CASSELL'S TECHNICAL MANUALS.

Gothic Stonework.

CONTAINING THE HISTORY AND PRINCIPLES OF CHURCH ARCHITECTURE, AND ILLUSTRATIONS OF THE CHARACTERISTIC FEATURES OF EACH PERIOD, THE ARRANGEMENT OF ECCLESIASTICAL EDIFICES, AND A GLOSSARY OF TERMS.

WITH

Seven Double and Eighteen Single Page Plates,

DRAWN ON WOOD BY THE AUTHOR.

ELLIS A. DAVIDSON,

AUTHOR OF "LINEAR DRAWING," "PROJECTION," "BUILDING CONSTRUCTION," "DRAWING FOR CARPENTERS AND JOINERS," ETC.

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INTRODUCTION.

THE revival of Gothic Architecture in this country renders it important that our artisans and the public generally should receive some elementary instruction as to its principles, in order that the interest in this beautiful style, which is daily increasing, may be directed into proper channels, so that the incongruities arising from the elements of one period being confused with those of another, and the adaptation of details in a manner contrary to their original purposes, may be avoided.

The present manual is intended to give, in a concise form, the leading characteristics of each phase of ecclesiastical architecture in England, as a sequel to the volume on Masonry generally, the historical portion of which is here continued.

The construction of the arches and piers, the development of tracery, the character of the foliage, the forms of the mouldings, and the typical ornaments, &c., of each period will, it is believed, be most useful to the artisan, and give him an additional interest in his work—(and for this purpose the method of drawing the tracery, &c., is shown in the plates); whilst to the public generally the work will prove an instructive

handbook when visiting the noble ecclesiastical buildings with which our country abounds.

For some of the illustrations, and for much information, I am indebted to the works of Mr. Rickman, Mr. Nicholson, and Mr. Brandon—all authorities of the highest character; whilst on the subject of mouldings I have followed the system laid down in the lectures of the Rev. T. N. Hutchinson, to whom I am also under deep obligation for much kind instruction on the subject during my association with him.

To these authorities I have added the result of my own personal study and observation in various parts of England and the Continent, especially during a long period of residence in a cathedral city rich in specimens of Gothic architecture, and aided by the published papers and oral lectures of the Rev. Canon Blomfield, the Rev. William Massey, &c.

Respectfully then, and confidently, I place the little book in the hands of the public, in the earnest hope that it may be well received.

ELLIS A. DAVIDSON.

GOTHIC STONEWORK.

SECTION I.

A Concise Sketch of the History of Gothic Architecture.

THE title "Gothic" is generally understood, in the present day, to apply to that style of building in which the Pointed arch is the most prominent, though not the only feature.

The word has been so variously applied by different authors, that the confusion which has resulted renders it sometimes difficult to define the class of buildings meant.

The term Gothic appears to have been first brought into use by the Italians, who applied it to all such buildings as were not classic in their character. It seems to have been first used, as a term of contempt, by Vasari, an Italian architect who lived at the commencement of the sixteenth century, who after speaking of the Greek orders says, "There is another kind called Gothic, which differs materially, both as to ornament and proportion, from any of modern or

ancient date." The next sentence shows how blinded even a great man may become by prejudice. "So deficient is it in systematic rules, that it may be deemed the order of confusion and inconsistency. The portals of this description of buildings which has so much infested the world, are adorned with slender columns entwined with vine-branches, and unequal to sustain the weight, however light, which is placed above them. Indeed, the whole has an air of being made of pasteboard rather than of stone and marble. This style was invented by the Goths, who spread the contagion through Italy. May God deliver every country in future from the adoption of plans that, substituting deformity for beauty, are unworthy of further attention."

Amongst the first writers who appear to have introduced the term into England was Evelyn,* who says: "Gothic architecture is a congestion of heavy, dark, melancholy, monkish piles, without any just proportion, art, or beauty;" and yet on another occasion he describes it as "a fantastical light species of building;" thus showing how little appreciation he had of the characteristics of the style.

Our own Sir Christopher Wren† confirms the use

* John Evelyn, a distinguished writer and traveller, born 1620, died 1706.

† Sir Christopher Wren, the renowned mathematician and architect, was born in Wiltshire in 1632, and died in 1723.

of the term "Gothic" as one of contempt, for after describing certain buildings as "mountains of stone, vast gigantic buildings, but not worthy the name of architecture," he says, "This we now call the Gothic manner."

"The employment of the term and its application," says Mr. Nicholson, "seem to have arisen from the idea entertained by the Italians, that the style of building to which they applied it was introduced by the Goths after their incursion into Italy."

But the Goths did not invent this or, indeed, any style. They had no architecture of their own, and are not only innocent of introducing any new style into Italy, but more than that, they do not seem to have caused any alteration in the old. What changes did take place arose very naturally from the gradual decay of the previous styles, and the growth of feelings and sentiments wholly at variance with the paganism to which the greatest buildings in the classical styles had been dedicated.

In investigating the origin of the name Gothic, we must remember that at the period of the revival of classical architecture in England, the Pointed style had fallen into debasement, and its principles were but little appreciated or understood, and hence the desire to stigmatise it as barbarous. Since then, however, the prejudice has ceased, and the taste for the

Gothic style has revived, and thus men are anxious to clear it from any stigma which the term may be thought to imply. Various other names have been given, but certain objections, into which it is not here necessary to enter, apply to each. We therefore retain the original name as that most generally used.

The historical development of the system as herein given is based on the authority of Mr. Rickman, to whose investigations we owe so much. The following is the classification adopted:—

1. The Norman Style, which prevailed to the end of the reign of Henry II., 1189, distinguished by its arches being generally semicircular, though sometimes pointed, with bold and rude ornaments.

This style seems to have commenced before the Conquest, but we have no remains *really known* to be more than a few years older.

2. The Early English Style, reaching to the end of the reign of Edward I., in 1307, distinguished by pointed arches and long narrow windows, without mullions, and a peculiar ornament, which, from its resemblance to the teeth of a shark (Plate XVI., Fig. 1) or other animal, is generally called the "toothed" ornament.

(The reign of Edward I. was the period of transition from the Early English to the Decorated style. Many of the buildings of this reign belong to the

latter style; for instance, the Eleanor crosses, the style of which is clearly Decorated, were all erected between 1290 and 1300.

3. The Decorated Style, reaching to the end of the reign of Edward III., in 1377, and, perhaps, from ten to fifteen years longer.

This style is distinguished by its large windows, which have pointed arches divided by mullions, the tracery forming circles and other geometrical figures, or flowing into graceful curves, not running directly to the arch of the window. The gradual growth of these forms, which commenced in the Early English period, will be traced as we progress. The ornaments of this period were numerous, and very delicately carved.

4. The Perpendicular Style, which is the last. It appears to have been in use, though much debased, as late as 1630 or 1640, but only in additions. The latest complete building was probably erected in the reign of Henry VIII. The name clearly designates this style, for the mullions of the windows and the ornamental panellings run in perpendicular lines from bottom to top, and form a complete distinction from the last; and many buildings of this period are so crowded with ornament as to destroy the beauty of the design. The carvings are generally very delicately executed.

Of British architecture before the Roman era we have no authentic account; it consisted, most likely,

of huts and caves, such as generally form the habitations of uncivilised nations. The ruins of some of their stupendous public edifices—such as Stonehenge —still remain to us. The Romans on their arrival introduced, in some degree, their own architecture. A few specimens still remain, of which the gate at Lincoln is the only one retaining its original use. Although some fine examples of workmanship have been occasionally found, yet by far the greatest part of the Roman work was rude, and by no means comparable with the antiquities of Greece and Italy, although executed by the Romans.

When the Romans left the island, it is most likely that the attempts of the Britons were still more rude; and, endeavouring to imitate, but not executing on principle, the Roman work, their architecture became debased with Saxon and Early Norman, intermixed with ornaments brought in, perhaps, by the Danes.

After the Conquest, the rich Norman barons erecting very magnificent castles and churches, the execution manifestly improved, though still with much similarity to the Roman style debased; but the introduction of shafts instead of massive piers first began to approach that lighter mode of building which, by the addition of the pointed arch, and by an increased delicacy of execution and boldness of conception, ripened at the close of the twelfth century

into the simple yet beautiful Early English style. At the close of another century this style, from the alteration of its windows, by throwing them into large ones divided by mullions, introducing tracery in the heads of windows, and the general use of flowered ornaments, together with an important alteration in the piers, became the Decorated English, which may be considered as the perfection of English Gothic. This was very difficult to execute, from its requiring flowing lines where straight ones were more easily combined; and at the close of the fourteenth century we find the flowing lines giving way to perpendicular and horizontal ones, the use of which continued to increase until the arches were almost lost in a continued series of panels which, in one building—the chapel of Henry VII.—covered completely both the outside and inside, and the eye, fatigued by the constant repetition of small parts, sought in vain for the bold grandeur of design which had been so nobly conspicuous in the preceding style. The Reformation appears to have put an end for the time to the erection of Gothic edifices, and thus the style became debased, and its principles were almost wholly lost sight of. The square-panelled and mullioned window, with the wooden-panelled roofs and halls of the great houses of the time of Queen Elizabeth, seem rather a debased English than anything else; but during the reign of

her successor the Italian architecture was introduced, first only in columns of doors, and afterwards in larger portions; and this style—which was, however, only fully developed in the reign of James I.—is still known as the "Elizabethan," and is considered as the English period of the "Renaissance," or revival.

Architecture has been said to be "history written in stone." This is particularly true in relation to the Gothic; for the sentiments and feelings of the time are peculiarly impressed on each section of the style. The masons or builders of one age were wholly regardless of the plans, sentiments, or aims of their predecessors. "In every case," says Mr. Wornum, "where a great ecclesiastical work had been suspended, and renewed after intervals, those who have carried on the enterprise have invariably done so regardless of the character of the work already executed. The practice of the day exclusively decided the character of the work, as if the practical education of the handicraftsman, his accidental skill, were the paramount sources of the whole scheme and system of ornamental varieties, each mason working out only such forms as had occupied his time in the years of his apprenticeship."

The general characteristics, then, of the Gothic as an architectural style are these:—It is essentially pointed or vertical in its tendency, its details being

for the most part geometrical, in its window tracery, in its openings, in its clusters of shafts and bases, and in its suits of mouldings; but it is only geometrical in its construction, or its form—not in its spirit or motive; and at one period, plants copied directly from nature were used in beautiful profusion.

