitude and less expense in situ, These were constructed in ashlar masonry of smooth-faced walling, which, in the lower stories, was occasionally heavily rusticated Materials are large, and carry out the Classic idea of fewness of parts. Stucco or plaster were often used as a facing material where stone was unobtainable. design being paramount Angles of buildings often rusticated,

i.e., built in blocks of unsmoothed stone, as in Florence, or carefully indented with patterns.

٣. Roofs, their treatment and development:

the Gothic and the Roman methods of construction, Gable ends of hurches and buildings generally were formed as pediments, with a low pitch

٤. Openings

Door and window openings are semicircular its substructure and placing it on a " drum," in which windows were formed, thus making it a great external dominating.

٥. Columns, their position, structure, and decoration romans style

٦. Decorative

their form and decoration. their character and shape. accessories, in which iron, gold and silver work, and tombs, monuments, altars, fonts, and fountains, were designed in great numbers, a greater extent an art of free expression in which beauty of design was sought for the architects

of the period, attracted by the mere external appearance of ancient Roman art.

7. Arches: Romans and gothic style.

8. Vaults: the revival of the Classic method of solid semicircular vaulting , Vaults are of simple Roman form without ribs. Domes have usually an internal plaster soffit or ceiling, and are painted in colored fresco This type of vaulting was much used in the halls, passages, and staircases of Renaissance palaces and churches, and was besides frequently built of wooden framing, plastered and painted with colored decoration

9. Domes : The Renaissance architects followed the Byzantine treatment of the Dome, The dome is a predominant feature.

10. Lighting: natural lighting

11. Flying Buttresses:

12. Surfaces: squars, rectangular

13. Forms: cubic, octagonal forms

14. Scale: The start of Human scale

15: the towers: Towers are detached , are sparingly used, and when they occur are symmetrically placed.

16: the colour: natural colours and paints the interior walls.

CHAPTERN NINE

Renaissance Architecture

ITALIAN

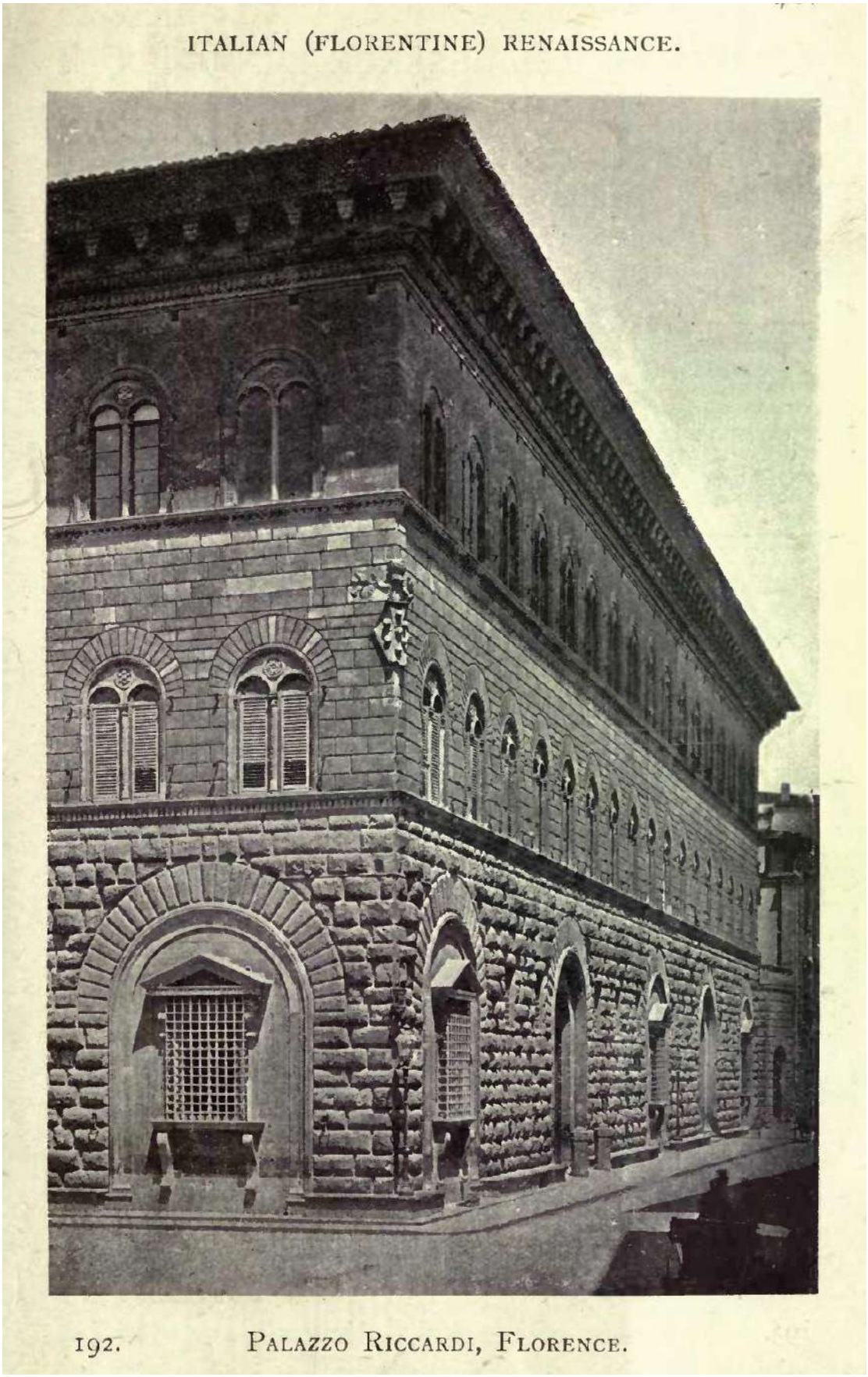


Figure 9.1:Palazzo Riccardi, Florence.

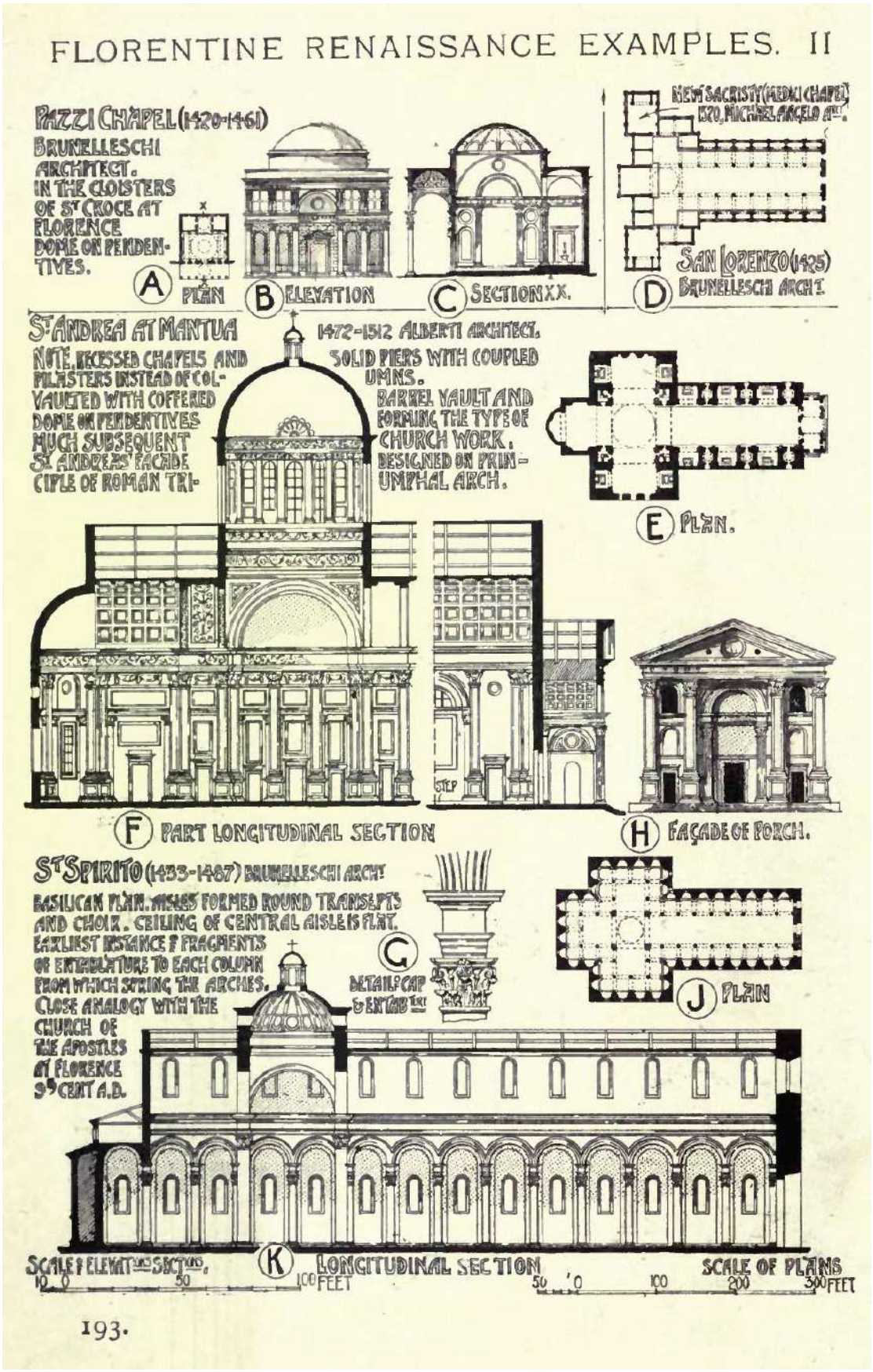


Figure 9.2: Florentine Renaissance example.

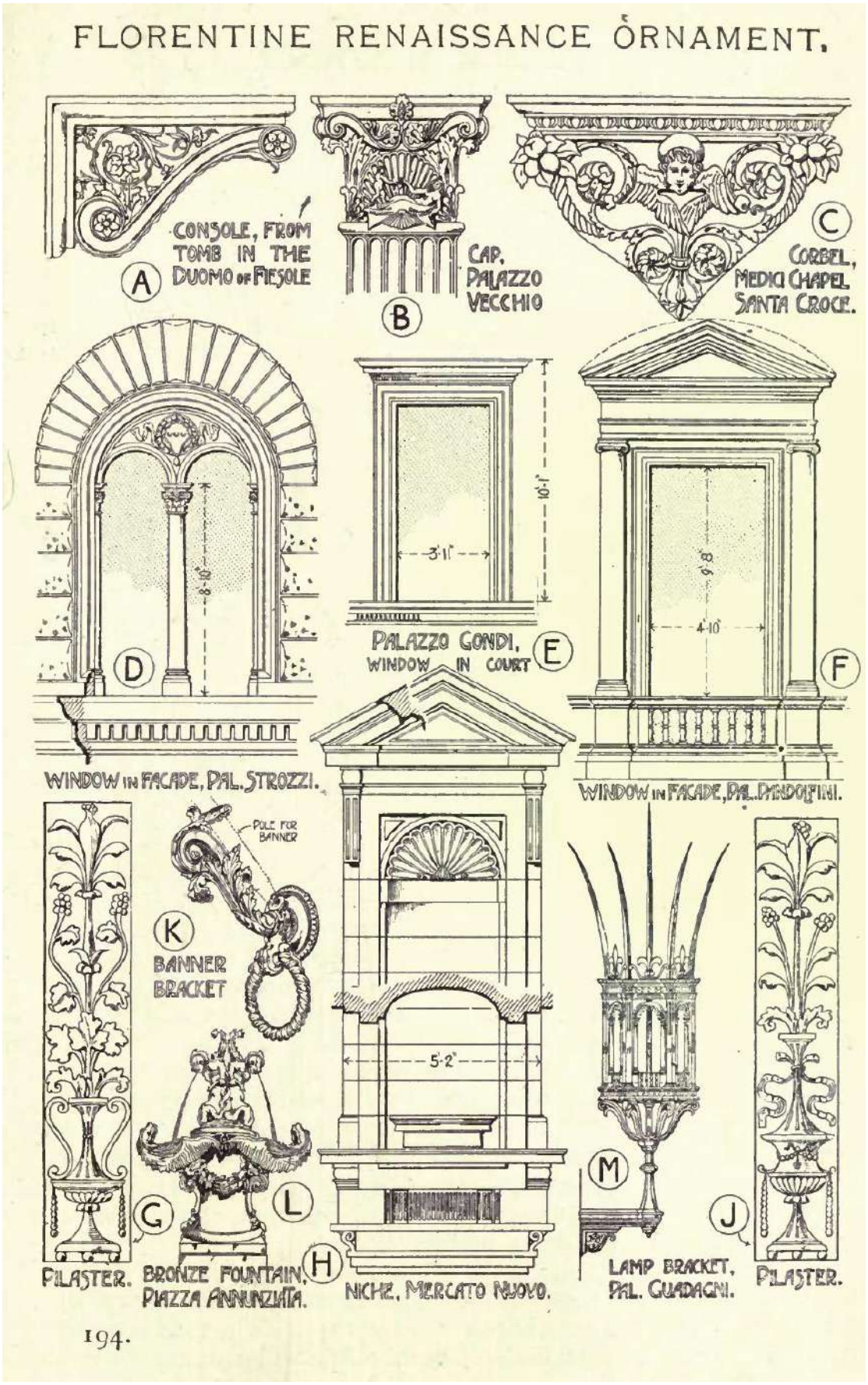


Figure 9.3: Florentine Renaissance ornament.

Figure 9.4: Palazzo Giraud, Rome.

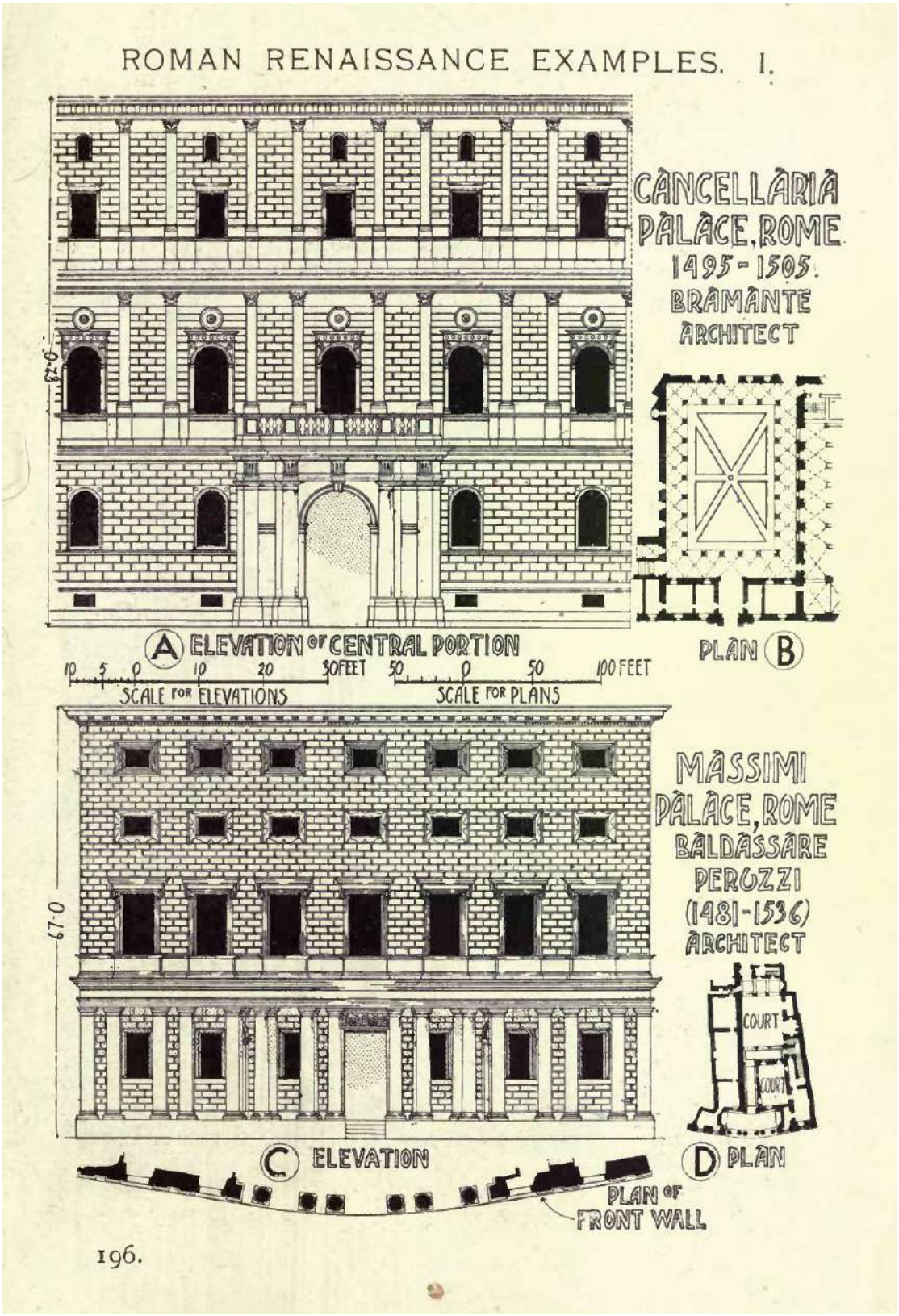


Figure 9.5: Roman Renaissance examples.