Ornamentally, the Gothic is the geometrical and pointed element repeated to its utmost. Its only peculiarities are its combinations of details, at first the conventional and geometrical prevailing, and afterwards these combined, with the elaboration of natural objects in its decoration. Thus, in the finest Gothic specimens we find, not only the traditional conventional ornaments, but in the Decorated period, also elaborate imitations of the plants and flowers growing in the neighbourhood of the work. This is a great feature, but still the most striking point in all true Gothic work is the wonderful elaboration of geometric tracery—vesicas, trefoils, quatrefoils, cinquefoils, with a variety of others which are described and illustrated further on. The Norman and the latter period of that style which constituted the transition to the Early English, cannot be considered as true Gothic, and thus we find no tracery in them; whilst it is so paramount a characteristic of the other three styles that they may be distinguished exclusively by this feature.

The following summary of the dates of each period of Gothic architecture will be of use to the student.

KINGS.	DATE.	STYLE.
William I.	1066	
William II.	1087	
Henry I.	1100	Norman.
Stephen	1135	
Henry II.	1154 to 1189	
Richard I.*	1189	Transition.
John	1199	
Henry III.	1216	Early English.
Edward I.†	1272 to 1307	
Edward II.	1307	Decorated English.
Edward III.‡	1327 to 1377	
Richard II.	1377	
Henry IV.	1399	
Henry V.	1413	
Henry VI.	1422	
Edward IV.	1461	Perpendicular English.
Edward V.	1483	
Richard III.	1483	
Henry VII.	1485	
Henry VIII.	1509 to 1546	

* The reign of Richard I. was the chief period of the transition from the Norman to the Early English style. The change began perhaps a little earlier in a few instances, and continued a little later, some buildings of the time of King John being of Transition character.

† The Transition from the Early English to the Decorated style took place chiefly in the reign of Edward I. The Eleanor crosses belong rather to the latter than the former style.

‡ In the latter part of the long reign of Edward III. the transition from the Decorated to the Perpendicular style began, and was almost completed by the time of the accession of Richard II. Some buildings of the Decorated style may be found of his reign, but the works of William of Wykeham, West-

SECTION II.

The Divisions of Ecclesiastical Buildings.

In order that the position of the details forming the subjects of the following chapters may be clearly understood, it is necessary to explain some of the terms which are employed in relation to the churches or other buildings which exemplify them.

Most of the ecclesiastical structures of the Middle Ages were built in the form of a cross, with a tower or spire erected at the intersection. The interior was usually divided thus—

The Nave. The space westward of the central tower—the body of the church—reaching from the choir to the principal door.

This name is applied equally to the body of the church whether the plan is that of a cross or not, and whether with or without aisles.

The Aisles (from the French *aîle*, a "wing"). The spaces outside the piers of the nave, choir, or transepts, and forming a passage or alley on each side

minster Hall, and many other buildings of this period, are of very decided Perpendicular character. Perhaps one of the earliest and best authenticated examples of this transition, showing a curious mixture of the two styles is Edington Church, in Wiltshire, founded by Bishop William, of Edington, in 1352, and consecrated in 1361. The same bishop, who died in 1366, commenced the alteration of Winchester Cathedral into the Perpendicular style, which was continued by William of Wykeham.

of the nave extending to the outer wall of the building.

Choir. The space eastward of the central tower—the continuation, as it were, of the nave on the opposite side of the base of the tower. In the early Christian churches it was simply part of the nave enclosed by a low wall, and forming a place in which sat the singers who chanted the services; hence the name. (Latin, *chorus;* Italian, *coro;* French, *chœur;* German, *chor;* old English, *quire.*)

Transept. That portion of a church which passes across the nave and choir, and thus forms the two arms of the cross in the plan, the central tower standing on the intersection. Commonly each arm is spoken of as a separate (as north and south) transept, although, strictly speaking, the transept is one. Transepts, in most instances, match each other exactly, or are in pairs. At Exeter are two noble Norman towers, which are supposed to have been the western towers which flanked the original Norman front. At Chester one transept is of Norman work, while the other is of the Decorated period, and is much elongated. It is supposed to have been built as a separate church, and is so used at the present time.

The choir is generally enclosed by a **Screen,** on the western part of which is usually placed the organ;

which is now, however, often placed on one side of the church.

The choir in cathedrals does not generally extend to the eastern part of the building, but there is a space behind the altar called the **Lady Chapel.** (The Lady Chapel is not always at the east end of the choir. At Durham it is at the west end of the nave, and at Ely on the north side.)

The choir is only between the piers, and does not include the side aisles, which serve as passages to the Lady Chapel, altar, &c.

Chancel. A part separated from the rest of the church by a screen (*cancellus*). The term is now used to signify the choir of a small church.

The Apse. The semicircular or polygonal termination to a church. These forms were, no doubt, derived from the *concha* or *bema* in the classic and early Christian basilica.

Porches are covered erections, forming a shelter to the doors, which have sometimes vestries, schools, &c., over them.

Chapels are attached to all parts, and are frequently additions.

The Chapter House is the chamber in which the chapter, or heads of the monastic bodies, assembled (as the Dean and Chapter now do) to transact business. They are of various forms; some are oblong

apartments, as Canterbury, Exeter, Chester, Gloucester, &c.; some octagonal, as Salisbury, Westminster, Wells, York, &c. That at Lincoln has ten sides; that at Worcester is circular.

Cloister. An enclosed quadrangle, with a walk or ambulatory round, sheltered by a roof generally groined, and by traceried windows, which were more or less glazed. Cloisters were used for exercise in bad weather, and for reading and meditation in the shade, when the season was hot: they also formed a covered communication between different parts of the monastery. The usual place for the cloister is the south side of the nave. At Canterbury, Gloucester, and Chester, however, they are on the north.

Any building above the roof may be called a **Steeple.** If it be square-topped, it is called a **Tower.**

The tower may be round, square, or multangular. It is often crowned with a **Spire,** and sometimes with a short tower of light work, called a **Lantern.** An opening into the tower in the interior above the roof is also called a lantern. When a tower is of great height, in proportion to its diameter, it is called a **Turret.** These often contain staircases, and are frequently crowned with small spires.

Clearstory, or **Clerestory.** When the middle of the nave of a church rises above the aisles, and is pierced with windows, the upper storey is thus called.

Sometimes these windows are very small, being merely quatrefoils or spherical triangles. In large buildings they are important objects, both for beauty and utility. The windows of the clerestories of Norman work, even in large churches, are of less importance than in the later styles. In Early English they become larger, and in the Decorated are more important still, being lengthened as the triforium diminishes. In Perpendicular work the latter often disappears altogether, and in many later churches, as at Taunton, the clerestories are close ranges of windows.

Triforium. The arcaded storey between the lower range of piers and arches and the clerestory. At Durham and Westminster it is called the "nunnery," and the tradition is that the nuns sat there during the services, hidden by curtains; which is not at all improbable, since this is even now the case in some churches at Rome.

Presbytery. That part in the chancel of the church set apart for the officiating priests.

Crypt (sometimes called the "Undercroft"). The vaulted apartment beneath a church, either entirely or partly under ground. Crypts owe their origin to the circumstance of the early Christians being compelled, for the sake of secrecy and concealment, to perform their sacred services in caves and subterranean places, some of which are still pointed out at Rome. Crypts

are not unfrequent, especially under large churches. They seldom, however, extend the whole length of the church, being usually confined to the choir or chancel, and sometimes not extending so far as this. They are usually low and massive, of an earlier and plainer style than the superstructure.

Crypts were formerly used for service, and accordingly are provided with altars and other furniture requisite for the purpose. The most extensive building of this kind is that under Canterbury Cathedral, a portion of which is said to have been built by Lanfranc, in the time of William the Conqueror. The south-west corner of the crypt is called the French Church, which is still used for Divine service.

The following sketch of the internal arrangement of a church is quoted from Mr. Peter Nicholson :—

"On entering the church through the wicket at the entrance of the porch, we sometimes notice on the right-hand side of the door, often projecting from the wall, and partly covered by a niche, a stone basin, which is called a *stoup* or *aspersorium*, from its use, which was to contain the holy water, with which, in olden times, the worshippers sprinkled or crossed themselves before entering into the body of the church. This was a very ancient practice, and was adopted in a somewhat different shape by the early Church; the small stoup, in fact, is a substitute for

the fountain to be seen in front of the Constantinian churches, at which Christians were accustomed to wash before entering the sanctuary. The ceremony is typical of the purity of mind which should accompany our devotions.*

"Before proceeding further, we may notice the stone seat or bench-table, which runs along the sides of the porch, and is occasionally covered with an arcade, and sometimes surmounted with a window to give light to the porch. In ancient times several religious ceremonies took place in the porch, especially those preliminary to baptism and matrimony. Having passed under the inner arch of the porch, we are now fairly in the church, and the first object to attract our attention is the font, which is placed near the principal entrance. The exact locality is not fixed, being sometimes in the central avenue of the nave, opposite the entrance, and at others under one of the arches of the aisle, near the porch, in which case it frequently adjoins one of the adjacent pillars. It is not unfrequently raised on a series of steps, which give it a more imposing appearance, and has always a space left around it for the accommodation of the priest, sponsors, &c.; for the former there is some-

* The custom of washing hands before prayers, or any religious ceremony —for the reason given in the text—is evidently of Jewish origin, and is strictly observed at the present day. A laver, or piscina, has always been, and still is, placed in the vestibule of every synagogue.

times a kneeling-stone on the west side. Fonts in a perfect state are provided with covers, generally of wood, some flat, and others of a pyramidical form, more or less enriched. We here speak of fonts as they were in former times, not as they are now found in old churches, for the original ones are sometimes not only moved from their ancient positions, but even taken out of the church, and altogether discarded. On proceeding further into the church, the next object which probably strikes our eye is the chancel, and at its extremity the altar, with its appendages; but as this has been described in its proper place, we shall not stop to reconsider it here; nor must we, in fixing our attention on the more striking portion of the edifice, overlook the pulpit. Few pulpits are to be met with of an earlier date than the fifteenth century; the oldest which remain are of stone, built up with the fabric, from which circumstance we may infer that they are coeval with the entire structure. There is a beautiful specimen at Beaulieu, Hants, which is attached to the wall, and entered by a staircase partly cut out of its thickness; another specimen is to be found in the church of the Holy Trinity, Coventry, which is attached to one of the piers of the building. The later pulpits are of oak, usually of an octagonal form, having the sides panelled and enriched with carving, and the whole sometimes sur-

mounted with a richly-groined canopy projecting over the head of the preacher. The position of the pulpit was probably always at the north-east or south-east end of the nave, near the arch which separates the nave and chancel."

SECTION III.

Of Gothic Arches.

THE general construction of arches having been given in "Building Construction," it will only here be necessary to describe the characteristic forms of those which are associated with that period of architecture which is the subject of our present study.

PLATE I.

It has been said that the semicircular arch, Fig. 1, is characteristic of the Norman period. Although, however, it is certain that the Norman arches were generally of this form, it is equally certain that they were not so universally. A form is frequently found in which the spring of the arch does not take place from the *abacus* or upper member of the capital, but at some distance above it. An arch of this kind is said to be stilted (Fig. 2).

There can be no doubt that this form of arch was

not so much a matter of taste as of necessity. It is evident that the arches were stilted to admit of constructing the vaulted roof according to the simple method then known; one essential feature of which required the four arches of the vault to be of the same height. Stilted arches sometimes approach the *horse-shoe* form (Fig. 3), in which the centre is above the springing. It is probable, however, that this form is seldom intentional, but the result of imperfect construction.

Pointed Arches are either—

1. The Lancet arch (Fig. 4), described about an acute-angled triangle, A, B, C, the radius (*d*, *c*) being longer than the width of the arch (A, B.)

2. The Equilateral arch (Fig. 5), described from two centres (A, B), which form the extremities of the span of the arch; which is thus described about an equilateral triangle, A, B, C.

3. The Drop Arch (Fig. 6), which has a radius (A, B) shorter than the span of the arch, and is thus described about an obtuse-angled triangle (C, B, D).

All these Pointed arches may be of the nature of segmental arches (Fig. 7); that is, having their centres below their springing.

Mixed Arches consist of—

1. The Three Centres (Fig. 8), which may be called semi-elliptical, since they are constructed on the prin-

ciple used in drawing the ellipse—or, rather, the figure approximating to it, since no portion of a true ellipse is really a part of a circle. This method has been shown in "Linear Drawing," and its adaptation in the present instance will be seen from the figure.

2. The Four-centred, or Tudor Arch (Fig. 9), which has two of its centres in or near the spring, and the two others far below it.

3. The Ogee, or contrasted Arch (Fig. 10), which may be taken as characteristic of the Decorated period. This form of arch has four centres; two in or near the spring, and two above it and reversed.

It has been usual to connect the pointed or lancet arch as the characteristic feature of the Early English period. Mr. Rickman has, however, shown that this is far from being the case; and that whilst every form of arch, with one exception, is found in Early English buildings, so the lancet arch occurs in both the succeeding styles; the single exception referred to being the four-centred, or Tudor arch (Fig. 9), which is the peculiar property of the Perpendicular style.

It is, however, true that the lancet arch is the form that most commonly occurs in the windows of this period, and almost every Early English building pre-

sents examples of either single, double, or triple lancets. But however frequently this form may have been chosen as the favourite arch for *windows*, it is certain that a much wider range was allowed for doorways, pier-arches, and arcades; it is not uncommon even to meet with instances of the semicircular arch in doorways of undoubted Early English date.

The space included between the arch and a rectangle formed at the outside of it, is called a **spandril** (Fig. 11). This is often filled with characteristic ornamentation, which is described in due course (p. 80).

We must now speak of another class of arches, the introduction of which is generally referred to the Early English period — viz., *foiled* and *foliated* arches.

A **foiled** arch is formed by uniting three or more small arches together, each springing from the adjacent ones, the result being called a trefoiled, cinquefoiled, &c., according as three, five, or more arches are united in its formation. Thus, Fig. 12 is a trefoiled arch, and Fig. 13 a cinque-foiled arch.

A **foliated** arch is a foiled arch placed within a simple arch, as in the following two figures. The arch in Fig. 14 is said to be *trefoliated*, and that in Fig. 15 to be *cinque-foliated*.

This distinction was first pointed out by Professor Willis. It is of considerable importance, since it

appears that the *foiled* arch was introduced at an earlier period than the *foliated*—the latter being a fuller development of the former.

Foiled arches of a very rude description are sometimes found even in late Norman work, and appear to have been introduced either immediately before or simultaneously with the pointed arch; for in a window in the Pythagoras' School, at Cambridge, there are two foiled lights gathered under a semicircular head. On the Continent this introduction took place rather earlier; but in our own country we have very few instances of foiled arches before the commencement of the thirteenth century.

The foliated arch was at first treated as an independent construction; it was formed of separate voussoirs, and had its own subshafts to support them. In such arches the entire foliation might be removed without affecting the arch enclosing it. This independence of the arch and its foliations became less and less frequent as the style advanced, and ultimately the foliations were reduced to mere excrescences, growing, as it were, out of the enclosing arch. It is in this form alone that they are found in the Decorated and Perpendicular styles.

Foliated arches are sometimes called "*feathered.*" The points where the foliations of arches meet are called **Cusps.**

SECTION IV.

The Norman Period: its Masonry, Arches, Mouldings, and Ornaments.

THE Norman style is closely allied to the debased Roman examples of the Eastern and Western Empires, and may be considered as a subdivision of the Romanesque.

This style flourished principally and primarily in Normandy, and hence its name. It became, however, prevalent in countries where the Normans obtained influence, and amongst others, in England.

The exact date of its introduction into this island has been much disputed. Some historians affirm that it was but a development of the previously existing Saxon; others, that it was introduced by Edward the Confessor; whilst a third party maintain that it was brought over by William the Conqueror.

It is, however, certain that the style became fully developed soon after the Conquest, and it may be said to have prevailed from the middle of the eleventh to the latter part of the twelfth century, or to the close of the reign of Henry II. It is styled generally the English style of the twelfth century, and dates from 1066 to 1170; or, if the Transition or Semi-Norman be included, to 1200.

PLATE I.

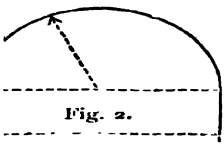


Fig. 2.

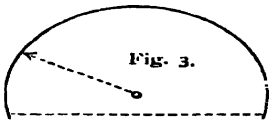
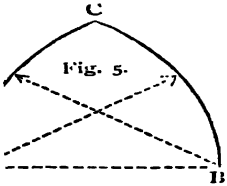
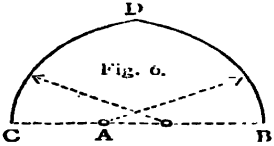
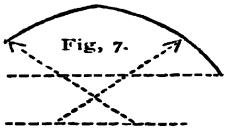


Fig. 3.







Fig, 7.

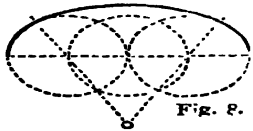


Fig. 8.

ig. 11.

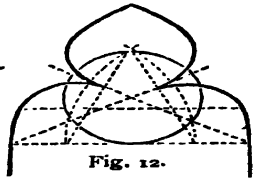


Fig. 12.

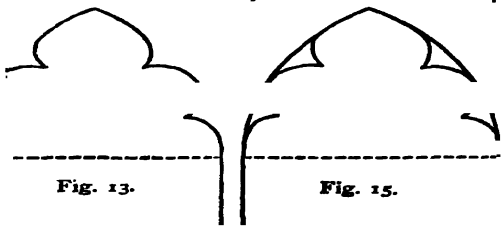


Fig. 13.

Fig. 15.

The Conqueror and his countrymen (says Mr. Nicholson) "were great builders, and the monkish chroniclers tell us that after their arrival, churches were erected in almost every village, and monasteries were seen to arise in the towns and cities designed in the new style of architecture. From Doomsday Book we learn that the number of churches had increased to such an extent, that at the time of its compilation there were no less than seventeen hundred in existence."

The plans of the larger churches belonging to this period, such as those of cathedrals and other ecclesiastical establishments, are usually cruciform, having a low, massive tower at the intersection of the nave choir, and transepts, the choir being frequently terminated with a semicircular apse.

The aisles of the nave are frequently continued at the side of the choir, and round the apse; and in this case the high altar is situated between the easternmost piers with a screen or reredos at its back stretching between the piers. Thus a space was left here behind the altar which was named the "*retro-altar*," and this allowed of processions passing entirely round the church.

In some instances the choir is surrounded with chapels, having likewise apsidal terminations. The aisles were extremely narrow, sometimes not more

than from four to six feet in width. The western façades are occasionally flanked by towers, but more frequently by only turrets or buttresses.

The walls of buildings of this period were of immense thickness; but the masonry was not in all cases solid, being composed of two external walls or facings of "Ashlar" work (see "Drawing for Stonemasons"), having the intermediate space filled in with grouted rubble, gravel, flints, &c. Sometimes, however, the walls were made up of solid rubble work, with quoins of Ashlar. The joints of Ashlar in early work are extremely wide, being frequently as much as an inch in thickness. Many walls of the first description have failed from the outward pressure of the core of loose material; and it is not an unfrequent occurrence to see a Norman wall considerably out of the perpendicular. The introduction of buttresses at a later period led to a great improvement in the construction of walls, adding materially to their efficiency and strength, while at the same time it lessened the consumption of material.

The arches built by the first Norman architects were more or less of a semicircular form, and of a very plain description. When the wall in which they were constructed was only of a moderate thickness, they generally consisted of a single course of stones or "voussoirs," the *edges of which were left square;*

as already stated, the walls were usually of very great thickness, and when this was the case two, three, or more courses of voussoirs were employed, each course receding from the face of the ring of masonry by which it was surrounded.

PLATE II.

Fig. 1 is an example of the first kind, taken from the Triforium Arcade in the north transept of the cathedral at Chester, probably one of the most ancient of the Norman portions of the edifice. It would be described architecturally as "a semicircular arch of a *single order*, with square edges"—the term "order" being in this case used to designate the course of stones of which an arch is formed.

Fig. 2 is a sketch of the spring of the tower arches of St. John's, Chester, showing the method of construction. There are three courses of voussoirs, forming three receding faces. These arches would be described as of "three orders with square edges;" or simply as "triple recessed arches with square edges."

PLATE III.