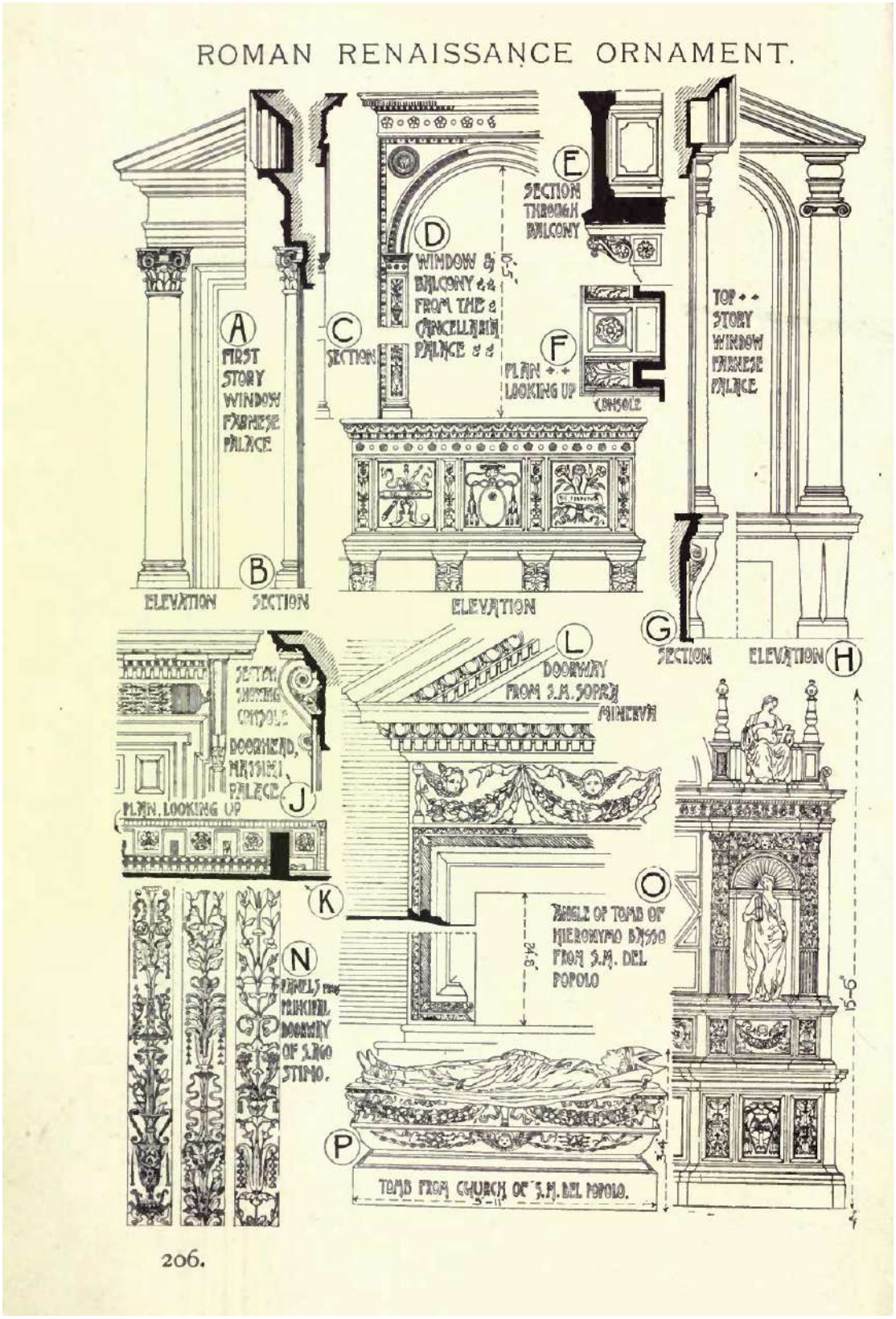


Figure 9.6: Roman Renaissance ornament.

Figure 9.7: Italian Renaissance.

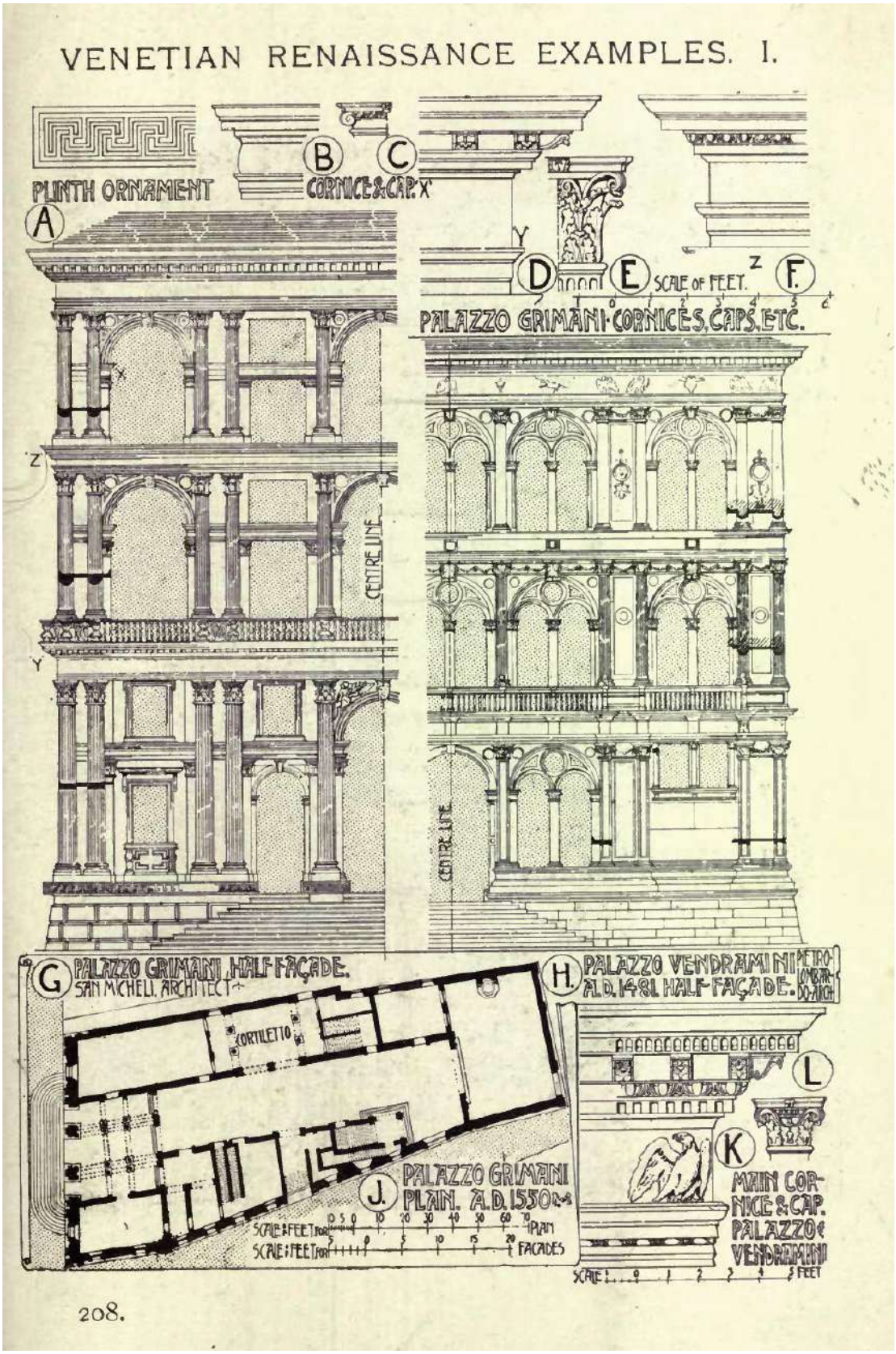


Figure 9.8: Venetian Renaissance example.

Figure 9.9 : Italian Venetian Renaissance.

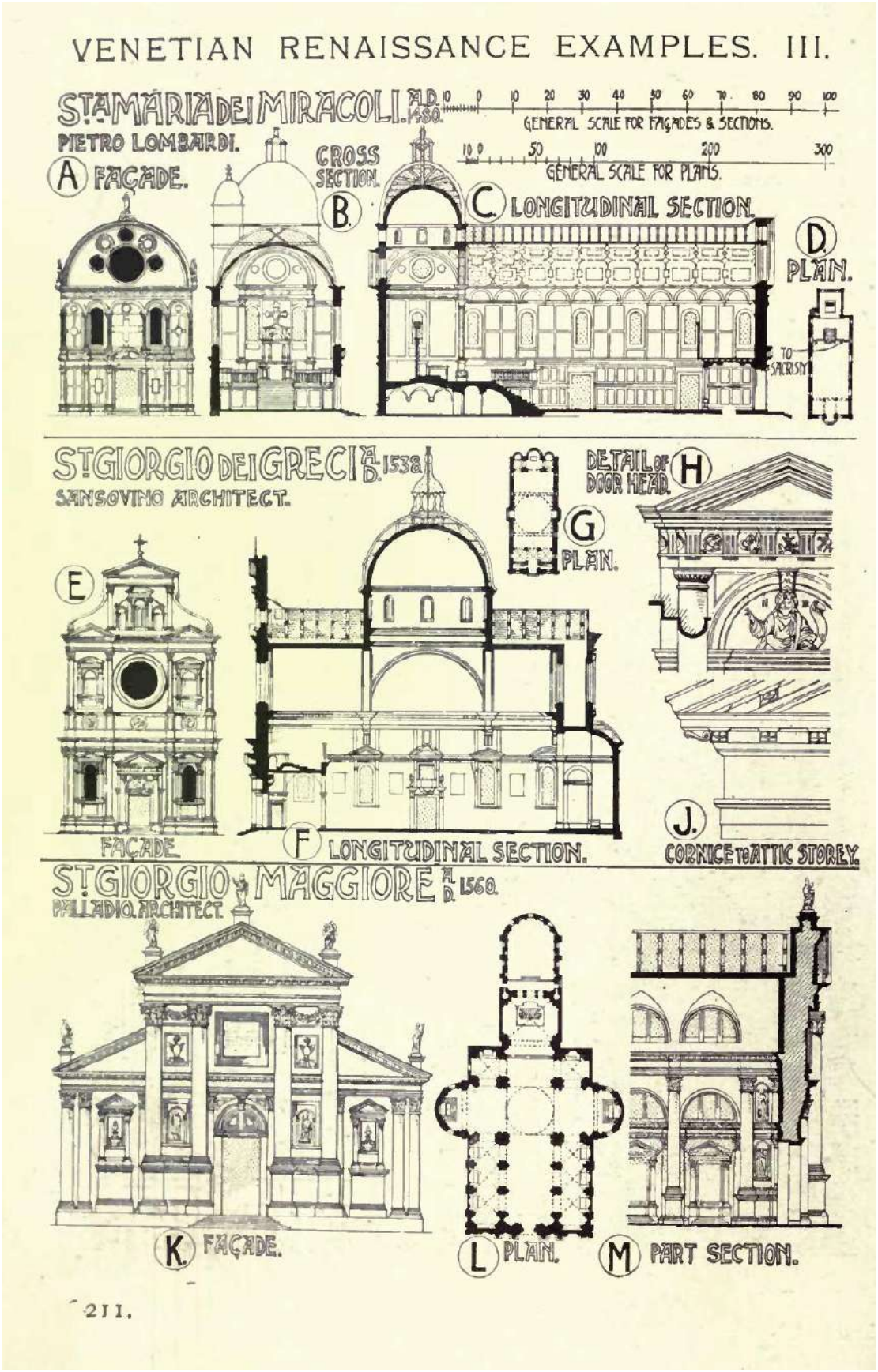


Figure 9.10: Venetian Renaissance example.

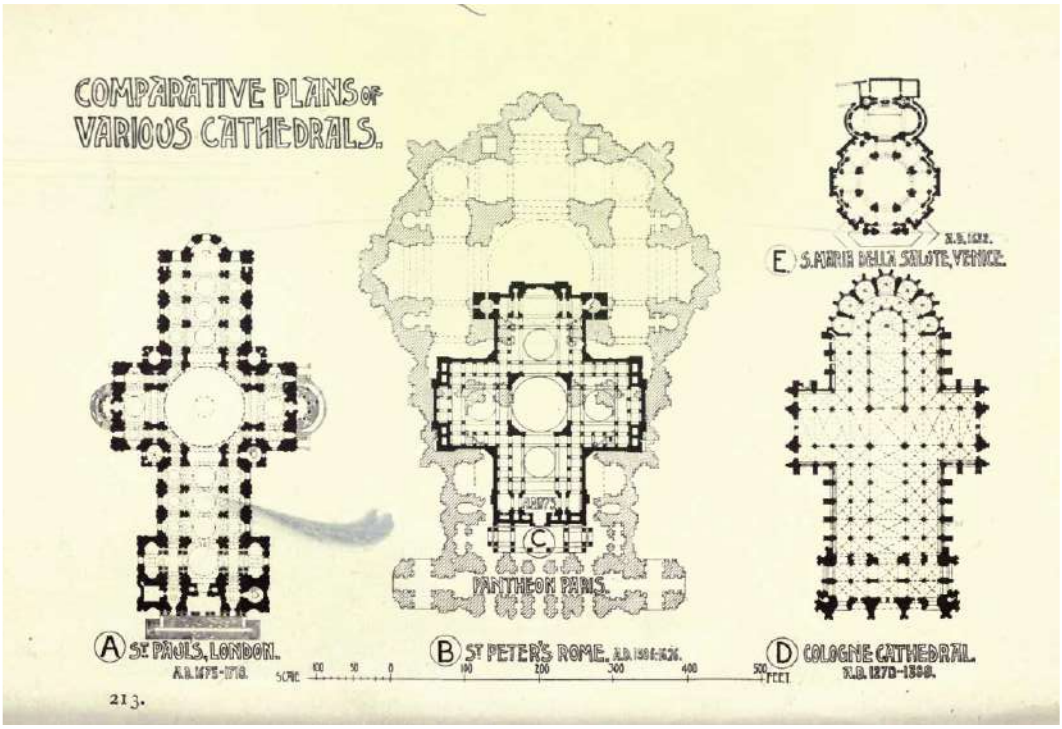
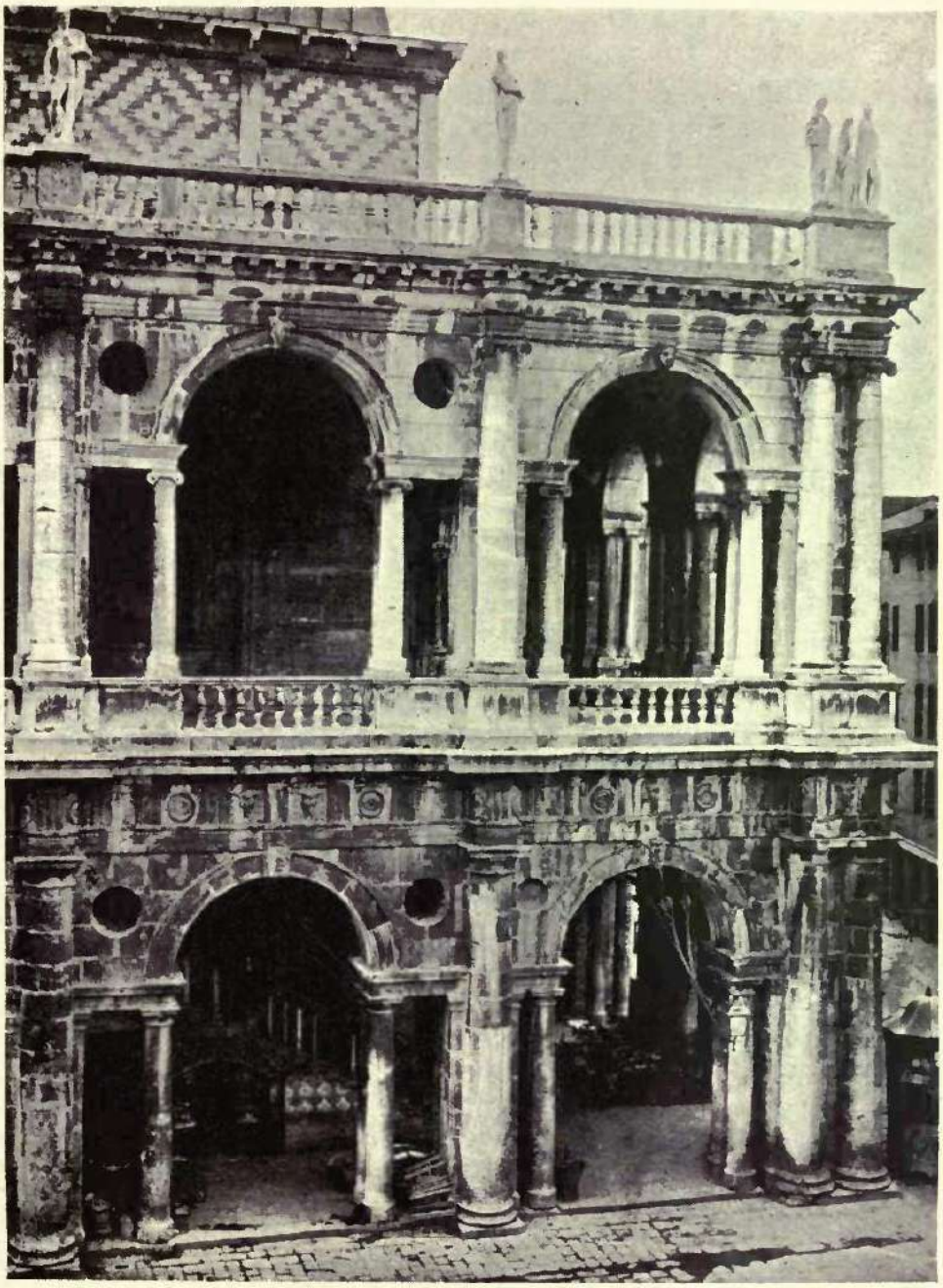


Figure 9.11: comparative plan Cathedral



215. THE BASILICA AT VICENZA, BY PALLADIO.

Figure 9.12 : Italian Venetian Renaissance.