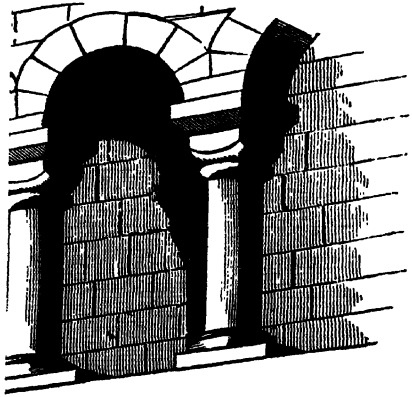
The first step towards the introduction of mouldings appears to have arisen from the desire to do away with the massive and rude appearance of the square edges, and to lead the eye gradually from the front

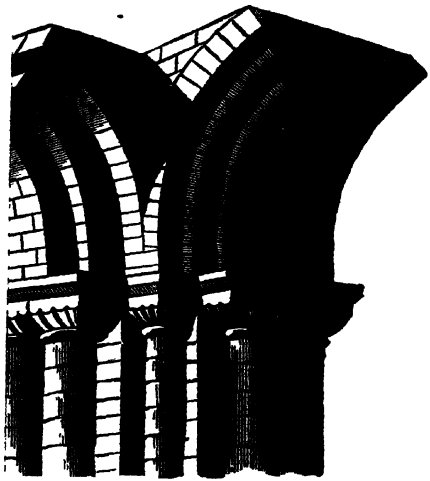
plane of the wall to the central plane of the aperture, instead of by the sudden step-like rims which a series of "square-edged orders" presented.

The simplest way of doing this is by cutting away or removing the square edge. An arch of two orders with chamfered edges is shown in Fig. 1. It is taken from the ruins of the priory at the east end of St. John's, Chester. "It is, however, remarkable," observes the Rev. T. N. Hutchinson (whose excellent lectures and writings on this special section of the subject are often referred to), "that, simple as this method is, it does not appear to have been the first resorted to. The arch in question is of late date for Norman work, if indeed it be not of Transition character. It is also remarkable that this way of removing the square edges of two or three orders continued in use during all the subsequent styles of Gothic architecture."

The earliest attempts at removing the plainness of the chamfered edges consisted in simply rounding them off, thus giving the appearance of a heavy semi-cylindrical ring. The first of the three orders, or "sub-arch," as it would be correctly called, is frequently found rounded off in this way. There is a good example in the south aisle of the choir of St. John's, Chester, a section of which is illustrated in Fig 2. A more effectual way, however, was generally

PLATE II.





followed. Instead of simply rounding off the edge, a portion of the stone on either side was cut away, thus leaving the cylindrical roll clearly defined, and affording a more decided effect of light and shade. Fig. 3 is an example of this method; it occurs in an arch in the west cloister of Chester Cathedral, formerly leading to the abbot's apartments. In this figure it will be observed that two of the orders are left with the square edges, the first or sub-arch only having the moulding referred to. The mediæval name of this moulding is the "bowtell," but it is more frequently spoken of as the "Norman edge roll."

The roll moulding with side hollows appears to have been the only attempt at this kind of decoration in use among the early Norman architects. They confined their ingenuity to ornamenting the flat surfaces of their arches with rude sculpture, and arches of two or more orders are constantly found, in which the entire surfaces are covered with bands of ornaments, in some, as the west door of Rochester, the entire semicircular space (or tympanum) between the arch and the springing is filled in with sculpture.

One law, however, pervades all the Norman mouldings. They are invariably arranged on rectangular faces, so that two lines at right angles would exactly touch the front face and under portion of the moulding.

These planes have been distinguished by Mr. Paley as the wall plane — that is, any plane, A A (Fig. 4), parallel to the main wall; the soffit plane, B, or any plane at right angles to the face of the wall; and the chamfer plane, C, or such plane (Fig. 5) as is generally, but by no means invariably, placed at an angle of 45° with the two planes before mentioned.

Norman Piers.—These are of four kinds.

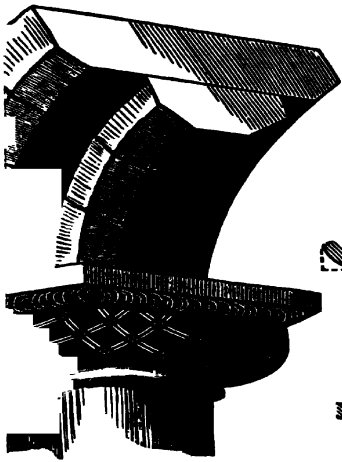
1st. Round, massive, columnar piers, which have sometimes a round and sometimes a square capital. They are sometimes plain, and sometimes ornamented with channels in various forms; some plain zigzag, some like network, and some spiral. They are met with of various heights, from two to six, or even seven diameters.

2nd. Multangular. Generally octagonal, as if the pier had been originally square, and the angles chamfered off as in the case of the mouldings. These are often met in connection with arches more or less pointed.

3rd. Common piers with shafts. These have sometimes plain capitals, but are sometimes much ornamented with rude foliage, and occasionally animals. The shafts are mostly set in square recesses in the angles of square piers.

4th. A plain pier, with perfectly plain semicircular arches in two or three divisions.

PLATE III.



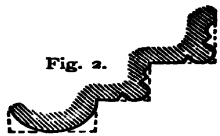


Fig. 2.

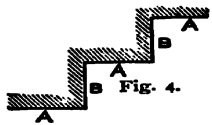


Fig. 4.

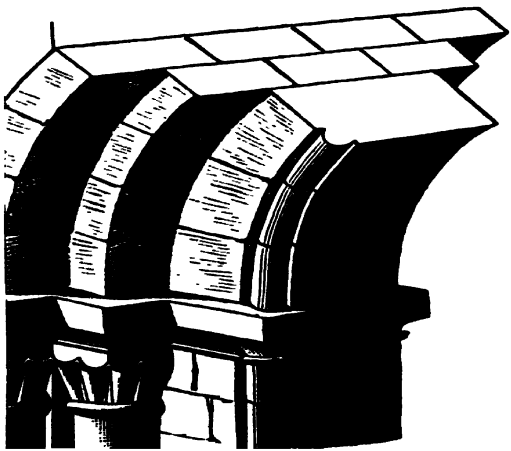


PLATE IV.

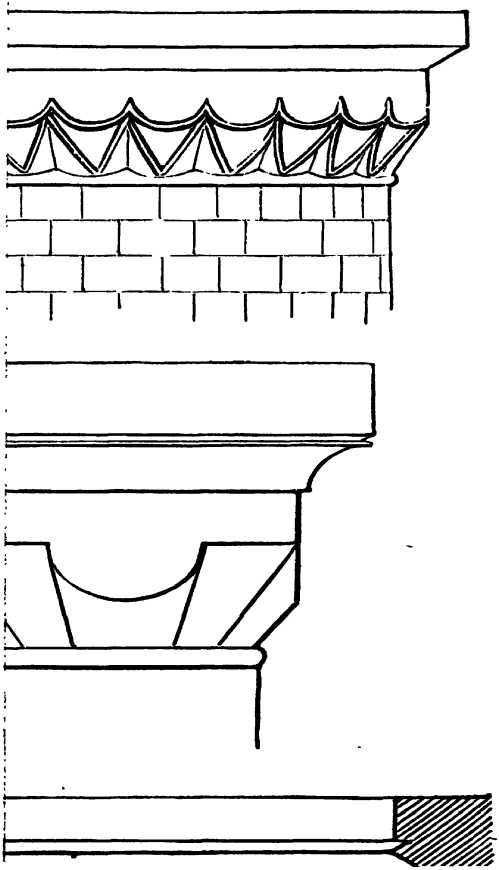
Norman Capitals are of great variety of character. Some are rude and unskilful imitations of classical examples, but the most common is the "Cushion Capital" (shown in Plate II., Fig. 1). This is of cubical form, being rounded at the lower end to meet the shaft, the profile of the curve presenting somewhat of the appearance of the ovolo moulding. Sometimes the capital consists of many such figures of smaller dimensions, placed side by side (Fig. 1, Plate IV.), the flat surface presenting a scalloped appearance, and beneath each of the scallops is a kind of inverted cone, which meets the neck mould of the shaft. Some have interlaced bands and some foliage carved in slight relief, whilst others are sculptured with grotesque representations of men and animals. Fig. 1, from St. John's, Chester, and Fig. 2, from Waltham Abbey Church, Herts, are examples of the capitals alluded to.

Fig. 3 is a feature of constant occurrence in Norman architecture. This is the moulding of the square abacus over the flowered or cut part of the capital. It consists of a broad fillet or hollow, separated by a sunk channel, and it is sometimes continued as a tablet along the wall.

PLATE V.

Norman Ornaments.—The main feature in the Norman method of ornamentation consisted in the sculptured bands worked around the arches. These have been called *mouldings;* they are not, however, really such, but merely *decorations* of the mouldings. These ornaments are almost infinite in their variety, and all of a peculiar description. They appear in some instances after additions, worked on the originally unadorned surface of the masonry; but in most cases they were evidently worked on the block before construction. Amongst these bands, the earliest and most general is the Chevron or Zigzag (Fig. 1), which is frequently met with doubled, trebled, and quadrupled. The next most common on door-mouldings is the Beak-head (Fig. 2), consisting of a hollow and a large round. In the hollow are placed heads of beasts or birds, whose tongues or beaks encircle the round. In the west door of Iffley Church, Oxfordshire, two whole orders are covered with these beak-heads, which extend the entire length of the jamb down to the base moulding. We also find the Alternate Billet (Fig. 3), the Double Cone (Fig. 4), the Star (Fig. 5), the Square Billet (Fig. 6), the Lozenge (Fig. 7). Amongst others we find the Embattled, the Dovetailed, the Interrupted Arch, the Open Heart, the Pointed Arch, &c.

PLATE IV.



The immense number of these ornaments are here only indicated, our limits precluding further illustration of them.

PLATE VI.

Fig. 1 is a view of the doorway of the porch of St. Mary's Church, Walmer, Kent, which, although small, is exceedingly characteristic of the style. The "outer order" is divided into three bands which are ornamented, two with the "indented" or "trowel-point" band, and the one with billets alternately broad and narrow. The indented presents the appearance of a stuccoed wall which has been pressed with a trowel-point before setting, the point being pressed deeper into the mass than the broader portion of the blade. The second order consists of a hollow and roll moulding, and the third is left unadorned. Fig. 2 is a portion of the ornamental bands enlarged.

PLATE VII.

This plate gives a view of a portion of the chancel arch of the same church. In this example it will be seen that the abacus—that is, the flat block which rests on the capitals—is continued from course to course, and round the jamb, being ornamented with a kind of diaper, formed of squares divided by lines parallel to the sides and by diagonals. The result is a star, which is worked very shallow, thus not destroying the

flat character of the abacus. The capital is of the cushion character, but its height being greater than is usual, and the flat part being recessed in a kind of trefoil form, it has a rather elegant appearance, especially as the column is far more slender than is common in Norman work. The outer ring of the arch has been covered with an ornamental band, which would seem to have been somewhat similar to the classic moulding called the "Egg and Dart." There is, however, only the barest trace of this remaining. Next follows the zigzag, and in the next order we again have three bands worked on the same ring —namely, a single indented pattern, which is merely another rendering of the zigzag, and which may perhaps have suggested the tooth ornament which forms so distinguishing a feature in the succeeding period. Next to this comes the "pellet" or stud, which consists of circular pellets placed next to each other, and the inner band is ornamented with the "trowel-point."

Norman Windows.—The windows at this period form but subordinate features in the buildings, and in earlier examples are little better than slits or narrow oblong apertures, often not exceeding a few inches in breadth, and finished with a plain semicircular head. The glass was inserted close to the external wall, and the sides of the aperture were splayed towards the interior. The proportions of the Norman windows,

PLATE VI.

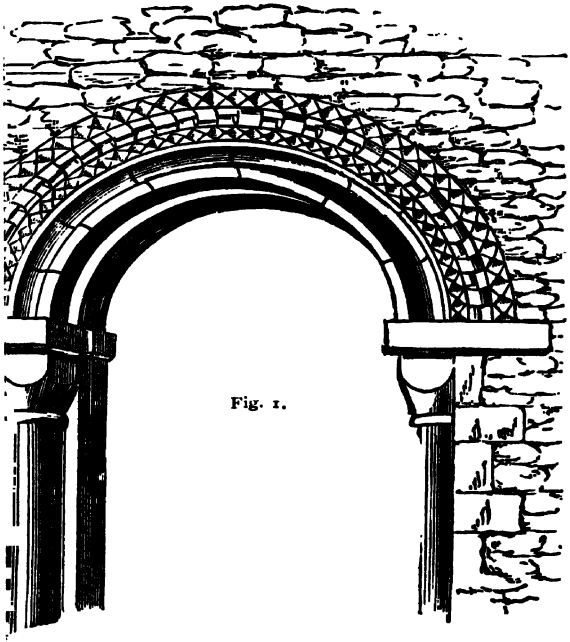


Fig. 1.

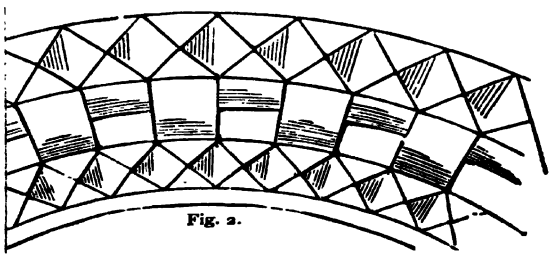


Fig. 2.

as a rule, are the same as those of the doors, and very rarely exceed two squares in height, including the exterior ornaments. After a time the window-arches were enriched by the zigzag and other mouldings, and at a still later period an important improvement was made by inserting nook-shafts in the jambs, similar to those in doorways. A window of a still more advanced character is often found in the upper storeys of towers. It consists of two lights, with semicircular heads, separated by a central shaft, and having a jamb shaft on each side. The two lights are enclosed under a larger semicircular arch, the spandril of which, however, is rarely if ever pierced. Plain circular windows of small dimensions are sometimes seen in clerestories and other positions; and in churches of later date are occasionally found in gable walls larger windows of the same form, with small shafts radiating from the centre, connected at the circumference by semicircular or trefoiled arches. There is a fine example at Barfreston, Kent.

Semi-Norman, or Transition from Norman to Early English.

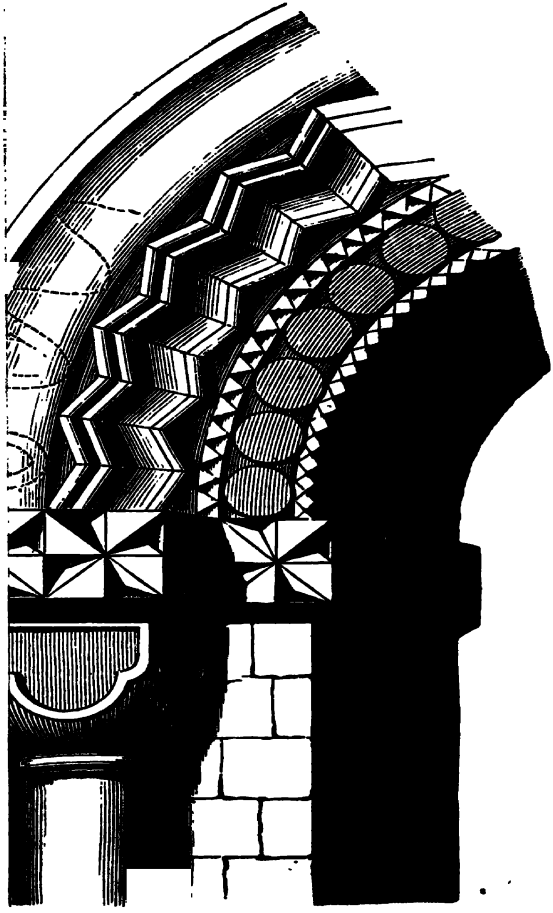
PLATE VIII.

To a period somewhat earlier than the middle of the twelfth century may be ascribed the first appear-

ance of that change in the arch which in the thirteenth and the two following centuries became generally prevalent. The arch alone, however, is no real test, for "many pure Norman works," says Mr. Rickman, "have pointed arches. The square abacus, however, may be taken as the best mark. The pointed arch, in its incipient state, exhibited a change of form only, whilst the accessories and details remained the same as before; and although this change gradually led to the Early Pointed style in a pure state, with mouldings and features altogether distinct from those of the Norman, and to the general disuse, in the thirteenth century, of the semicircular arch, it was for a while so intermixed as, from its first appearance to the close of the twelfth century, to constitute that state of transition called the Semi-Norman."

It has already been said that pointed arches were introduced during the latter part of the twelfth century. Before its close they were used in many varieties of form, from the barely-pointed or low "drop" arch to the acute lancet. Fig. 1 is a Transition doorway in the north wall of the ruins of St. John's Priory, Chester, in which will be seen not only the pointed arch, but the square abacus, to the now shaftless capitals. Fig. 2 is an enlarged section of the arch-moulding, from which it will be seen that the regular character of the several orders was still

PLATE VII.



retained; but the mouldings cut upon them became more varied and numerous, and several new forms were introduced. In this figure the first order is plain, with the square edge; the second has the simple Norman edge-roll; but the third is of a more complicated character. The edge-roll has *two* hollows on each side, and the second has the sharp indented line carried round it.

The most important form, however, introduced during this period of transition was the "roll and fillet," a moulding which continued to hold a leading place in the combinations of all the succeeding styles. It may be described as a narrow band or fillet, set flat upon the face of the common cylindrical roll or bowtell. In the earlier examples it is mostly set square upon the round member, as in Fig. 3; but it is often found with the joining edges rounded off so that the fillet merges gradually into the roll, as shown in Fig. 4.

An example of the manner of placing this moulding in the Transition style is given in Fig. 5.

For the elementary geometrical figures on which these forms, and those of the more advanced tracery, are based, the student is referred to "Linear Drawing" —Technical Manuals, vol. 1.

SECTION V.

The Early English Period.

THIS style, the first of the pointed arches, may, in general terms, be called the thirteenth century style, extending, on the whole, as it did from about 1180 to about 1300, including part of the reign of Henry II., Richard I., John, Henry III., and Edward I.

The architecture of this period is exceedingly beautiful and chaste; simple and elegant in design—excellent and delicate in execution; equally applicable to the modest village church and the noble abbey and cathedral; remarkable in the one for its unobtrusive simplicity, and in the other for its solemn and majestic grandeur.

"Nothing," says the Rev. J. N. Hutchinson, "could be more striking than the change from Norman to Early English. The two styles were the complete opposites of each other. The round arch was replaced by the pointed, often by the acute lancet; the massive piers by graceful clustered shafts; the grotesque and rudely-sculptured capitals by foliage of the most exquisite character; and the heavy cylindrical mouldings by bands of deeply-undercut members."

The most generally used arches at this period were the acutely pointed, either lancet or equilateral. As

a rule, the arches are comparatively more acutely pointed in cathedrals and the larger churches, whilst the obtuse angles are most frequently used in the smaller churches.

The semicircular arch had not entirely gone out of vogue, and at Whitby Abbey, and in other examples, we find it combined with the pointed, two or more of the latter being sometimes included under one of the former. There are also examples in which the semicircular form is used alone. The soffits of the arches were, in the larger examples, richly moulded with a series of rolls and hollows in a manner which will be more explicitly referred to further on, but in buildings of a less magnificent character they were merely recessed in orders, the edges being simply chamfered.

The dripstones over doors or single windows follow the form of the arch; but where the windows consist of several separate lights—that is, where each window is made up of several others placed close together—the dripstone forms a sort of gathering arch over all. This seems to have led to the introduction of tracery, the progress of which will be illustrated presently.

The doorways of this period are very frequently furnished with nook-shafts, which are for the most part detached from the walls, except at the capitals and

bases. The more simple doorways have only one shaft on either side, supporting an archivolt of a few bold mouldings. More elaborate specimens have two or more shafts on either side, and a greater number of mouldings in the arch.

The jamb is recessed in order to receive the shafts, and the spaces between the mouldings or their hollows are often filled up with an ornament called "the dog-tooth"—a leading type of the style—or a running pattern of foliage. A beautiful specimen of such a doorway may be seen in the ruins of Valle Crucis Abbey, near Llangollen, North Wales, where there is also a fine three-light window of a very large size, three lancet-headed lights being gathered under one dripstone. The doorways of the larger structures are mostly divided into two-arched apertures by a simple or clustered shaft, which is often of polished marble with richly-carved or moulded capital. The arches are also foiled or foliated, the spandril between them being perforated in circles, trefoils, &c., and sometimes filled with foliage or groups of sculpture.

The doors themselves are either plain or covered with iron scroll-work, and sometimes with hinges, which are often of a very ornamental character, although at other times nearly plain. An excellent specimen of such iron-work exists on the doors of a vestment-closet in one of the small chapels in Chester

PLATE VIII.