Figure 9.13 : Italian Venetian Renaissance.

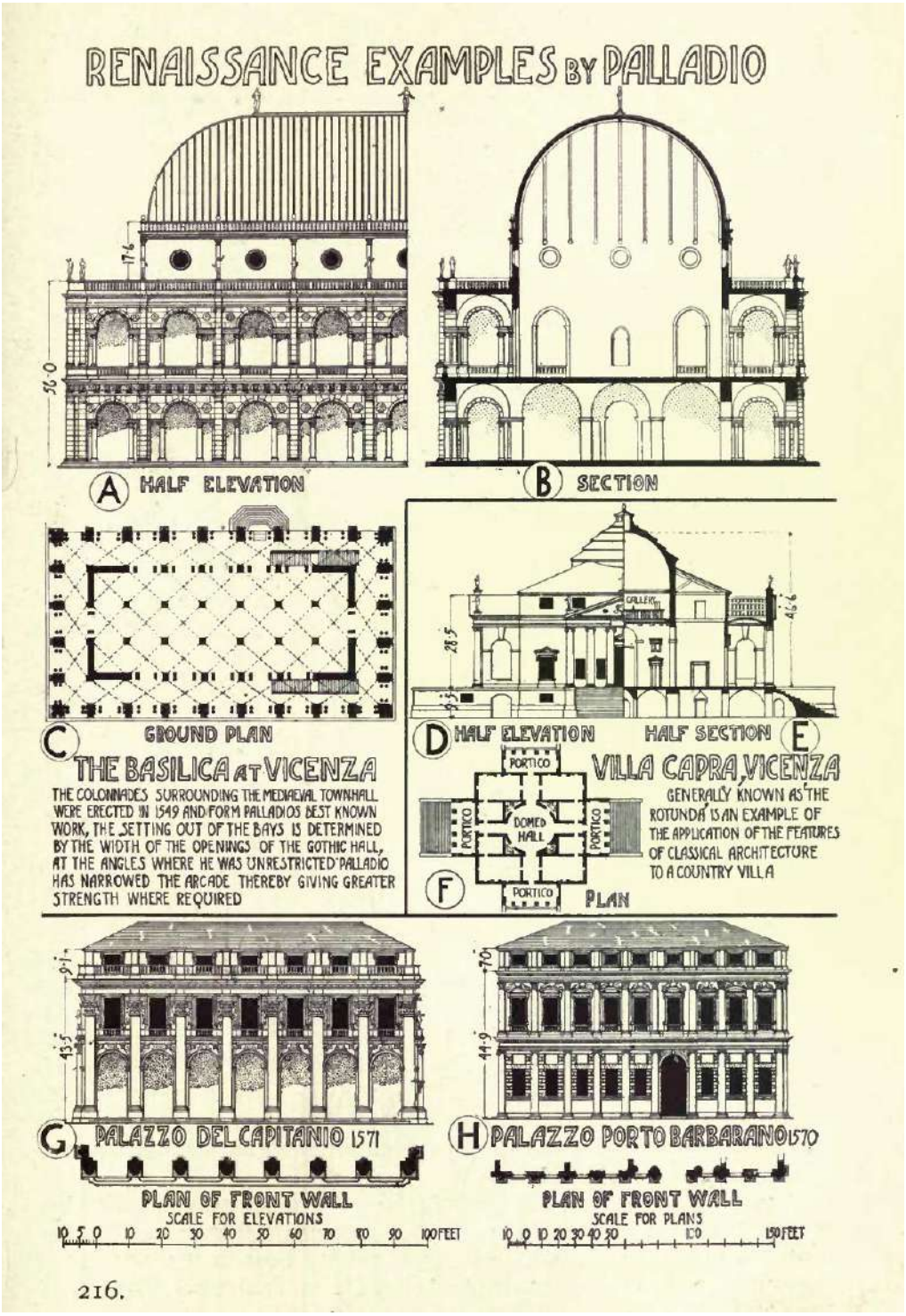


Figure 9.13 : Renaissance example.

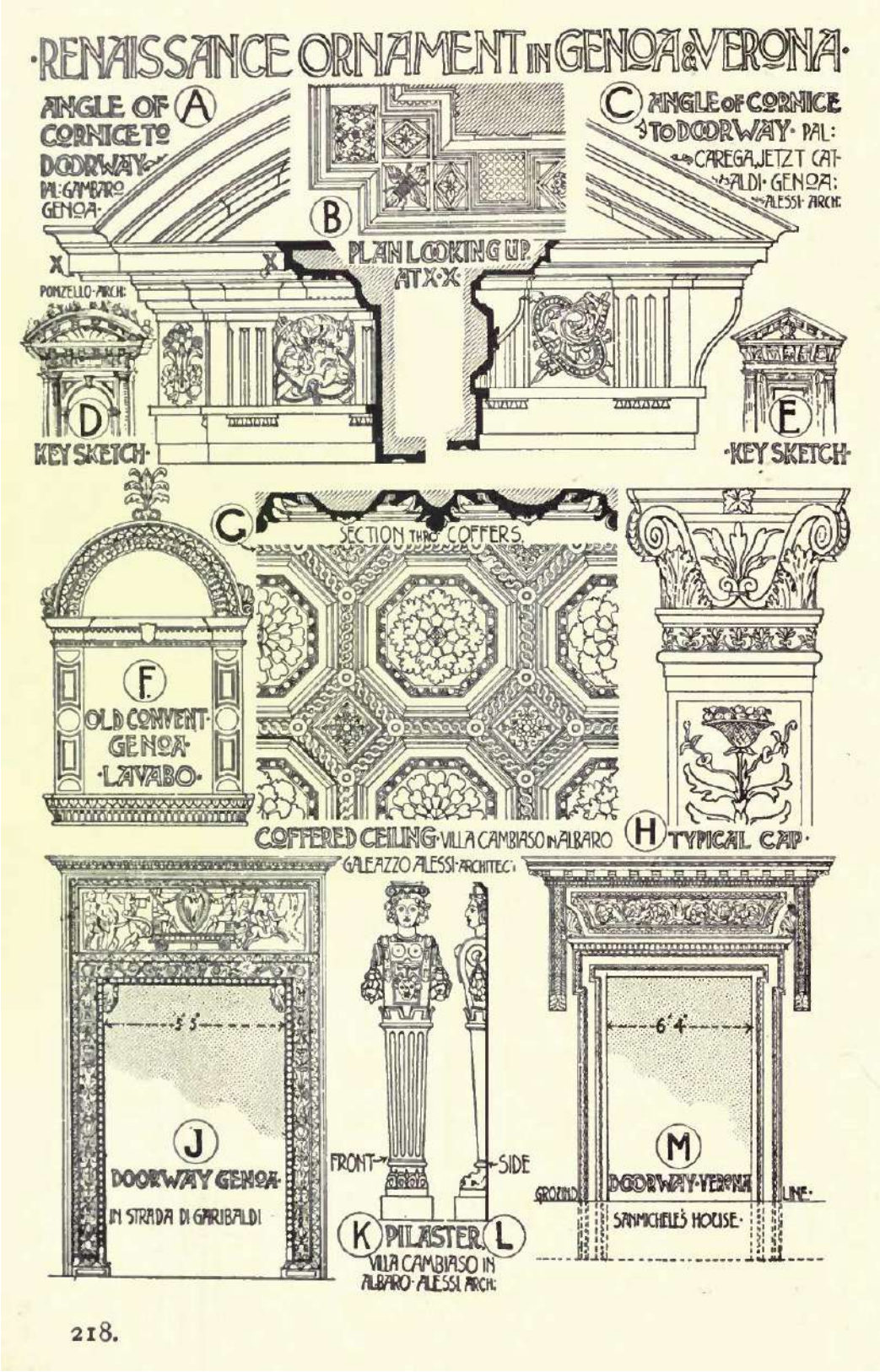


Figure 9.14 : Renaissance ornament.

CHAPTER TEN
BAROQUE ARCHITECTURE IN EUROPE.

1.THE MAIN FACTORS THAT AFECTING IN APPEARANCE BAROQUE ARCHITECTURE IN EUROPE

a. Influences.
b. GEOGRAPHICAL.
c. GEOLOGICAL.
d. CLIMATE.
e. RELIGION.
f. SOCIAL AND POLITICAL.
g. HISTORICAL.

2. Examples.

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5. Columns, their position, structure, and decoration.
6. Decorative, their form and decoration.
7. Arches
8. Vaults
9. Domes:
11. Flying Buttresses:
12. Surfaces:
13. Forms:
14. Scale:
15: the towers: Towers are detached
16: the colour

What does Baroque word mean?

According to the Oxford English Dictionary, the word *baroque* is derived from the Portuguese word "barroco", Spanish "barroco", or French "baroque", all of which refer to a "rough or imperfect pearl", though whether it entered those languages via Latin, Arabic

Elaborate and extensive ornamentation in decorative art and architecture that flourished in Europe in the 17th century

In modern usage, the term "Baroque" may still be used, usually pejoratively, describing works of art, craft, or design that are thought to have excessive ornamentation or complexity of line, or, as a synonym for "Byzantine", to describe literature, computer software, contracts, or laws that are thought to be excessively complex, indirect, or obscure in language, to the extent of concealing or confusing their meaning.

1.THE MAIN FACTORS THAT AFECTING IN APPEARANCE BAROQUE ARCHITECTURE IN EUROPE

Historical:

It started in 1600-1750

The architectural origins of the style in Counter-Reformation Rome are not in doubt. It is Catholic, expansive, absolutist, and Gianlorenzo Bernini was its first, most brilliant exponent, though not so much an architect in the Renaissance sense as the orchestrator of a mixing and blurring of mediums.

Geographical:

Spread in room at first then to Naples, Catania, Porto, Goa, Andalucia, Mexico, Peru and St Petersburg.

Geological:

Refers to each country, most of works built by stones, covered by marbles.

Climates:

Refers to each country: like Roman Architecture The north has the climate of the temperate region of continental Europe central Italy is more genial and sunny; while the south is almost tropical

3. Comparative Table.

1. Plan, or general distribution of the building.
Some of work were extend from renaissance architecture , others were new plans , take new forms like stars, botanical

2. Walls,
their construction and treatment:adding new additional walls to support the construction, they are built from block stones, coated in metal

3. Roofs, their treatment and development.
the Gothic and the Roman methods of construction, Gable ends of churches and buildings generally were formed as pediments, with a low pitch

4. Openings, their character and shape.
Door and window openings are semicircular its substructure and placing it on a " drum," in which windows were formed, thus making it a great external dominating.

5. Columns, their position, structure, and decoration.
Roman style, covered by marbles.

6. Decorative, their form and decoration. The whole work had the characteristic of complicity, expensive decorative, golden, marble, steel

7. Arches: extend of roman and renaissance methods

8. Vaults: circular volts

9. Domes: renaissance dome

10. Lighting: natural light

11. Flying Buttresses: found on gothic churches

12. Surfaces: square, rectangular, circular, octagonal

13. Forms: cubic, cylindrical, conic

14. Scale: human scale

15: the towers: Towers are detached on old gothic churches
and on new churches

16: the colour: natural colours and white pains

St Peter's church

Baroque puts a new emphasis.
on subjective fervour of response. Bernini's interventions magnify the scale of St Peter's by adding a huge outdoor room in front of the church the Baroque puts a new emphasis on subjective fervour of response. Bernini's interventions magnify the scale of St Peter's by adding a huge outdoor room in front of the church. This consists of two stretches of colonnade – travertine columns planted four deep crowned by a giant entablature with a balustrade, on which parade a whole troop of agitated figures, one per column. Bernini likened this shifting expansive effect to a maternal embrace, on a scale that would terrify the heretic and astonish the infidel. The colonnades form a porous oval, open at a point directly opposite the facade of the basilica and enterable at many others from surrounding street preferred in the Baroque for its animating force and the multiplicity of viewpoints it generates. and feels the
space swirl sensuously round him, the heated effect increased by rose-colored marble coating on the walls.

St Peter's, Rome, diagonal view of church from the Piazza, showing the colonnade as a producer of spatial fluidity.

Figure 10.1: St Peter, Rome.

Gianlorenzo Bernini and Francesco Borromini, St Peter's, baldacchino, 1624–33, an altar canopy of twisting open form and unexpectedly solid, luxurious materials.

Figure 10.2: Gianlorenzo Bernini and Francesco Borromini, St Peter 1624

Figure 10.3: Rome square.

Bernini, St *Teresa in Ecstasy*, 1644–52, Santa Maria della Vittoria, Rome, a sensuous religious allegory.

Figure 10.4: Bernini, St. Teresa, 1644.

The **Church of Saint Charles at the Four Fountains**

(Italian: *Chiesa di San Carlo alle Quattro Fontane* also called San Carlino) is a Roman Catholic church in Rome, designed by the architect Francesco Borromini (1599–1667) and was his first independent commission. It is an iconic masterpiece of Baroque architecture, built as part of a complex of monastic buildings on the Quirinal Hill for the Spanish Trinitarians, an order dedicated to the freeing of Christian slaves. He received the commission in 1634, under the patronage of Cardinal Francesco Barberini, whose palace was across the road. However, this financial backing did not last and subsequently the building project suffered various financial difficulties[1]. It is one of at least three churches in Rome dedicated to San Carlo, including San Carlo ai Catinari and San Carlo al Corso.

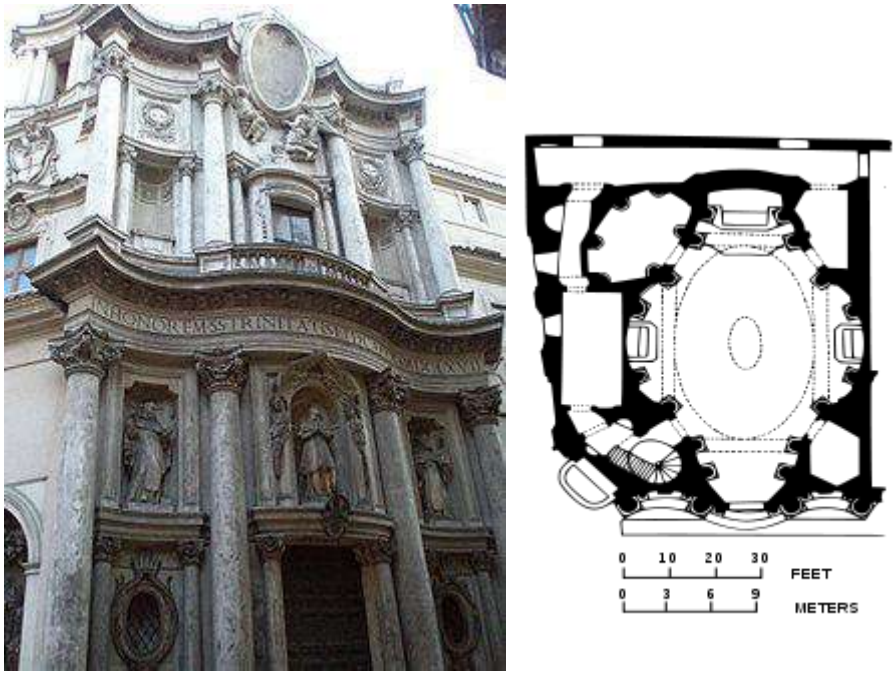


Figure 10.5: Francesco Borromini (1599–1667).