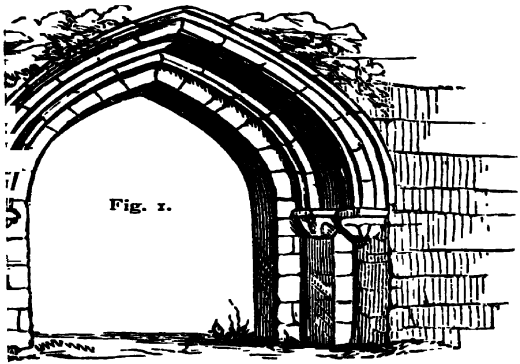


Fig. 1.

Fig. 3.

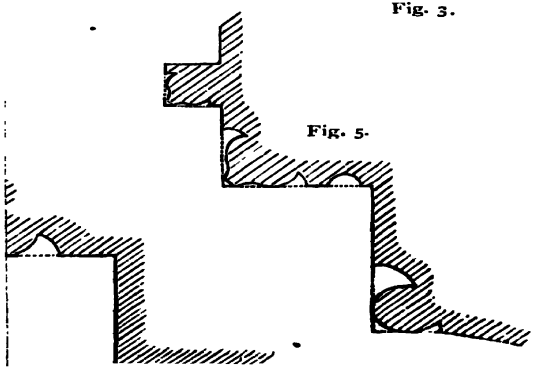


Fig. 5.

Cathedral, and in the Chapter-house, York Minster, of which illustrations will be given in another volume.* Very fine ornamental hinges, covering almost the whole door, may be seen at Eaton Bray Church, Bedfordshire, at St. Mary's, Norwich, &c.

Of Early English Windows.

ONE of the most interesting branches of the study of Gothic architecture is that connected with the history and progress of windows, marking as it does the gradual development from the most simple forms to the culmination in the grand tracery which characterises the windows of the next period; the increase of size and falling off in the graceful forms in the subsequent style; the flattening of the arch and consequent diminution of the tracery, and finally the decay of the whole system.

PLATE IX.

The windows of the style now under our consideration are, for the most part, long and narrow, with acutely-pointed heads (Fig. 1). The earliest and simplest form is that of a long, narrow, single light with arched head, and without moulding of any kind, either internally or externally, the exterior angle being

*_"Gothic Wood and Iron Work."

merely chamfered, and the interior widely splayed.* Such windows were sometimes without any weather-moulding, but occasionally a string-course was carried from one window to another at a level with the springing of the head, and then lifted over it, adopting its form, and then carried on to the next aperture. As the period advanced, these windows were placed near each other, in groups of two, three, five, or more, the first being usually found in the sides of churches, and the latter at the east end, except in very large buildings, where it is found in all positions. It has been mentioned that where windows of more than one light were employed, it was a common practice to include them under one dripstone, the head of which was left plain. Such a window is shown in Fig. 2, and from this it will be seen how the introduction of tracery became necessary for the beauty and lightness of the form.

PLATE X.

The separate lights of these windows are generally placed at some distance apart on the exterior, so as scarcely to appear as if belonging to the same window; but in the interior, owing to the great splay given to

* *Chamfer—Splay.* Both these terms mean cutting away the edge of anything which was originally right-angled, so that instead of an edge, a slanting surface may be presented. A chamfer differs from a splay in being smaller, and usually cutting off equal portions from either side. It will be understood that by splaying the inner sides of narrow windows, the rays of light were permitted to spread, and thus the interior was better lighted.

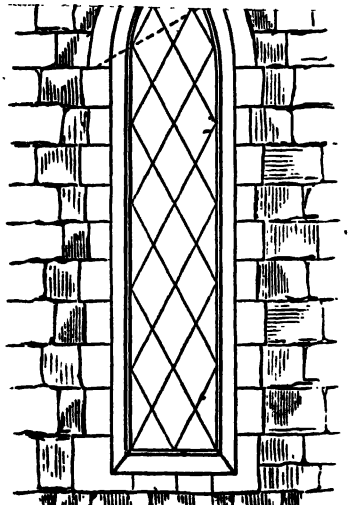


Fig. 1.

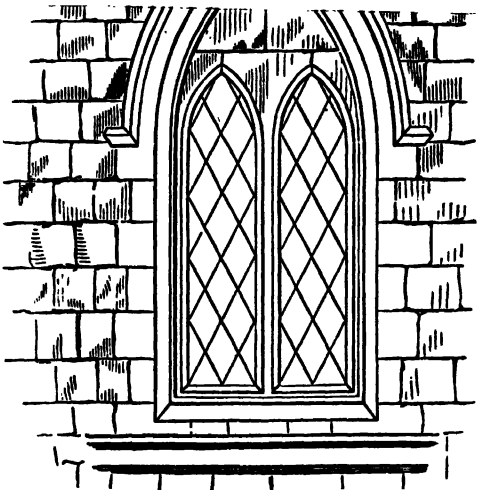


Fig. 2

each light, the distance between them appears inconsiderable, giving them the appearance of a single compound window.

In windows of three lights, such as that from Stanton Harcourt, Oxfordshire, shown in the plate, the centre one is almost always the highest, its head rising considerably above the others so as to preserve the arched appearance of the whole. Windows of four lights, with centre pair rising above the outer ones, are occasionally met with, but the most general by far are those of three, five, or seven lights, rising in height to the centre one. These lights were sometimes gathered under a single arched dripstone, as in the west window of the south aisle of Oundle Church, Northamptonshire, and often covered by a dripstone, which, like the string-course already alluded to, covers first one light, is carried on horizontally, rises to the level of the springing of the next, follows the arch, descends to the level of the next springing, and so on, producing a very graceful effect. The window shown in Plate X. is an excellent example of this kind of dripstone.

PLATE XI.

It has been shown (Plate IX.) that when two lights were gathered under one dripstone, a blank space, known as the "Tympanum," was left. But in process

of time this space began to be pierced with another small light in the form of an ellipse, a circle, or trefoil, which at once relieved the blank space beneath the arch, and admitted more light. In Plate XI. is given a window from Little Wenham Church, Suffolk, in which the space between the heads of the two lights is pierced by a diamond-like aperture, the two lower sides of which correspond with the inner sides of the arches, and the two upper sides being merely continuations of the outer sides, the same centres being used.

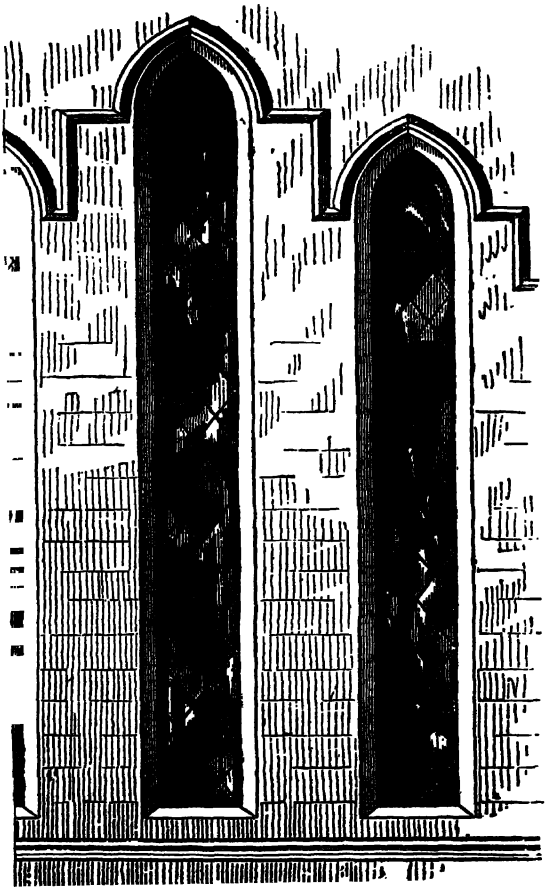
At Brownsover Church, Warwickshire, the upper corners of this aperture correspond with that of the outer arch or dripstone, but as this is not, as in the present instance, struck from the same centre as the heads of the lights, the effect is not so pleasant, presenting a broken instead of a continuous curve, as shown in the present illustration.

This elementary stage of ornamentation is called "plate-tracery."

PLATE XII.

A two-light window, with a lozenge form or quatrefoiled circle between the heads, was, as we have seen, the first decided step towards tracery. "It was," says Mr. Brandon, "a natural and easy advance to place two such windows in combination, and to pierce

PLATE X.



with a larger circle the space enclosed by a dripstone forming a single arch above them both. Here appears therefore a four-light window with its geometrical tracery. Then one of the lights would, no less naturally, in some instances be suppressed; while, under circumstances of a contrary nature, a fifth or even a sixth light might be introduced, and in each of these cases alteration in the tracery must necessarily ensue. And, again, every such alteration would lead to the introduction of fresh variety, and thus illustrate the facility with which window tracery admits of change, even whilst fettered by geometric forms of beauty or consistency. In the first instance, in these early windows the cusping was for the most part restricted to the geometrical tracery, the heads of the lights remaining plain; but after a while a similar enrichment was introduced into the heads of the lights, to the great improvement of the entire composition."

In early cusped circles there is a distinctive peculiarity in the cusping. In these the foils are produced from the inner curve without rising at all into the chamfer. This style has been called *Soffit* cusping, because it rises directly from the soffit of the arch, and not, as subsequently, from the chamfer or slope of the arch-side.

Another marked peculiarity in early foils is, that in

place of being segments of intersecting circles, they are formed from a series of distinct circles which all cut a larger circle within. Tracery in the cusping of which any of these peculiarities occur, is invariably of an Early English, when not actually of a Transitional, character. The window from Meopham Church, Kent (Plate XII.), illustrates this early cusping.

It has been shown that the first advance towards the development of tracery was caused by the tympanum being pierced with an aperture in the form of a circle, trefoil, lozenge, &c., and that to this the name of plate-tracery had been applied. The system shown in the present example is termed "bar-tracery," in contradistinction to plate-tracery, illustrated in the last plate, the patterns of the openings appearing to be formed by the intersection of various bars. This latter form arose naturally enough from the former by the multiplication of the piercings or apertures, till at last the plate disappeared, excepting such parts as were required to separate the openings and to connect the various parts.

In copying this example the student is advised to draw the plan first—not necessarily to the same scale as in the example; in fact, it would afford better practice to work to a larger scale, say 1 inch to the foot. The plan having been completed, the external form of the elevation and the mullions should be pro-

jected from it. The mullions develop into the tracery bars. The narrow, flat edges of the tracery—*i.e.*, those parts which form the plane of the whole front of the window—should next be drawn The rest of the construction will be easily followed from the illustration.