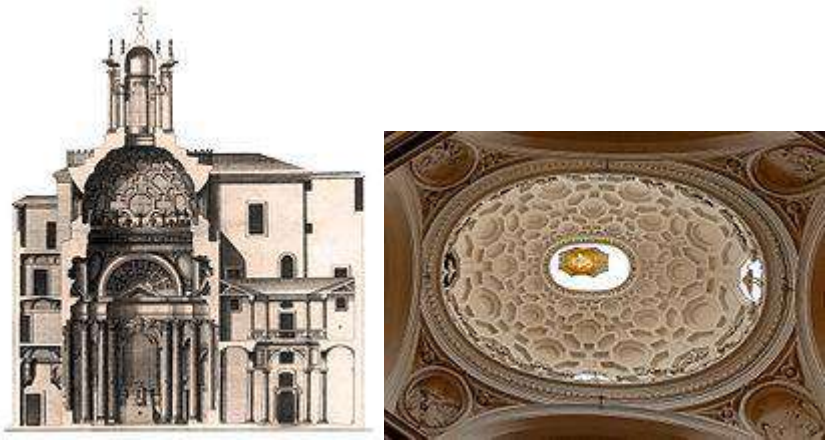


Figure 10.6: Francesco Borromini (1599–1667).

Borromini, San Carlino, Rome, 1638–41, facade completed after the architect's death in 1667; this was Borromini's first independent commission, carried out for a poor Spanish order of monks.

Borromini, San Carlino, view into the oval dome, whose coffering includes the emblem of the order.

Figure 10.7: The Church of Saint Yves at La Sapienza By Borromini in 1638.

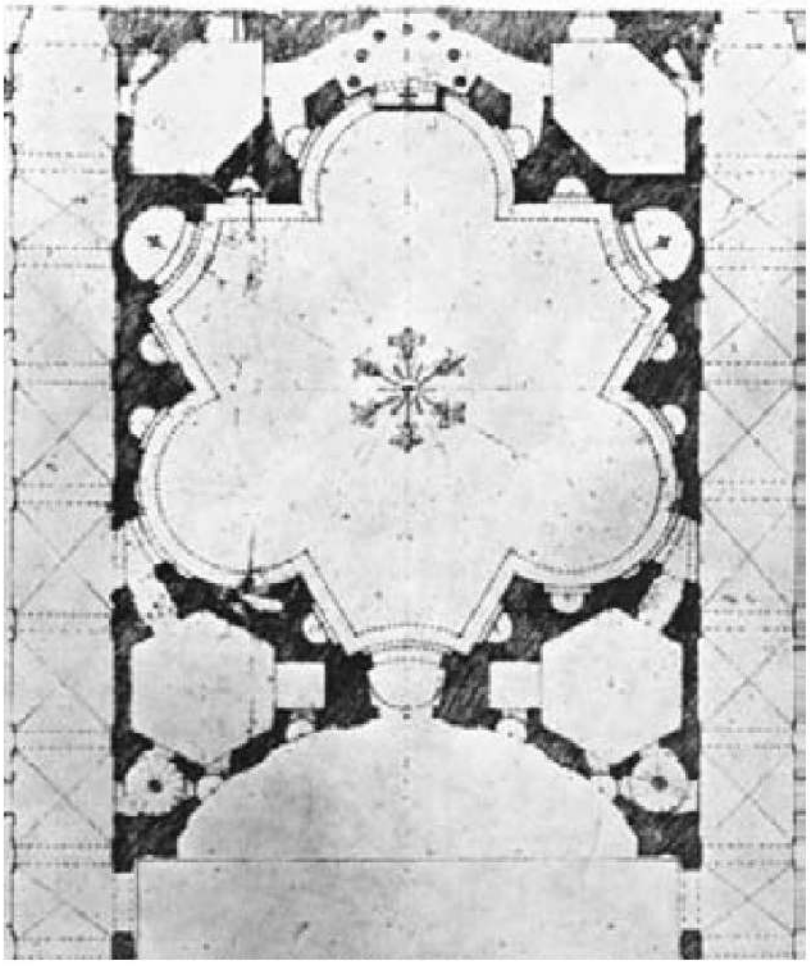
(Italian: *Chiesa di Sant'Ivo alla Sapienza*) is a Roman Catholic church in Rome. The church is considered a masterpiece of Roman Baroque church architecture, built in 1642-1660 by the architect Francesco .

The church started out, around the 14th century, as a chapel of the palace of the University of Rome. The University is called *La Sapienza*, and the church is devoted to Saint Yves (patron saint of the jurists), giving the church its name. Borromini was forced to adapt his design to the already existing palace. He choose a plan resembling a star of David, and merged the facade of the church with the courtyard of the palace. The dome, with its corkscrew lantern, is remarkable in its novelty. The complex rhythms of the interior have a dazzling geometry to them. It is a rational architecture- intricate to view, but on paper the overlap of a circle on two superimposed equilateral triangles creates a basis for a hexagonal array of chapels and altar in a centralized church. The undulations, both concave and convex of the interiors, create a jarring yet stunning appeal. The decoration is a mixture of novel organic (six-winged cherubic heads) and geometric (stars). Rising along the base of three of the dome's pillars are the symbol of the papal Chigi family, the "six mountain beneath a star".

Figure10.8: *Chiesa di Sant'Ivo alla Sapienza, 1646.*

Borromini, Sant' Ivo della Sapienza, Rome, 1642–60, a university church hemmed in by a relatively narrow court and bursting forth in an extraordinary display of unplaceable elements.

Figure 10.9: Borromini, Sant Ivo, Rome, 1642.

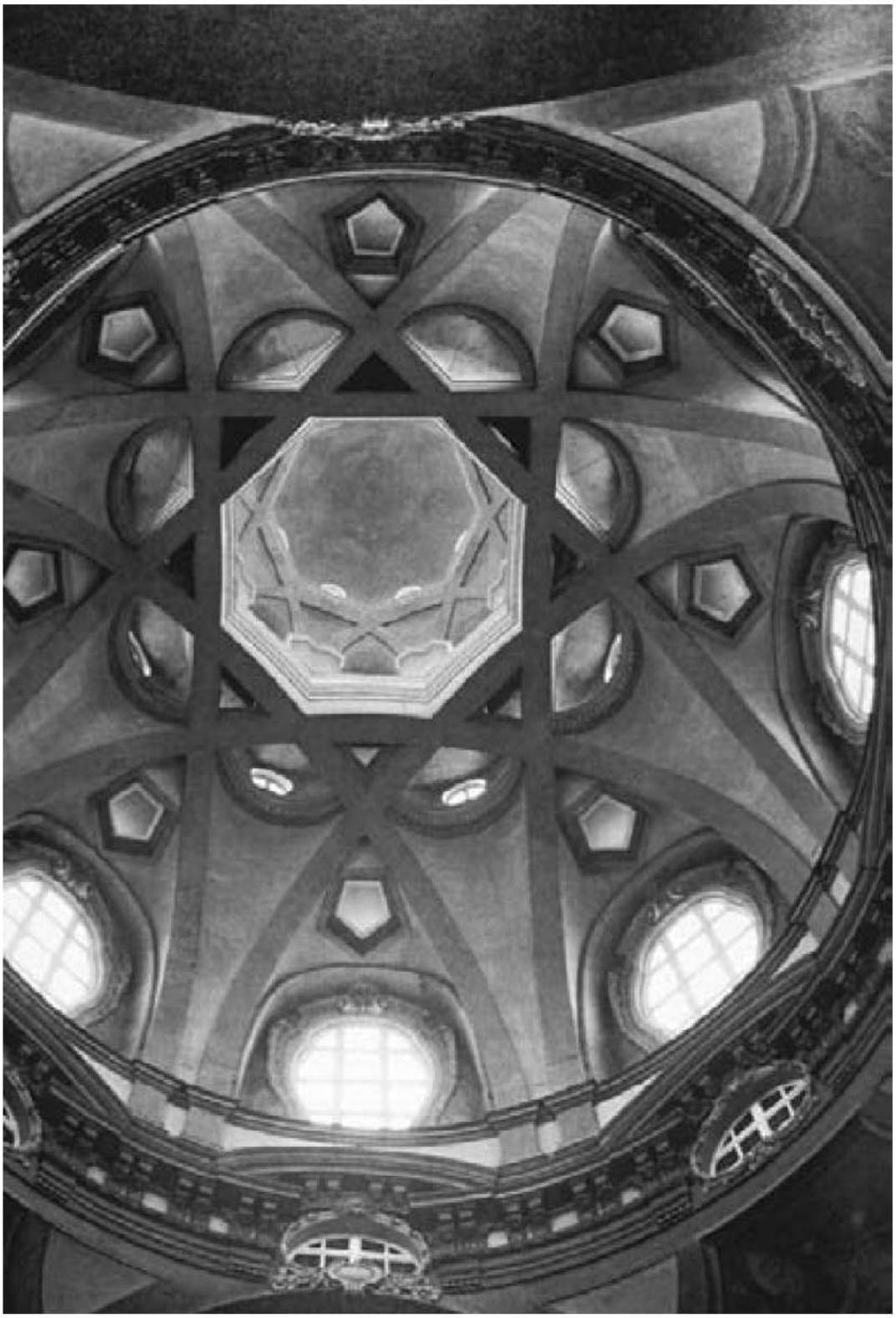


Borromini, drawing of the plan of Sant' Ivo della Sapienza, which began from two intersecting triangles forming a six-pointed star, the points of which are then manipulated to create two contrasting geometries.

Figure 10.10.: Borromini, drawings 1642.

Borromini, Sant' Ivo della Sapienza, view into the dome showing the two geometries of the plan in their clearest manifestation.

Figure10.11: Borromini, Sant Ivo, 1642.



Guarino Guarini, San Lorenzo, Turin, 1668–80, view into a dome that is like a mathematical puzzle which fractures space by allowing bursts and slivers of light to illuminate the fabric in a variety of ways.

Figure 10.12: Guarino Guarini, 1668.

Guarini, Chapel of the Holy Shroud, attached to the Cathedral, Turin, 1667–90, a further development of the dome broken into segments and lit in many increments to create effects of baffling complexity.

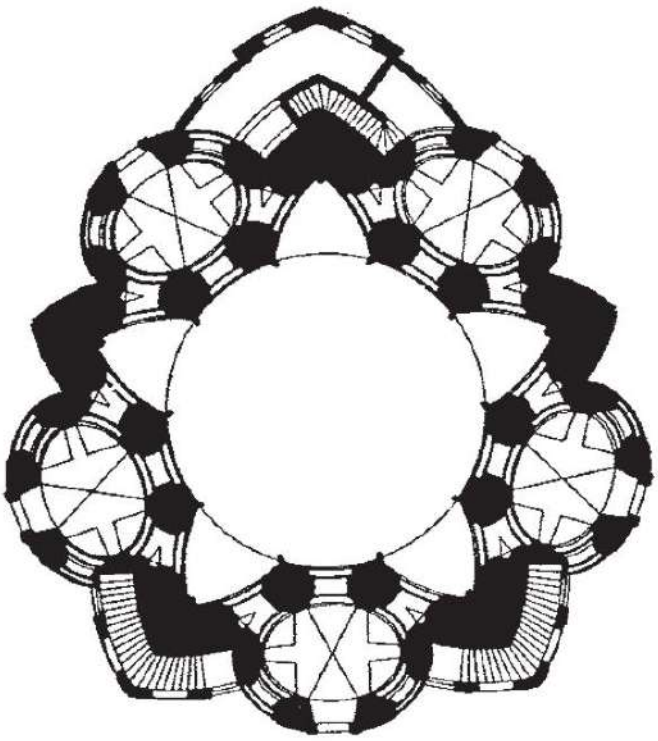
Figure 10.13: Guarino Guarini, 1668.

The Church of St. John

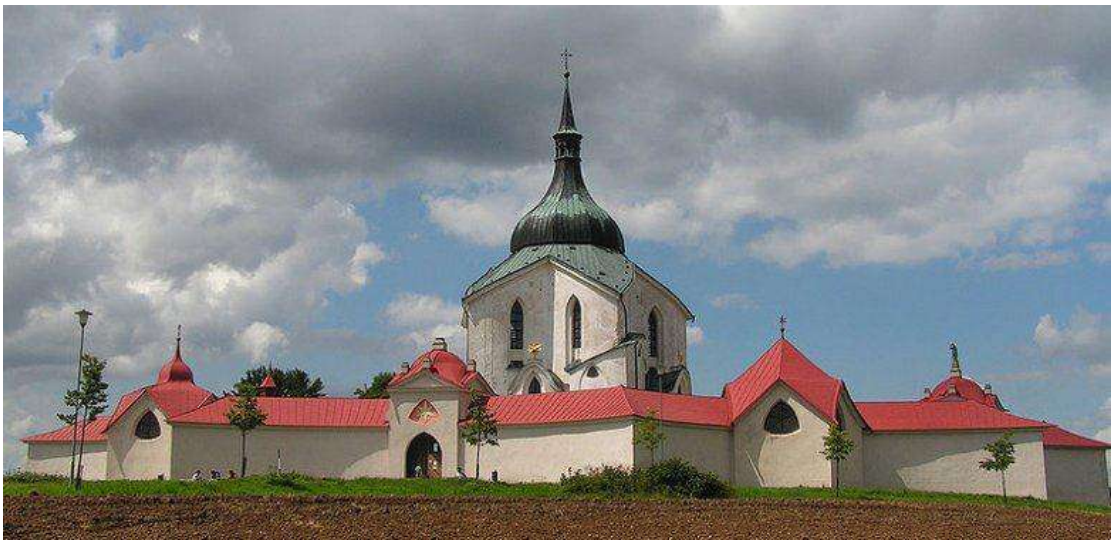
By : architect Jan Santini Aichel

of Nepomuk is a pilgrimage church in Zelená Hora (also known as Gruneberg), in Žd'ár nad Sázavou, Czech Republic. It was designed by maverick Bohemian architect Jan Santini Aichel, and is regarded as his final masterpiece. With this church, the architect incorporates elements of Gothic design into the Borrominiesque Baroque style. Construction of the Church of St John was begun in 1719, when the Roman Catholic Church declared that the tongue of John of Nepomuk to be "incorruptible". The church was consecrated immediately after John of Nepomuk was beatified in 1720. However construction work progressed until 1727. A big fire caused serious damaged half a century later, and this has resulted in the modification to the shape of the roof.

Jan Santini Aichel, St Jan Nepomuk, Žd'ár nad Sazavou, Moravia, 1719–22, detail of facade, Gothic forms in Baroque arrangements that refer to particular parts of the saint's martyred body.

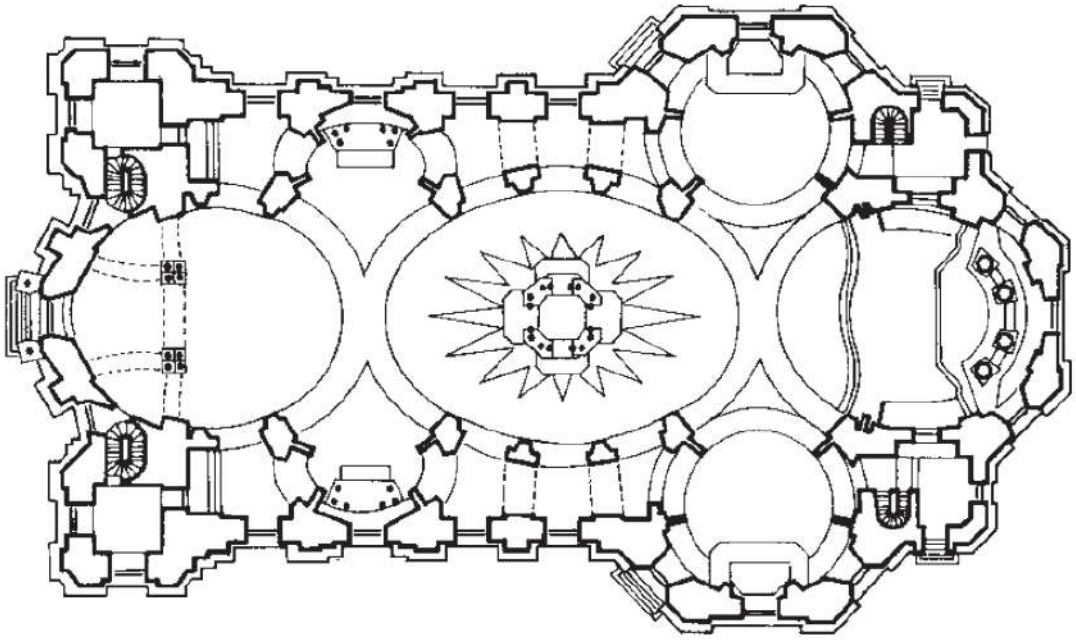


St Jan Nepomuk, Žd'ár nad Sazavou, plan, incorporating the saint's emblem in an exfoliating design that looks like a botanical study.



Dominikus Zimmermann (June 30, 1685, Gaispoint–November 16, 1766, Wies) was a German Rococo architect

Dominikus Zimmermann, Die Wies, pilgrimage church, Bavaria, 1744–54, view of the chancel arcade and vault showing cloud effects in punctures over columns.



Neumann, Vierzehnheiligen, plan, a version that emphasizes the sequence of elliptical and circular vaults.

CHAPTER Eleven

BYZANTINE ARCHITECTURE.

400 C-1500 C

١.THE MAIN FACTORS THAT AFECTING IN APPEARANCE BYZANTINE ARCHITECTURE ARCHITECTURE:

a. Influences.

b. GEOGRAPHICAL.

c. GEOLOGICAL.

d. CLIMATE.

e. RELIGION.

f. SOCIAL AND POLITICAL.

g. HISTORICAL.

2. Examples.

3. Comparative Table.

1. Plan, or general distribution of the building.

2. Walls, their construction and treatment. -

3. Roofs, their treatment and development.

4. Openings, their character and shape.

5. Columns, their position, structure, and decoration.

6. Decorative, their form and decoration.

7. Arches

8. Volts

9. Domes

10. Lighting

11. Flying Buttresses:

12. Surfaces:

13. Forms:

14. Scale:

15: the towers : Towers are detached

16: the colour

1. INFLUENCES.

a. Geographical. Byzantium (renamed Constantinople by Constantine), occupies the finest site in Europe, standing on two promontories at the junction of the Bosphorus and the Sea of Marmora. It was called " New Rome" by the Turks of Asia, and, like the other Rome in Italy, it rests on seven hills. It occupies an important commercial site, standing at the intersection of the two great highways of commerce the water highroad from the Black Sea into the Mediterranean, and the land high-road from Asia into Europe ; a position which, from early times, gave it power and influence, especially over the corn trade carried on with the western merchants on the northern shores of the Euxine. The absence of tides and the depth of its harbour, an inlet known as the " Golden Horn," four miles in length, rendered its quays accessible to vessels of large burden.

b. Geological. Constantinople possessed no good building stone or even material for making good bricks, but, as far as possible the materials upon the spot had to be employed. Most of the marble used in the new capital was brought from different quarries round the Eastern Mediterranean, for Constantinople was a marble working centre from which sculptured marbles were exported to all parts of the Roman world.

Mr. Brindley, a .writer on the subject, is of opinion that quite seventy-five per cent, of the colored marble used in Santa Sophia, and the other churches and mosques in Constantinople, is Thessalian green (Verde Antico), and that the architect was influenced by the kind of column likely to be at once obtainable. The quarries were situated in different parts of the empire, the monolith columns being worked by convicts in groups of sizes such as the quarry could produce.

c. Climate. Owing to Constantinople being hotter than Rome, and to its being further east, the Romans on settling there altered their method of building to suit the novel conditions due to climate and their contact with Oriental arts.

d. Religion. Constantine first made Christianity the state religion (page 176). The political division that came to pass between east and west was followed by a separation of churches also. This was due to the " Filioque controversy" as to whether the Spirit proceeded from the Father and Son or from the Father only ; the Eastern church which still claims to be the orthodox church, maintaining the latter, and the western the former. The

iconoclastic movement during the eighth and ninth centuries was in force and ended in the admission of painted figures in the decoration of churches, but all sculptured statues were excluded.
These and other points of difference in ritual have vitally affected eastern church architecture up to the present day.
e. Social and Political. Constantine, whose system of government was an expansion of the despotic methods introduced by Diocletian, removed the capital from Rome to Byzantium in A.D. 324, the position of the latter city being unrivalled as a great commercial centre on the trading highway between east and west.
After his death rival emperors troubled the state, and disputes in the church were rife the Council of Nice in A.D. 325 being the first of the general councils called to suppress heresies. The eastern emperors lost all power in Italy by endeavouring to force upon the west their policy of preventing the worship and use of images. By the election of Charlemagne, chosen Emperor of the West in A.D. 800, the Roman empire was finally divided.
f. Historical. Byzantium is said to have been founded in the seventh century B.C., and was a Greek colony as early as the fourth century B.C. fSyzantine architecture is that which was developed at Byzantium on the removal of the capital from Rome to that city. It includes not only the buildings in Byzantium but also those which were erected under its influence, as at Ravenna and Venice, also in Greece, Russia, and elsewhere. During the reign of Justinian (A.D. 527-565) Italy was recovered to the Eastern Empire, accounting for the style of some of the buildings. Ravenna became important owing to the emperor Honorius transferring his residence there from Rome in A.D. 402, and it was created an archiepiscopal see in A.D. 438. After the fall of the
Western Empire the town was taken by Odoacer, and in A.D. 493
Theodoric the Great took the city, which, remaining the residence of the Gothic kings till 539, rivalled Rome in importance. From A.D. 539-752 it was the seat of the Exarch of the Eastern Roman or Byzantine Emperors. The Byzantine style was carried on until Constantinople fell into the hands of the Turks in A.D. 1453,
when it became the capital of the Ottoman Empire.

2. EXAMPLES: see the examples

3. COMPARATIVE points.

1. Plan, or general distribution of the building.: Byzantine churches are all distinguished by a great central square space covered with a dome. On each side
extend short arms, forming a Greek cross.

2. Walls, their construction and treatment. : These were often constructed of brick.

3. Roofs, their treatment and development.: The method of roofing these buildings was by a series of domes formed in brick, stone, or concrete, with frequently no further external covering.
4. **Openings,** their character and shape.: Doors and windows are semicircular headed but segmental and horse- shoe/ arched openings are sometimes seen. The windows are small and grouped together, the churches depend largely for light on the ring of windows at the base of the dome, or in the " drum,", within the semicircular arch

5. Columns, their position, structure, and decoration.: In the earlier buildings, these were taken from ancient structures, which not being so numerous in the East as in
the neighbourhood of Rome, the supply was sooner exhausted; and thus there was an incentive to design fresh ones. Capitals sometimes took a form derived from the Roman Ionic, or Corinthian types.

6. **Decorative**, their form and decoration.: all the oriental love of magnificence was developed, marble Casing and mosaic being applied to the walls, The scheme of ornamentation was elaborate in the extreme, the walls being lined with costly marbles.

7. **Arches**: segmental and horse- shoe/ arched openings.

8. **Vaults**: single volts at corridors some time were covered by sheets.

9. **Domes**: at the centre large circular dome, The Byzantines introduced the dome placed over a square or octagonal plan, In early examples the pendentives were part of one sphere. A good idea of this type is obtained by halving an orange, cutting off four slices, each at right angles to the last, to represent the four arches, and then scooping out the interior; the portion above the crown of these semicircles is the dome, and the intervening triangles are the pendentives.

10. **Lighting**: large amount of light, through large windows at ground level and small windows at the large dome.

11. **Flying Buttresses**: they are not found.

12. **Surfaces**: squares and rectangular .

13**. Forms:** cubic forms.

14. **Scale**: out of scale.

15: the towers: Towers are detached.

16: **the colour** : although the façade was sometimes relieved by alternate rows of stone and brick, in various colours.

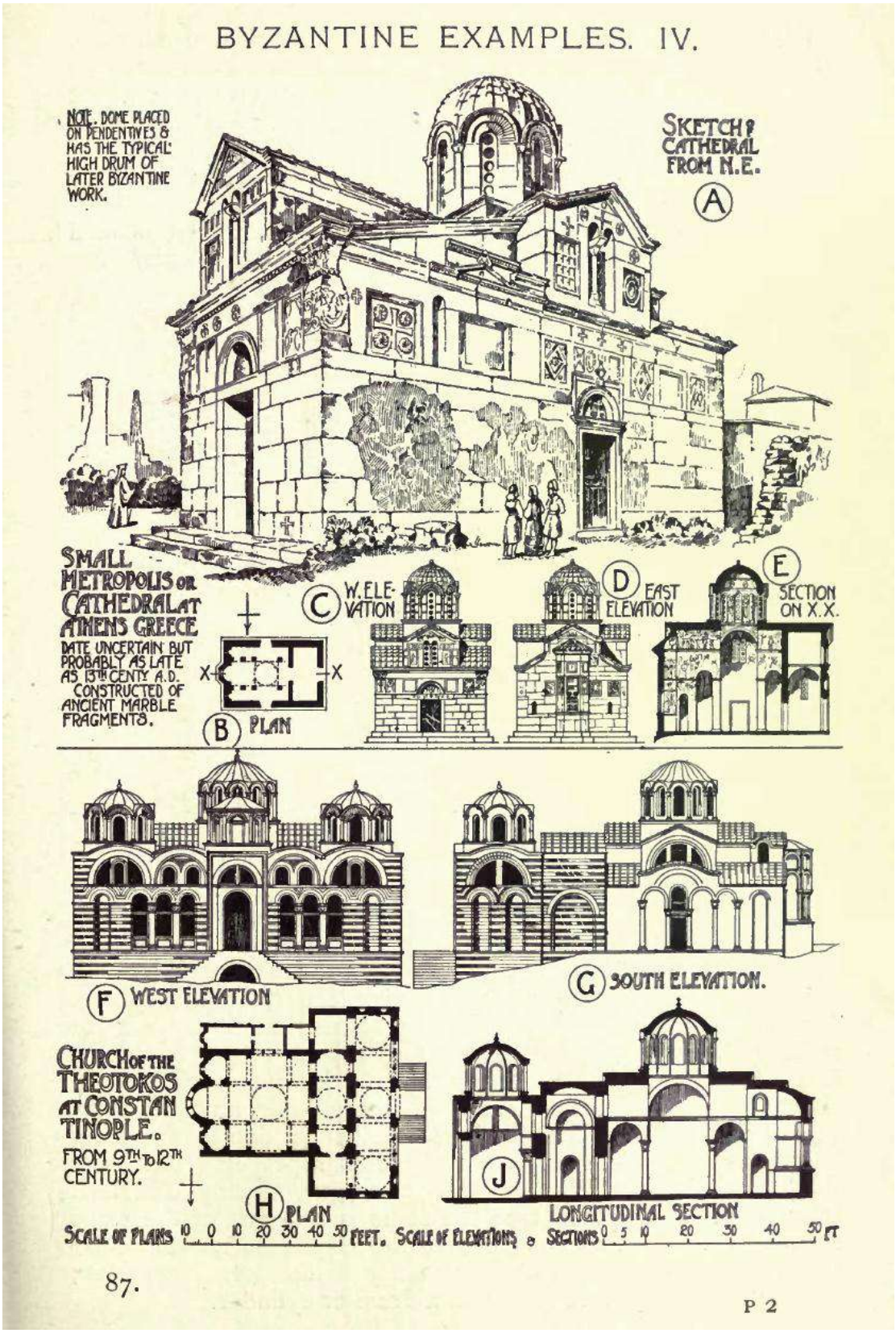


Figure 11.1: Byzantineexamples.

Figure11.2: Byzantine capitals.

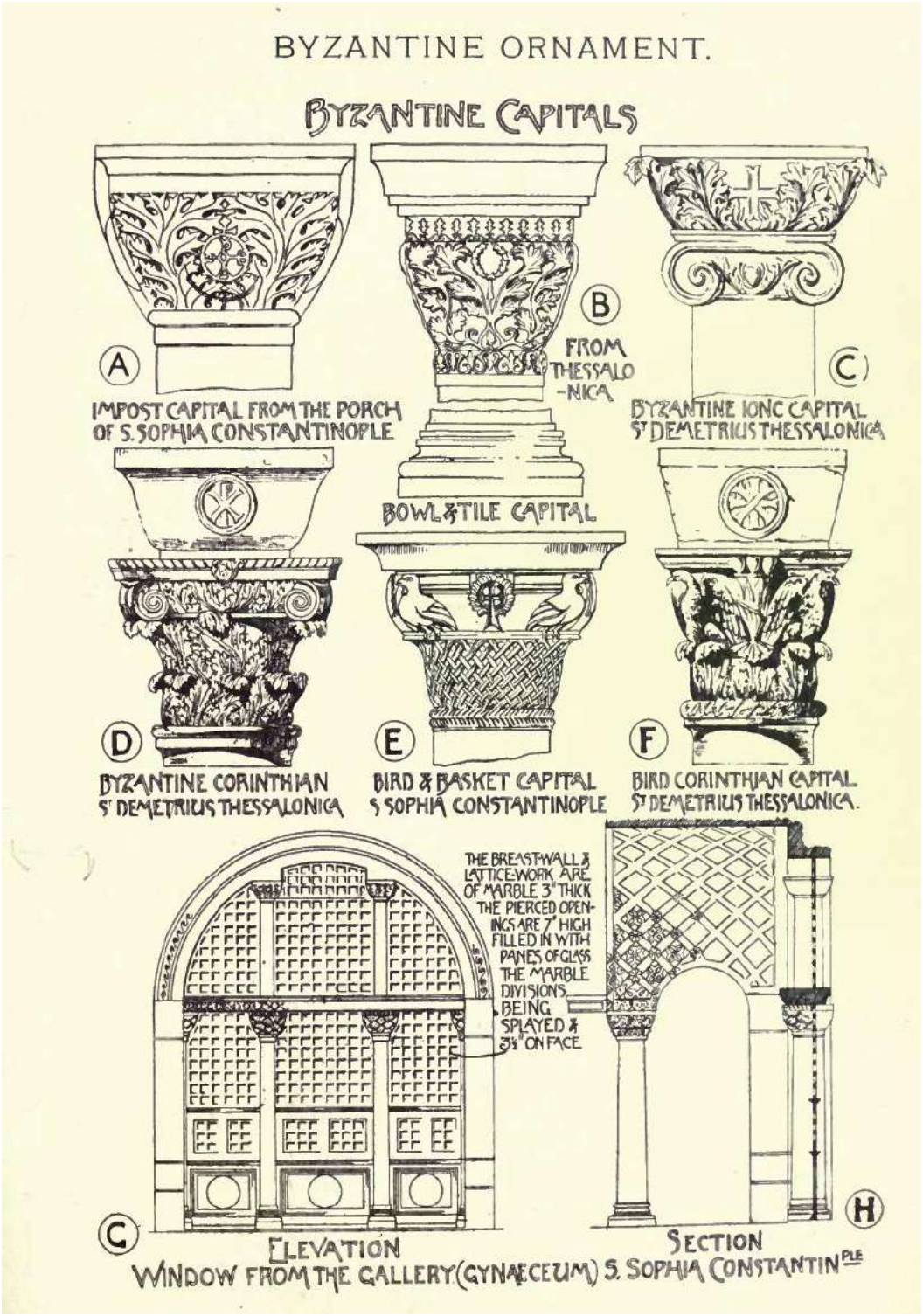


Figure 11.3:Byzantine ornament.

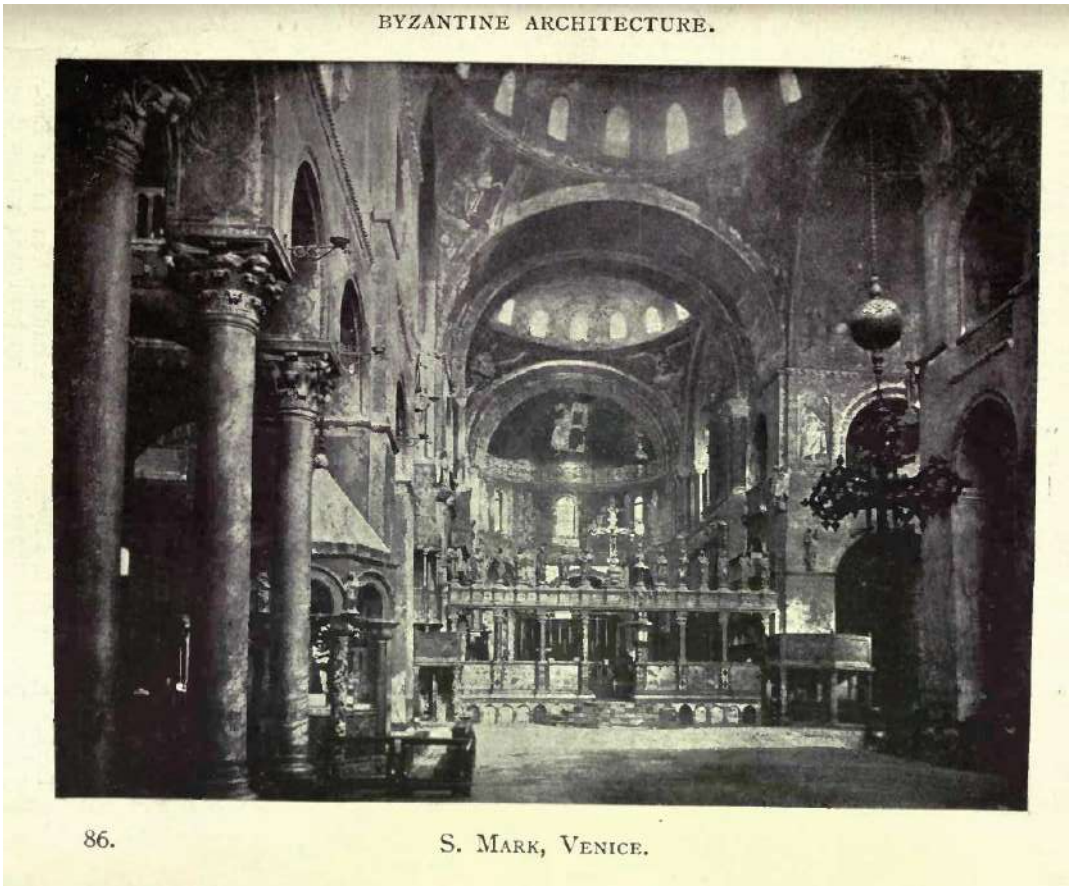


Figure 11.4: Byzantine architecture, S. Mark, Venice.