Circular or rose-windows (called also wheel-windows and marygold-windows) are not unfrequent at this period, and are divided into compartments by slender shafts with capitals radiating from the centre, and sustaining at the circumference small arches usually trefoiled. Windows of triangular shape are also found, as well as a peculiar sort of window in the form of what is called the "Vesica Piscis;"* these are small, and are placed in subordinate positions, as in the gables or clerestories of parish churches. Beverley Minster, York, and Lincoln have circular windows of this style, peculiarly fine in character. The marygold-window in the south transept at York is also extremely rich; and there are the remains of a beautiful window of this kind in the front of the ruin of Valle Crucis Abbey, Llangollen, North Wales, already referred to.

* *Vesica piscis.* A figure frequently used in Early English and Gothic architecture. Generally the form is something like an ellipse, but pointed at both ends. It is formed by the intersection of two arcs of equal circles, and is somewhat similar in outline to a fish—hence its name. This form is commonly given to the *aureole*, or nimbus of glory, in which representations of saints are enclosed.

Early English Capitals.

PLATE XIII.

THE capitals of this period are usually bell-shaped, and are often, especially in the smaller examples, quite plain, with the exception of a necking and one or two mouldings around the abacus. In such cases they are distinguished from the capitals of later styles, which will be spoken of presently. The bell is generally deeply undercut, which is a strong characteristic of the style. Sometimes the nail-head or dog-tooth ornaments are placed in the hollows between the mouldings. In the larger and richer specimens the bell is covered with foliage, which, springing direct from the necking, is curled over most gracefully beneath the abacus. The foliage, which, from the peculiarity already mentioned, is termed "stiff-leaved," is very bold and striking, and is sometimes so deeply undercut as to be at its upper part entirely detached from the bell. It consists mainly of varieties of the trefoil leaf, thus seeming to show a desire to *aim at* the representation of natural forms, which was so well *accomplished* in the following period, and of which the exaggeration and subsequent *decadence* is seen in the Perpendicular. In clustered piers the capitals follow the form of the pier, as also in the single shaft they adopt the same form, with the exception that mul-

tangular shafts have often circular capitals. The base consists of a series of mouldings; frequently of a deep hollow and fillet between two rounds, of which the lower one projects beyond the other. The base most frequently stands upon a double or single plinth, which, in the earlier examples, is square, having an angle covered with a leaf which springs from the mouldings of the base and falls over the plinth. In later examples the plinth assumes the form of the base, and is either circular or polygonal. It is sometimes of great height, having a second series of mouldings below the base. The group in the plate, from Stone Church, Kent, is an excellent specimen of Early English capitals, decorated with stiff-leaved foliage and the dog-tooth ornament, which, in this case, is seen between the mouldings of the arch, and is of a perforated character.

Early English Buttresses.

PLATE XIV.

THE buttresses of this period are for the most part of a simple character, consisting in smaller churches of two or more stages, the lower projecting beyond the other, each set-off being sloped at the top, so as to carry off the rain. Such a simple form of buttress is given in Fig. 1. The buttress finishes at the top,

under the parapet or eaves, with a simple slope, similar to that of the other projections.

Fig. 2 illustrates a species of buttress used in larger buildings, which is frequently finished with a triangular head or gable. It is occasionally carried above the parapet, except where stone vaulting is employed, and in such cases it is covered with a pinnacle, which is either plain or ornamented. Sometimes each set-off is finished with a triangular head, and at others the water-table is continued round the three sides of the buttress. The edges of the buttress are often chamfered, as in the example, or the angles ornamented with slender shafts. Occasionally, too, the face of the buttress is sunk into a niche to contain a statue. This, however, is more a characteristic of the Decorated period than of Early English. As in all the other features of Gothic architecture, the changes from one period to another were so gradual that great difficulty is found in distinguishing between the later portion of the one and the earlier portion of the other. Thus the exact date of a niched buttress would be doubtful were it not for other features connected with it. These will be pointed out in considering the next period. One great distinction must, however, be here noticed, namely, that at the angles of buildings of the Early English style the buttresses are placed at *right angles* to the walls, *as if each wall had been continued*

beyond the point of junction. Thus *two* buttresses are required at each angle. In the subsequent periods, however, the buttresses at the angles were placed *diagonally*, and thus only *one* was required at each angle.

Flying buttresses (Fig. 3, from Westminster Abbey), which are arches springing from the wall-buttresses to the clerestory, were first introduced at this period, and are common in all large buildings with vaulted roofs. They are generally of simple design, with a plain capping and archivolt.

Early English Mouldings.

PLATE XV.

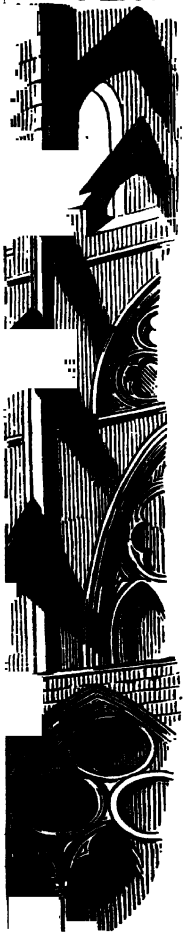
WE have seen that the plain square edges of the Norman arches were at first simply rounded off or chamfered. They were then cut into edge-rolls or "bowtells," with side-hollows. The side-hollows were then widened, and the edge-roll set forward on a small neck or shoulder. In the Transition period the bowtell and the roll and fillet were introduced: the mouldings generally became lighter and more numerous; but with the Early English a new principle sprung up in the character of the mouldings. This was the idea of obtaining effective combinations of light and shade by means of *undercuttings.*

"To such an extravagant extent," said the Rev. T. N. Hutchinson, in his lecture on the subject, "was this carried during the early part of the thirteenth century, that the projecting members of a group of mouldings are often found only united to the arch by a mere neck or thread of stone. Such a combination of projecting rounds and deep hollows would present to the eye the appearance of alternate bands of light, and shade, the depth of the hollows causing them to appear absolutely black. This arrangement would be tame and ineffective, were it not for its combination with the rectangular receding faces upon which Early English mouldings were generally cut. By this means a breadth of light and shade was introduced, and the uniformity caused by the alternating bands, prevented."

The several members of a group of Early English mouldings are generally of nearly equal size. Amongst them the roll and fillet and the pointed bowtell are of constant occurrence, as in Figs. 1 and 2.

About this time a new form of moulding was introduced, which became so generally used in the Decorated period as to form a characteristic feature. This was the "scroll mold" (Fig. 3). Here, again, we may refer to the bowtell for its origin; it is, in fact, a bowtell, with one side of the fillet carried round so as to fill up the space between its height and that of the moulding.

PLATE XIV.



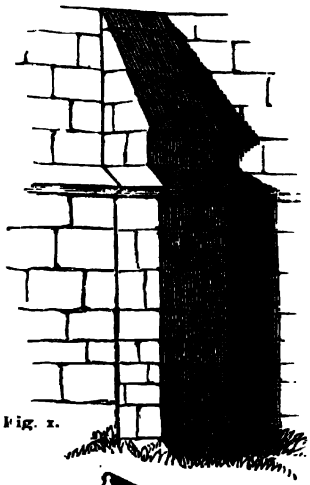


Fig. 1.

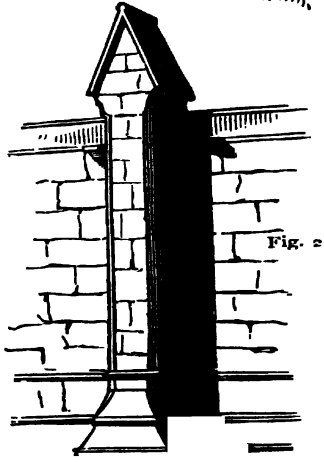


Fig. 2

The architects of the Decorated period gradually merged the edge of the fillet by a gentle curve into the face of the moulding; and at last it assumed the appearance, so peculiar to the fourteenth century, shown in Fig. 4.

Early English Ornaments.

PLATE XVI.

THE most characteristic ornament of this period is that called the "dog-tooth;" but why it has obtained this name is not quite clear, since it is not much like a dog's tooth. It seems most likely that the name is derived from the dog's-toothed violet. It is, however, known as the "tooth ornament," and is really a solid rendering of the zigzag. It consists of a flower of four petals bent backwards, the division between the petals being placed in the middle of the sides of the pyramid thus formed, the pyramid itself being placed on its base against the hollow, with its apex projecting. This ornament varies to some extent in different examples, but always presents the same general appearance. Thus, Fig. 1 is the simplest form, whilst in the group of capitals, Plate XIII., the pyramid is perforated and ornamented.

The position of the ornament is also shown in Fig. 1, Plate XV.

The Crocket, the name of which is derived from the French *croc*, a "hook," is an ornament used to decorate the rib or edge running up the edges of spires, pinnacles, gables, canopies, &c. The crocket is supposed to represent the crook of a bishop's pastoral staff; and in this form one of the earliest and simplest is that shown in Fig. 2, taken from Lincoln Cathedral, which exhibits a simple curve turning backwards. Crockets of the Early English style are often simple trefoil leaves, and sometimes bunches of such leaves, placed at considerable intervals and curled backwards. Early specimens are to be seen at Salisbury (Fig. 3) and at Wells.

Finials (Lat. *finire*, "to finish") are, as their name implies, the finishing ornaments at the apex of a spire, and consist, as it were, of a bunch of crockets. In the Early English period the finial was made up of foliage in character with the crockets and other features of the style. Fig. 4, from Westminster Abbey, is an illustration of this, and it will be interesting to compare the crockets and finials of this period with those of that which followed, the character of each being distinctly marked.

A beautiful method of ornamenting flat surfaces was prevalent at this and the subsequent periods originating during the Norman time: this was the manner of covering walls or portions of them with what has been

PLATE XV.

Fig. 1.

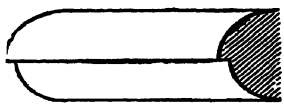
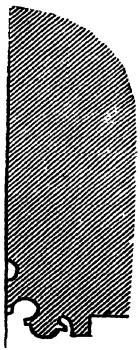


Fig. 3.