Figure 11.5: Byzantine architecture, S. Mark, Venice.

Figure11.6: S. Sophia, Byzantine architecture.

Figure 11.7: S. Sophia, Byzantine architecture.

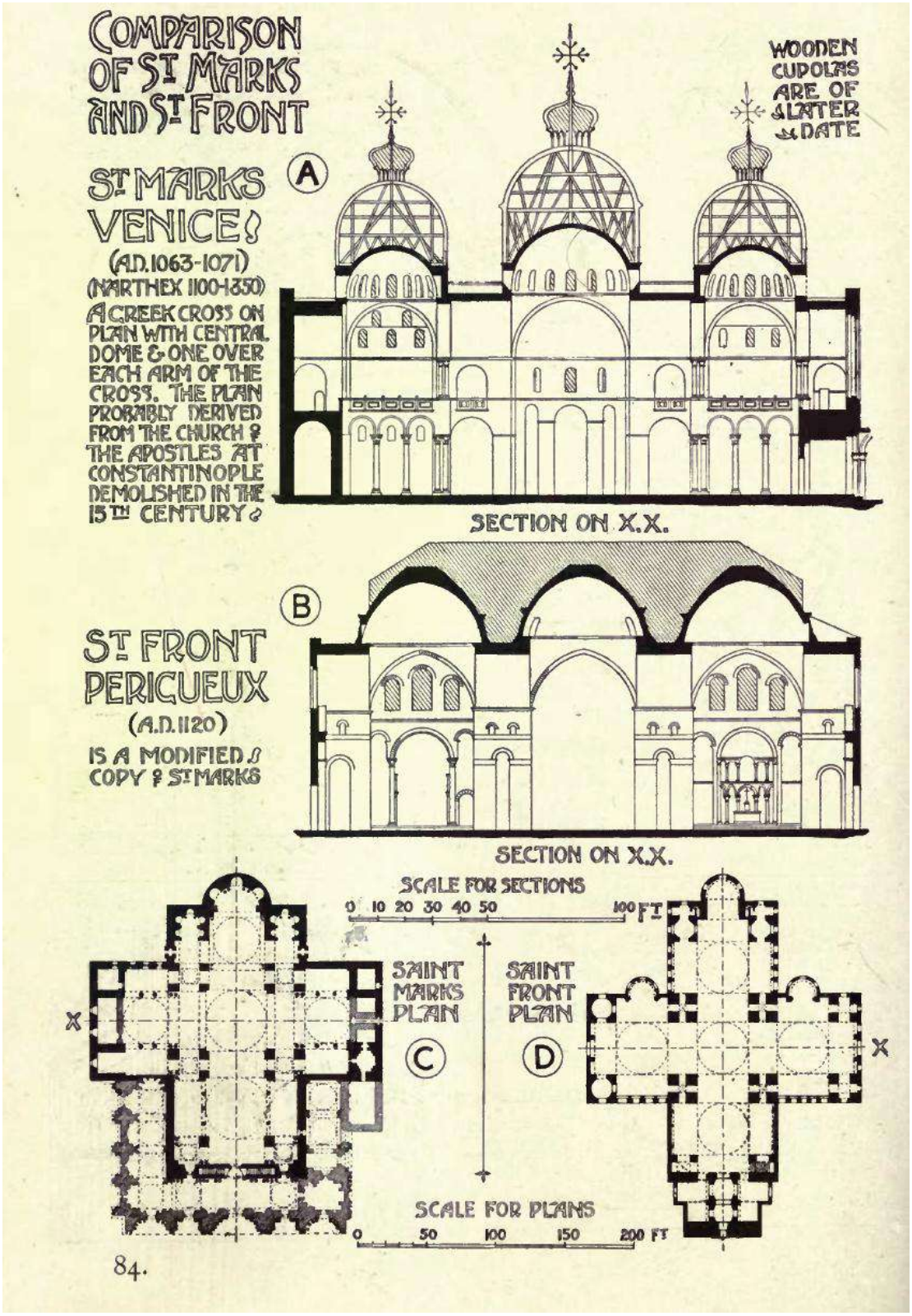


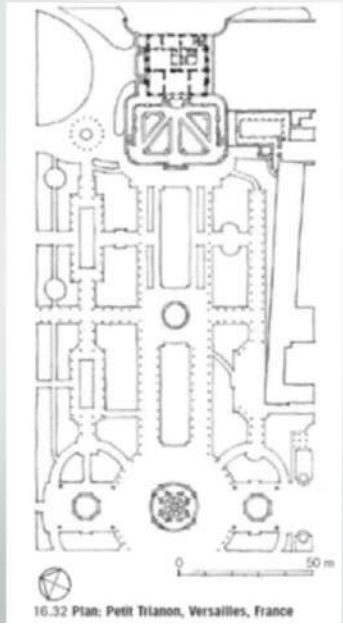
Figure 11.8: comparative of S.Marsand S, Front.

CHAPTER TWELVE

Eighteen Century

16.33 Petit Trianon

- Simplicity
- Absent of the plaster
- Symmetry in Plan
- Language in plan
- Functionalism

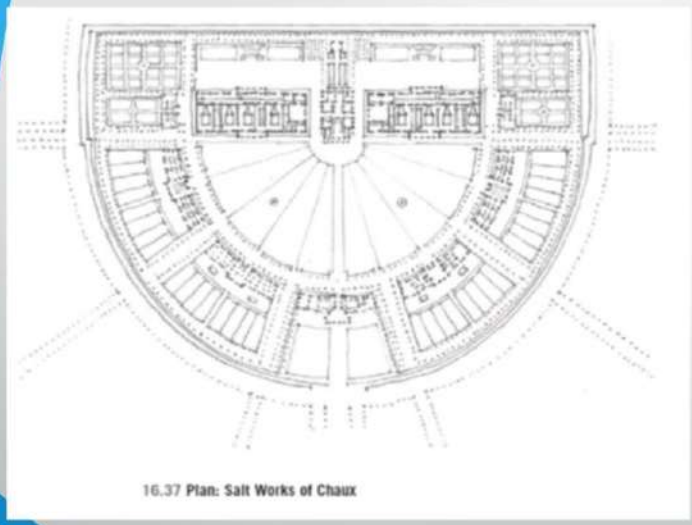


16.32 Plan: Petit Trianon, Versailles, France

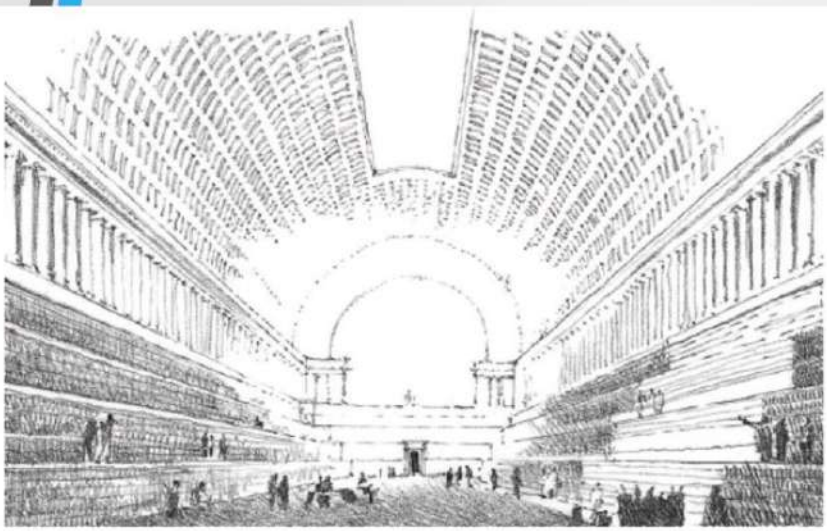
Salt works of Chaux

16.35 Salt Works of Chaux, Arc-et-Senans, France

- Tuscan columns
- Tentrance contains Guard room
- The first Architect design factory in history
- Sympolic

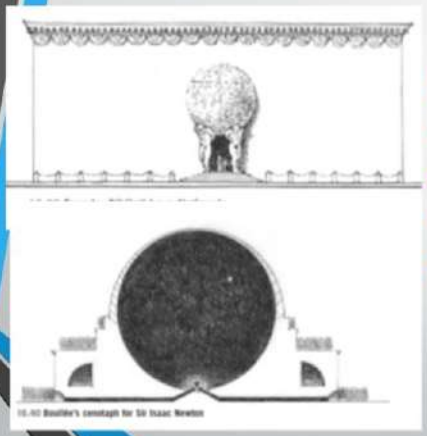


16.37 Plan: Salt Works of Chaux



16.38 **Boullée's idea for a Bibliothèque Nationale**

Sir Isaac Newton (1784).Theater

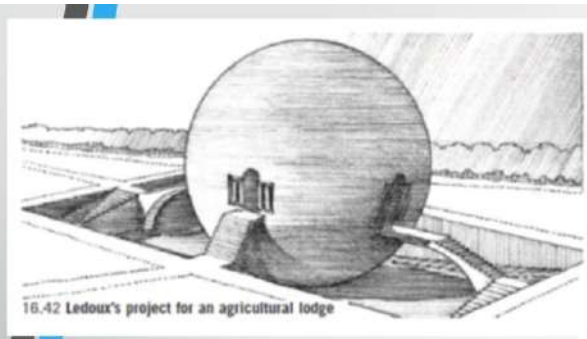


- Boullée designed building
- Sir Isaac Newton (1784).
- New classical building
- represents the earth on the outside
- is on the inside a planetarium, with small holes forming the constellations

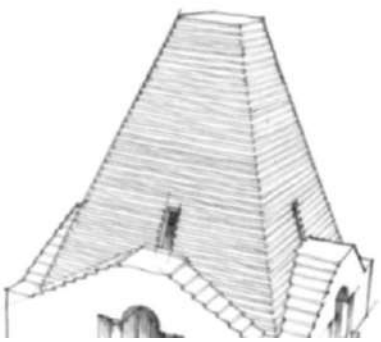
16.41 Ledoux's house of supervisors of the source of the Loue, a project for the ideal city of Chaux

- the ideals of classicism
- The head of a water canal system,
- Lived in a house that is shaped like a tube.
- Plans of even the most humble edifices were always symmetrical and concentrated on the efficient

use of space.

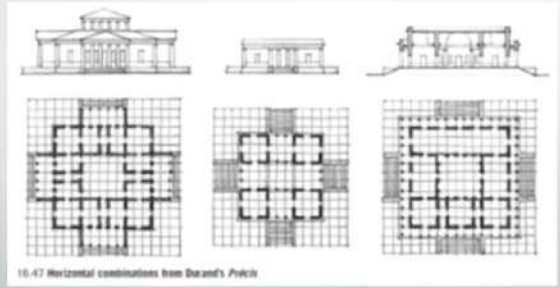


16.42 Ledoux's project for an agricultural lodge

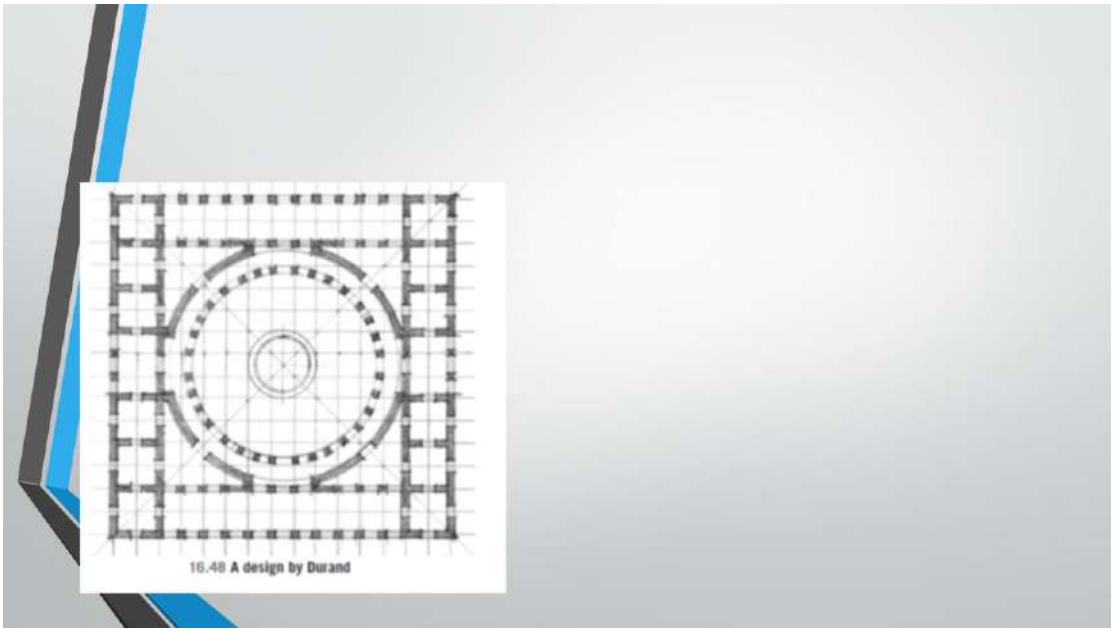


16.46 **Mt. Auburn Cemetery, Cambridge, Massachusetts**

Romantic movement in Paris

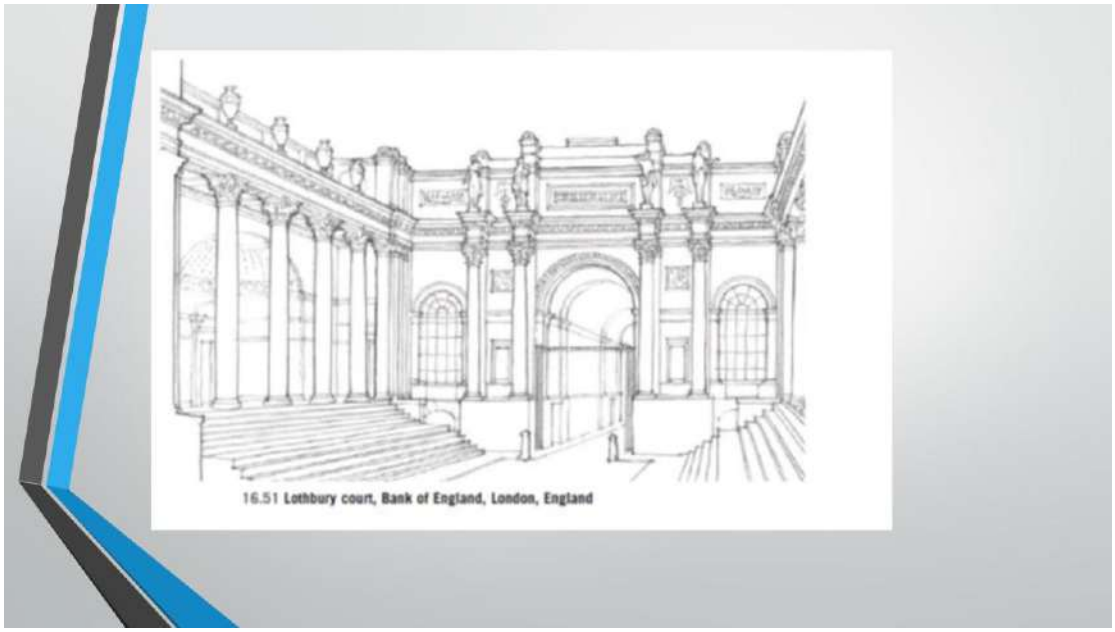


16.47 Horizontal combinations from Durand's *Précis*



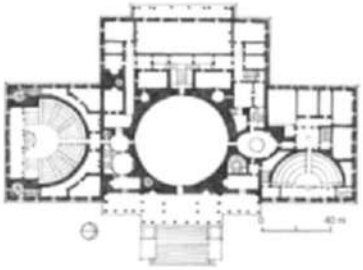
16.48 **A design by Durand**


1800 CE
16.49 Plan: Bank of England, London
0
40 m
16.50 Interior, Bank of England


16.51 Lothbury court, Bank of England, London, England

16.53 **Virginia State Capitol**

16.55 United States Capitol Building, Washington, DC, 1946 (Library of Congress)



16.56 Floor Plan: U.S. Capitol, Washington, DC

CHAPER THIRTEEN

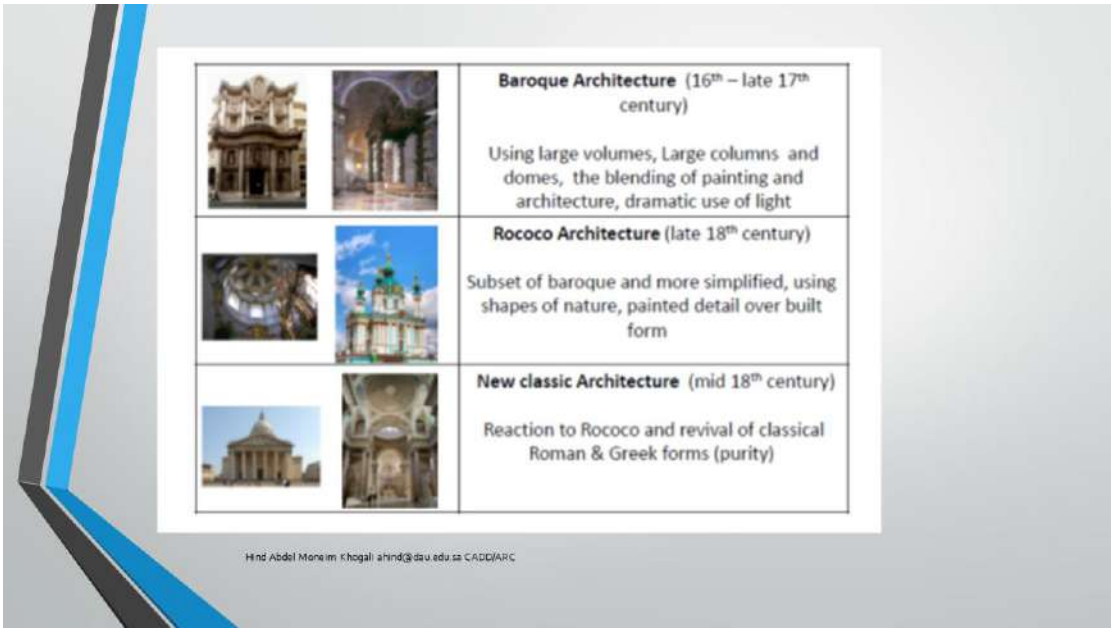
NINETEEN CENTURY

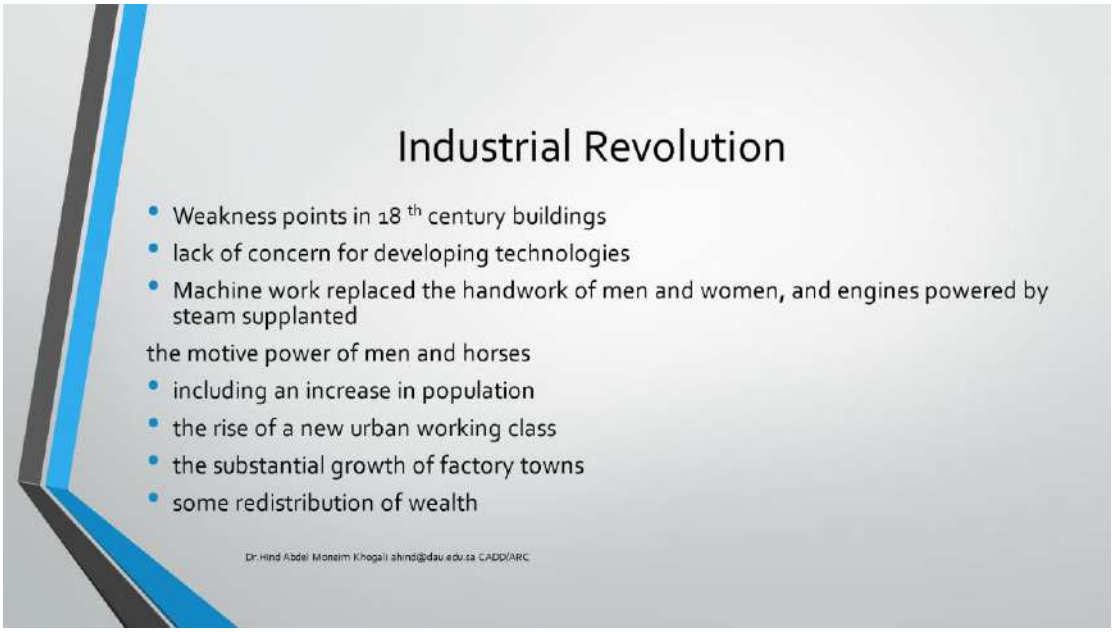
Nineteenth Century

CADD-ARC

Dr.Hind Abdelmoneim

	**classic Antiquity** (Greek and Roman8th – 7th century BC) Pure forms, using columns for structural purposes
	**Medieval Architecture** (Romanesque & Gothic 11th – 13th Century) Large buildings, pointed arch, glass
	**Renaissance Architecture**(14th – 17th century) Revival of classical roman architecture (use of semicircular arches and domes) , development of linear perspective.


Baroque Architecture (16th – late 17th century)
Using large volumes, Large columns and domes, the blending of painting and architecture, dramatic use of light
Rococo Architecture (late 18th century)
Subset of baroque and more simplified, using shapes of nature, painted detail over built form
New classic Architecture (mid 18th century)
Reaction to Rococo and revival of classical Roman & Greek forms (purity)
Hind Abdel Moneim Khogali ahind@dau.edu.sa CADD/ARC


Industrial Revolution
Weakness points in 18 th century buildings
lack of concern for developing technologies
Machine work replaced the handwork of men and women, and engines powered by steam supplanted
the motive power of men and horses
including an increase in population
the rise of a new urban working class
the substantial growth of factory towns
some redistribution of wealth
Dr Hind Abdel Moneim Khogali ahind@dau.edu.sa CADD/ARC

Improvement in building industry

- Among the developments were new and improved methods for making building materials like iron,
- Another invention, that of descriptive geometry, enabled designers to depict in drawings the shapes of complex three-dimensional objects.
- the increasing separation between architecture and engineering
- Civil engineers were charged with the increasing body of utilitarian

construction-roads, bridges, mines, factories, warehouses,

lighthouses, and canals.

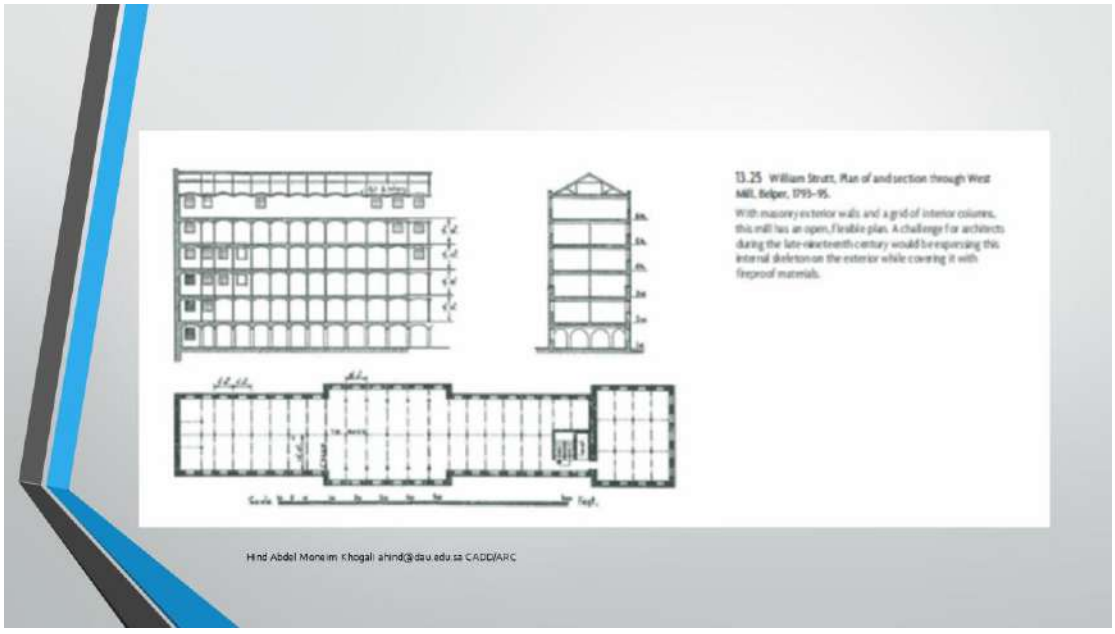
- while architects were

employed on buildings where esthetics and symbolism

outweighed pragmatism.

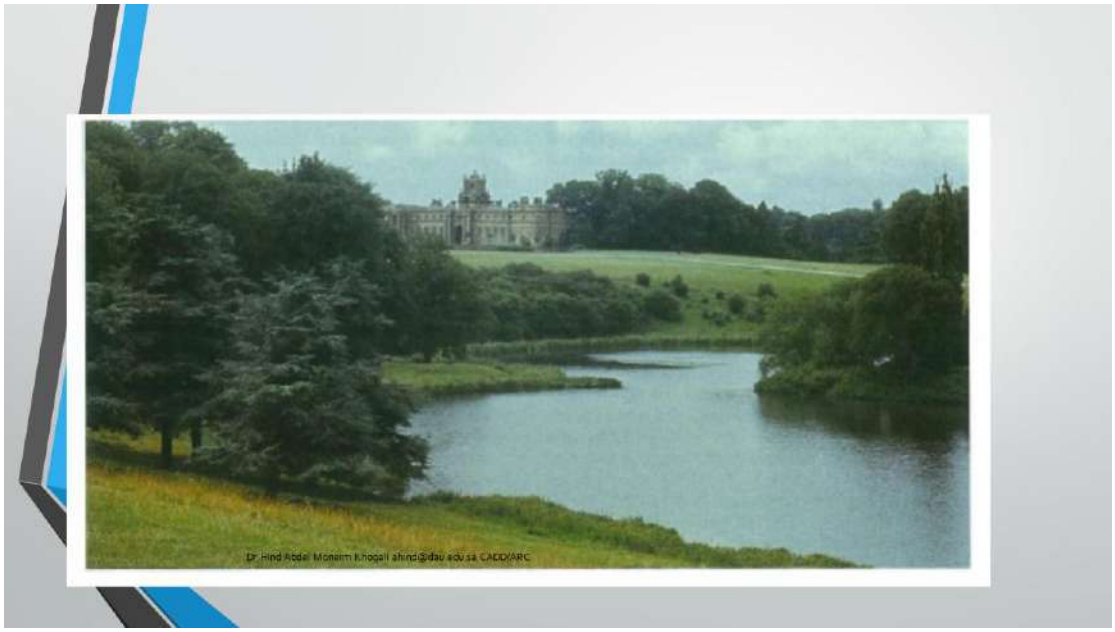
13.24 Abraham Darby III and Thomas Pritchard, Coalbrookdale Bridge, 1779.

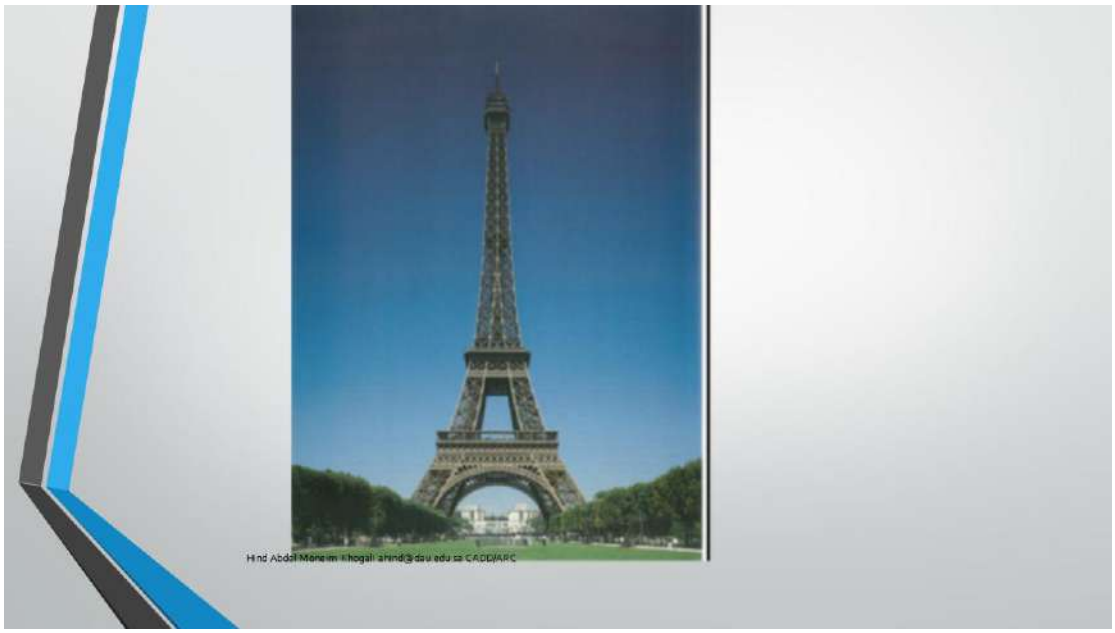
While this bridge has supporting members made of iron, the new material is really treated like stone. It is configured as arches, placing the iron completely in compression and ignoring its great strength in tension.



13.25 William Strutt, Plan of and section through West Mill, Belper, 1793–95.

With masonry exterior walls and a grid of interior columns, this mill has an open, flexible plan. A challenge for architects during the late nineteenth century would be expressing this internal skeleton on the exterior while covering it with fireproof materials.

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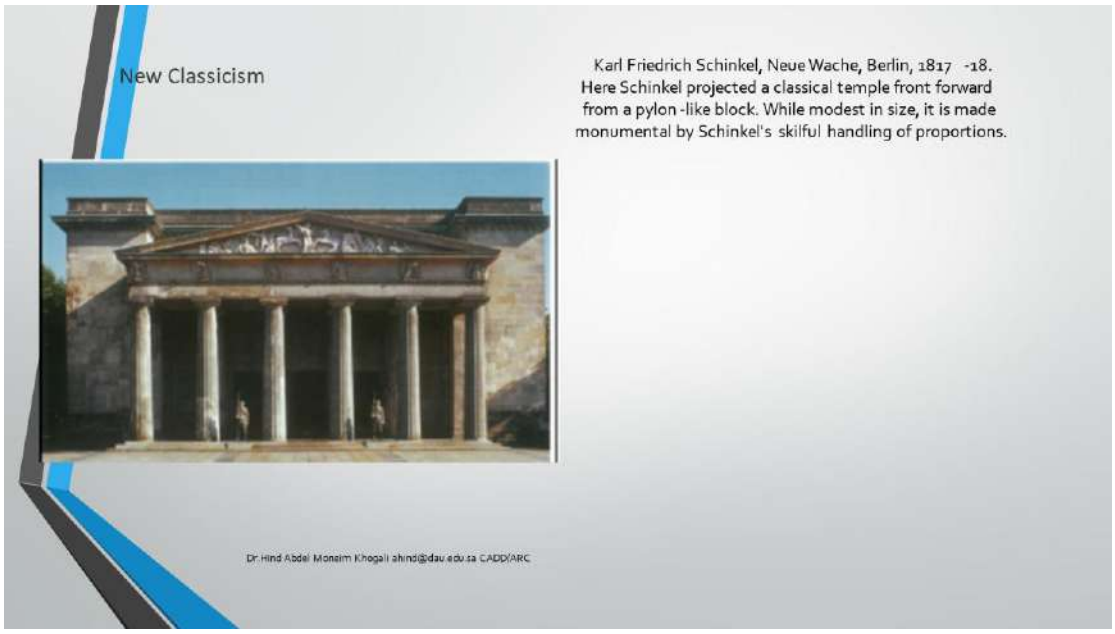
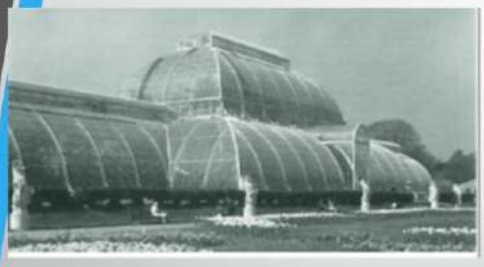

New Classicism
Karl Friedrich Schinkel, Neue Wache, Berlin, 1817 -18.
Here Schinkel projected a classical temple front forward
from a pylon-like block. While modest in size, it is made
monumental by Schinkel's skilful handling of proportions.
Dr.Hind Abdel Moneim Khogali ahind@dau.edu.sa CADD/ARC

- Karl Friedrich Schinkel, Schauspielhaus, Berlin,
- 1818-21.
- For this theater, Schinkel chose a wall treatment of
- superimposed pilaster strips that anticipates the grid -like
- facades of twentieth -century skyscrapers. He illustrated it
- and his other work in his book (Colledion of Architectural Designs)

Palm House



Decimus Burton and Richard Turner, Palm House, Kew Gardens, London, 1845-47.
Greenhouses provided an impetus for the design of lightweight, quickly constructed, transparent structures.
Between the iron arches, the glass frames were folded in
alternate ridges and furrows, which provided

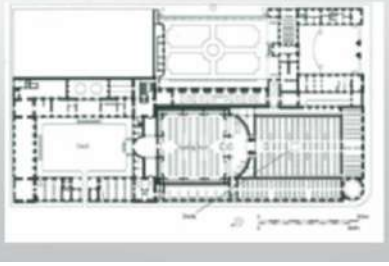
rigidity .

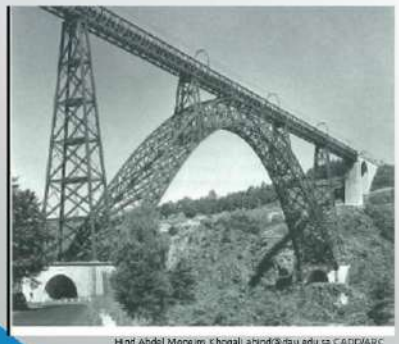
Crystal Palace

Joseph Paxton, Crystal Palace interior, London. Lithograph.
Such a structure as this one wasnot considered to be
"architecture" by theorist and critic John Ruskin because it
lacked permanence. However, its lightweight, skeletal,
transparent construction pointed toward the future.

Reading Room

Henri Labrouste, BibliothequeSte.-Genevieve reading room, Paris, 1842-50.
Labrouste spanned his great reading room with two sets of cast-iron arches supported down the center line by slender cast-iron columns set atop masonry piers.





(above) Gustave Eiffel,Garabit Viaduct over the river Thuyere, Garabit, France, 1880-84.
Eiffel made the steel-frame bridge into an art form. striking even today in its grace and lightness, this structure was considered absolutely shocking in the late nineteenth century

Daniel H. Burnham and John Welborn Root,

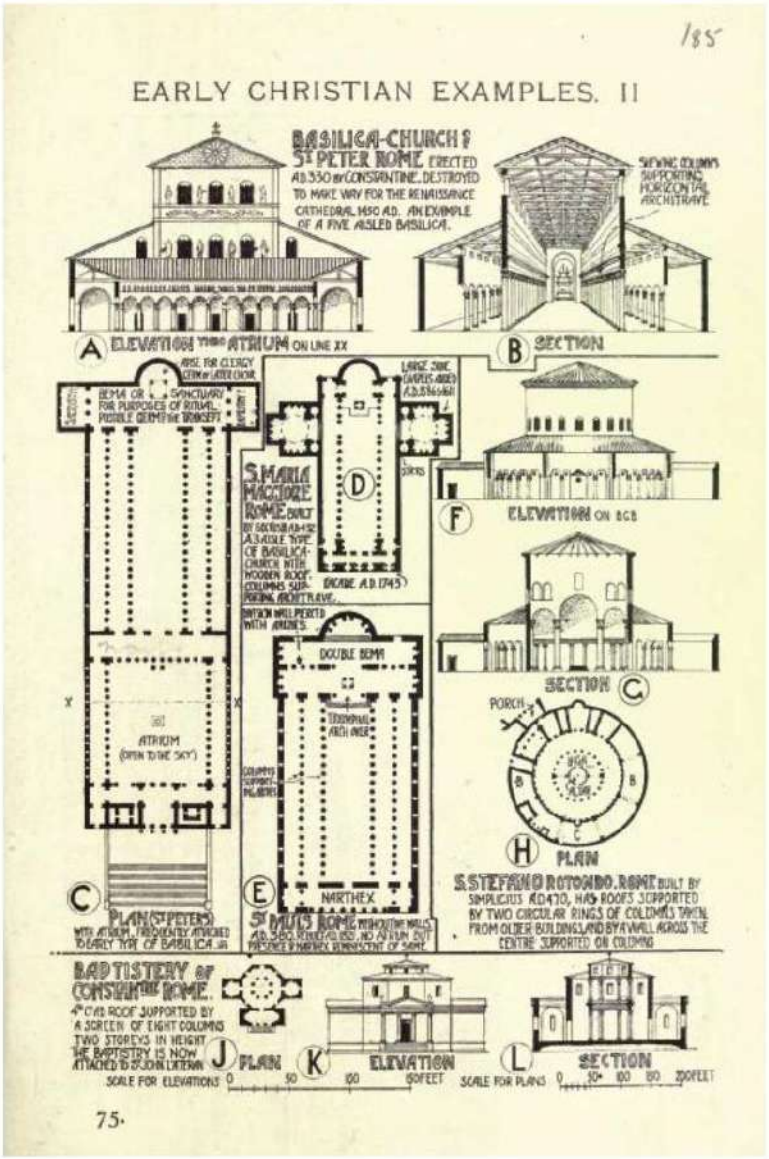
Reliance Building, Chicago, Illinois, 1894-95.
The Reliance Building's external skin of terra cotta and glass clips onto an internal steel skeleton. This construction method anticipated the curtain walls of the 1950s and '60s.

CHAPTER FOURTEEN

Students Exercises

Exercise One

Early Christian Architecture



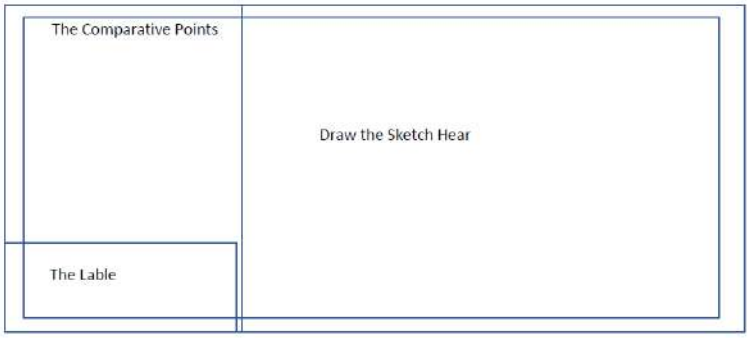
Ex.1: Draw Sketch of

Early Christian Architecture Church

Draw sketch of The Following Drawing, choose Picture A , or B

Size A3 size paper

Use only pencils in drawing



Knowledge

Explaining about the Early Christian Architecture

Skills

1.The student will learn how to draw sketch

2.The student will learn How to Analyze by using the comparative points

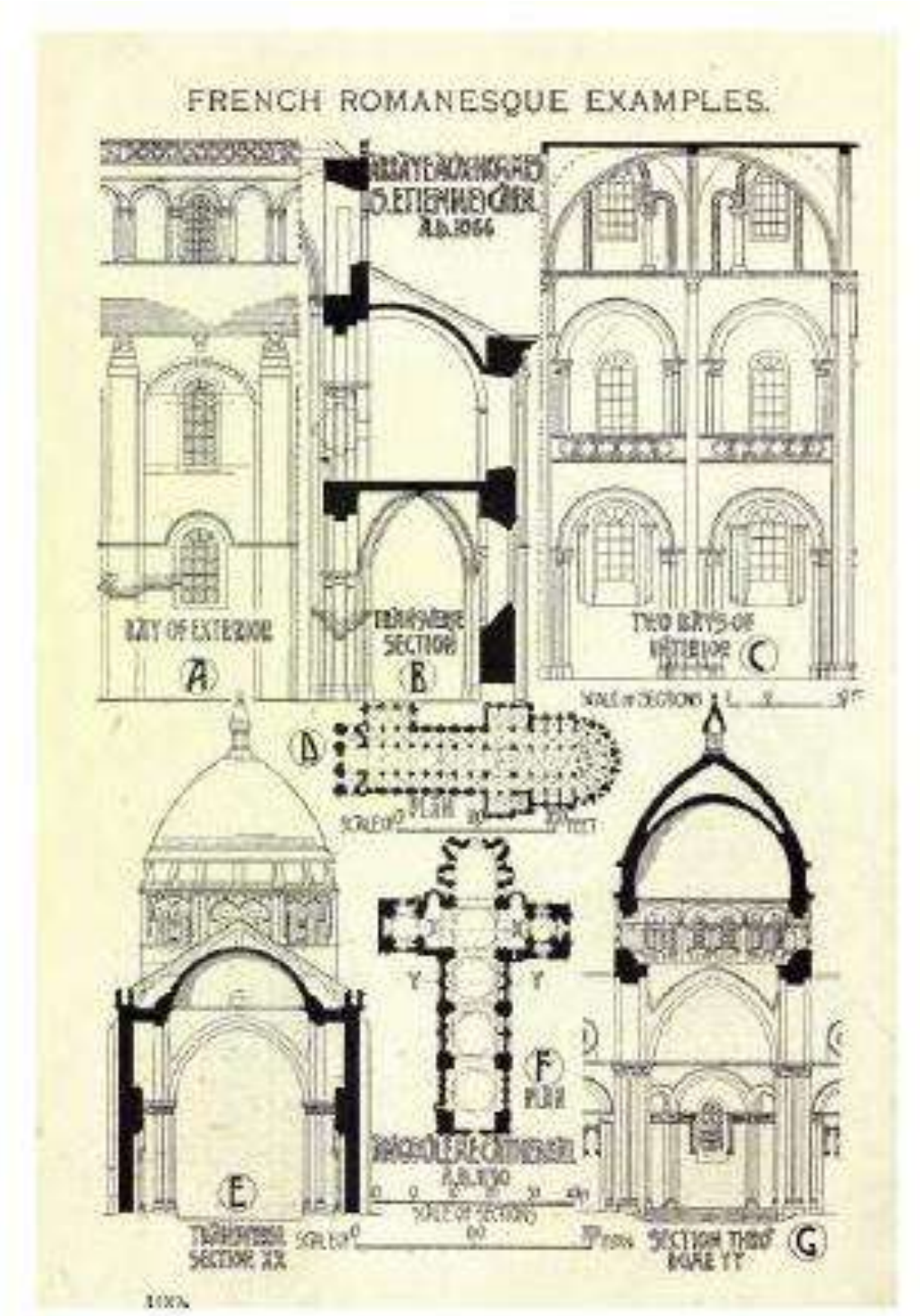
3.The comparative points are in the Lecture explained and written.

Value

1.Responsibility in upload the assignment online

Exercise Two

Romanesque Architecture



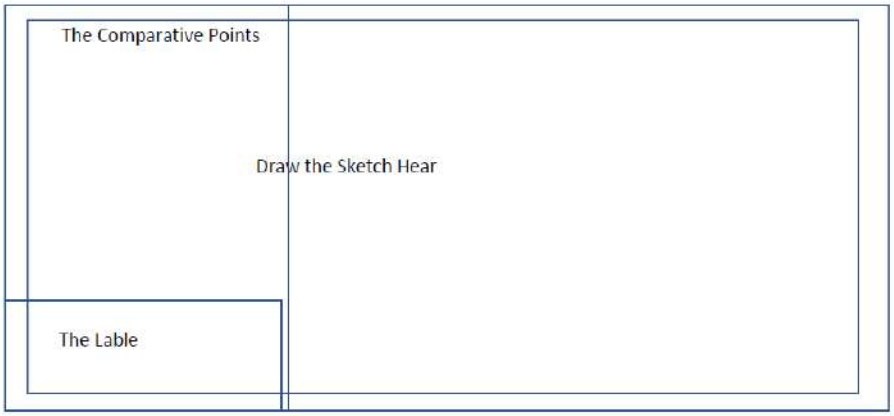
Ex.2: Draw Sketch of

Romanesque Architecture

Draw sketch of The Following Drawing, choose Picture A , or B

Size A3 size paper

Use only pencils in drawing



Knowledge

Explaining about the Romanesque Architecture

Skills

1.The student will learn how to draw sketch

2.The student will learn How to Analyze by using the comparative points

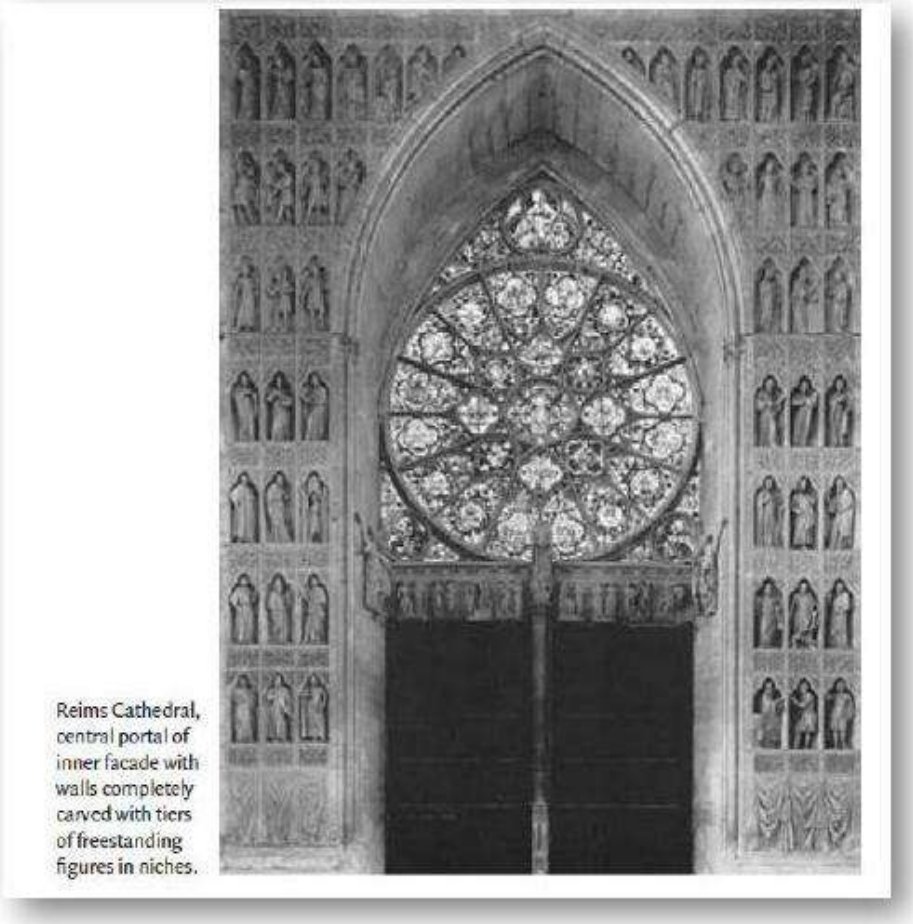
3.The comparative points are in the Lecture explained and written.

Value

1.Responsibility in upload the assignment online

Exercise Three

Gothic Architecture



Reims Cathedral, central portal of inner facade with walls completely carved with tiers of freestanding figures in niches.

Habert.H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK, p.119.

College of Architecture Engineering and Digital Design

Architecture Department

History of Architecture two- ARC-213

Semester one 1/10/2020

Exercise-three

Draw sketch about Art in Gothic Architecture

Draw A Sketch about Gothic Architecture in one building by using pencil and hand, and analyze the building by using the main comparative points, the plan, the section, the walls, the doors, the windows, the roofs, the decoration, the columns, the materials, the lighting, the colours, the towers and the forms, the surfaces, construction methods, the volts the domes, the arches.

The Requirements:

White drawing paper size A3, Black board, Pencils

Knowledge

1-The students will improve his knowledge ability by reading eBooks that was given to him by his Lecturer as well as the Textbook. About history in middle ages and Romanesque Architecture.

Skills:

2-Improve the cognitive skills By Drawing sketch the students will improve his drawing ability by hand and pencil, then draw on example, then analyse this information on a table by comparative points

3.The student will learn how to analyse and compare historical buildings in architectural elements 4. Improve the Psychomotor Skills in reading, drawing, writing.

Value

1.Upload the assignment in LMS

References

١. A. C. Edson (2004). Construction in Romanesque Architecture, Cambridge university, New York, USA.

٢. FLETCHER.B.(1905).History of architecture on comparative method, University of Toronto L, UK,London

٣. Habert.H.(2009). *Travel in the History of Architecture*", Reaktion Book LTD., UK, P.119.

٤. Khogali, H.(2 022). Pre Historic Architecture and Middle Ages, Scholar Press, Germany.

٥. Moffett, M.(2004). *Buildings Across Time, An Introduction to Word Architecture* , Mc Craw Hill Press, USA.

٦. Ching, D.K.(2011). *A Global History Of Architecture*. Willy & Sons Press, Canada. Required Text(s)