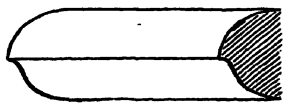


Fig. 4.

called "Diapering." The diaper usually consisted of a small flower or geometrical pattern, carved in low relief, the pattern being repeated in separate squares. One of these diapers (from Westminster Abbey) is given in Fig. 5, and the subject will be reverted to further on.

The character of the foliage of this period has been already referred to. The crispness of the leaves, not observable in other styles, although imparting a stiffness, still has a beautiful appearance, being worked with much taste and freedom. Amongst the varieties of foliage the trefoil is predominant; the two lower lobes, and sometimes all three, are worked with a bulb or swelling in the centre, the middle lobe being often larger than the others. Elegant scrolls of this foliage are often placed in the spandrils between arches.

The ornaments carved on the ends of the keystones of the ribs of groined roofs are called "Bosses." The character of the ornamentation will be seen in Fig. 1 in the next plate.

If the transition from Norman to Early English was gradual, that from Early English to Decorated was much more so; and we have many curious examples of the different stages of the change. There can be little doubt that Early English was still in use in some parts of the kingdom—unwilling, as it were, to depart from the scene of its triumphs—at the very same time that in other localities complete Decorated was

becoming general; and thus the terms adopted to designate the different periods must not by any means be taken as definite, or as commencing and closing at any particular date, but merely as indicating the broad classification of the styles and details, and for associating them with particular reigns for convenience in study.

SECTION VI.

The Decorated Period.

THIS style has been termed the "Middle Pointed," or "Edwardian" style, having had its commencement in the reign of Edward I. and arriving at maturity in the reigns of Edward I. and Edward II. It dates thus from about 1307 to 1377, or a little later, and may be named generally the style of the fourteenth century. This was the culminating period of all the beauties of Gothic architecture. It rivals the preceding style in chasteness and elegance, whilst it surpasses it in richness. The wondrous geometrical combinations in the ever-varying tracery; the foliage drawn direct from nature; the exquisite taste with which the construction was decorated instead of being disguised, all tend to elevate it to the highest rank in mediæval art, and especially so since it is free from

PLATE XVI.

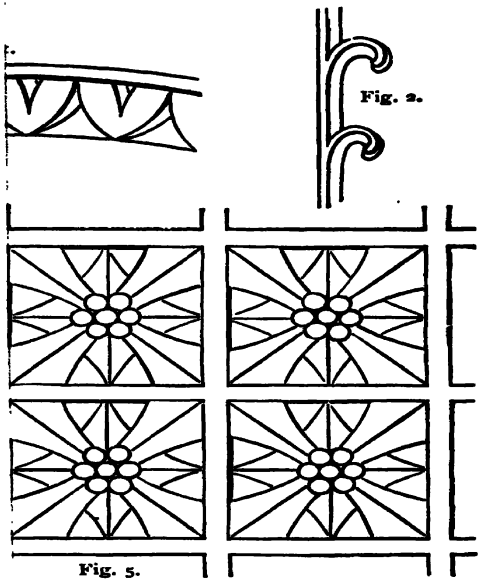


Fig. 2.

Fig. 5.

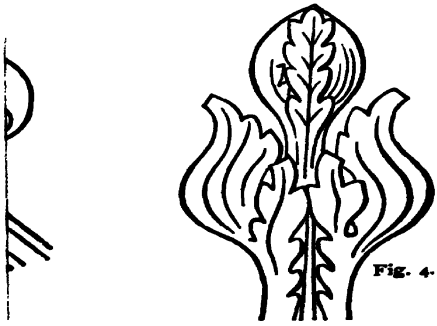


Fig. 4.

the extravagant and redundant ornamentation of the succeeding style.

There is no very novel feature in the arches of the Decorated period. The equilateral is perhaps, upon the whole, the most used, at least in early work; but the drop arch is constantly met with, and lancet, and even small semicircular arches are found in window tracery, arcades, and niches.

There is, however, one form that may be considered as characteristic of the style—that is, the Ogee arch. Although originally introduced into Gothic architecture at a much earlier period, it first came into general use in this country in the fourteenth century. From its constructive defects it is principally confined to the smaller class of work, such as arcades, niches, and the compartments of window tracery; it is also much used as a canopy over an equilateral or drop arch.

The arches of this period have one peculiarity by which they may be distinguished from those of the previous one—namely, that the mouldings frequently run continuously down the piers without being stopped by a capital. These continuous arch-moulds became still more common in the next period.

PLATE XVII.

The shafts of piers in small parish churches are generally of a simple circular or octagonal plan, similar

to those of the preceding period; and the capitals and bases must be examined in order to distinguish them. They differ from the Early English examples in being attached to, while in the previous style they were detached from, each other, and most frequently from the central shaft.

The plan of these clustered piers is often that of a lozenge, or of a square placed diagonally. Another shape is that of a quatrefoil; but others, too numerous to mention, are also found. In many instances we see four or more main shafts, with smaller shafts introduced between them. Fig. 3 in the plate, which is the plan of a pier of the Decorated period, may be compared with Fig. 2 of the Early English and Fig. 4 of the Perpendicular period, the last of which will be described further on.

Decorated English Capitals.

PLATE XVIII.

THESE, as a rule, follow the contour of the pier in clustered columns, and are either bell-shaped or octagonal. They are frequently only moulded, presenting rounds, ogees, and hollows, in which the Ball-flower (Fig. 1), or Square flower (Fig. 2), the prevailing ornaments of the period, are set. The abacus is either circular or polygonal in plan, and its mouldings are composed

PLATE XVII.

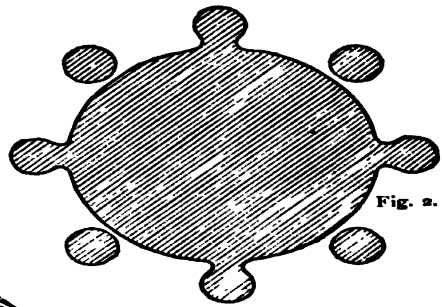


Fig. 2.

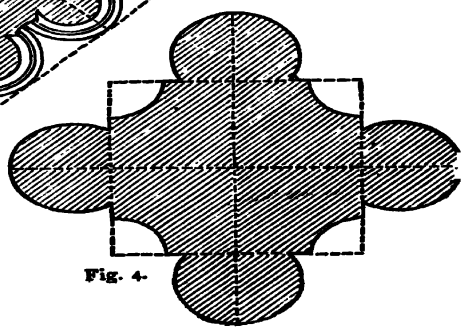


Fig. 4.

of rounds frequently with an overlap of ogees and hollows. The foliage is gracefully wreathed round the bell, instead of rising direct from the neck moulding. The difference will be at once understood on comparing Fig. 3 in this plate, from York Cathedral, with the group of capitals in Plate XIII. The leaves of oak, maple, vine, ivy, strawberry, hazel, ferns, &c., are all so beautifully rendered as to give evidence of their having been studied directly from nature. The oak seems to have been an especial favourite. Figs. 4 and 5, crockets from Hereford and Lincoln Cathedrals, and Figs. 6 and 7, finials from Cherrington Church and York Cathedral, are beautiful examples of the application of natural foliage, and illustrate the development of these ornamental features at this period.

The doorways of this style possess very much the same features as in the last, but the mouldings, jamb-shafts, &c., are more slender, less undercut, and generally of finer proportions. The hollows being often filled with the ball-flower and square flower, applied in the same manner as the dog-tooth was in the Early English. The jamb-shafts differ from those used in the last period in being constantly engaged. Many doorways, however, are without pillars, being entirely composed of mouldings which are continuous with those in the architrave. The door-arches are frequently surmounted by a triangular or ogee canopy,

ornamented with crockets and a finial, the spandril being filled with sculpture of various kinds.

The large doors of this period are sometimes double, though not as generally so as in the last style; but the single doorways of the Decorated period are often nearly as large as the double ones of the Early English. On the sides of the doorways small buttresses or niches are sometimes placed, and in some a series of niches, with statues, are carried up like a hollow moulding; whilst in others, doubly foliated tracery hanging freely from one of the outer mouldings, gives a richness superior to any other decoration.

Decorated English Windows.

THESE are usually large, and contain from two to seven lights; but there are also windows of single lights, of less elongated form than in the Early English period.

The variation from the character of the last period is here distinctly marked, first, in the employment of mullions instead of shafts with capitals and bases, but more especially in the full development of tracery.

It will be remembered that tracery originated in the necessity for piercing the portion of the wall which was left vacant when two lights were gathered under a single-arched dripstone, and thus the whole of the

elementary tracery was necessarily in one plane, consisting merely of apertures in a flat surface. As the principle of window-tracery, however, became established, the mullions were recessed from the face of the wall in which the window-arch was pierced, and the fine effect thus produced was, as the art progressed, speedily enhanced by the introduction of distinct orders of mullions, and by recessing certain portions of the tracery from the face of the primary mullions and their corresponding tracery bars.* The distinct planes of tracery and mullions thus produced constitute one of the most beautiful features in Gothic windows.

PLATE XIX.

Decorated window tracery is divided into geometrical and flowing. In the former the tracery consists of combinations of lines producing numerous geometrical figures—curvilineal, triangles, lozenges, &c. &c., and others based on them, and combined with circles, as the trefoil, based on the triangle; the quatrefoil, on the square; the cinquefoil, on the pentagon; the hexafoil, on the hexagon, &c. In the flowing tracery these figures, though still employed as a basis, are not each completed in themselves, so as to stand out

* *Tracery bars* are those portions of the masonry of a window-head which mark out the principal figures of the design. From these the minor and more strictly decorative parts of the stone-work may be distinguishable under the name of *form pieces*.—Willis's "Nomenclature."

individually; but they merge into each other, so as to produce a blending of forms, resulting in what has been called "flame-like compartments."

In its most perfect state, geometrical tracery invariably exhibits some large figure of a distinct and decided character, which occupies the entire upper part of the window-head. This figure is generally a circle, itself foliated and cusped, or subdivided by smaller geometrical figures, in most cases similarly enriched; or it is formed by tracery bars diverging from the head of the central light in such a manner as to resemble the upper portion of the window-arch inverted, and containing ornamental work of the same character as that in the large circles.

The window in the plate is from Boughton Aluph Church, Kent, and is a good, though not a rich, specimen of geometrical tracery. The figure on which the central portion of the head is based is given in "Linear Drawing," page 45.

PLATE XX.

The window here given is a specimen of the flowing Decorated. An example of a simple character has been chosen, to enable the student to copy it without much difficulty. The divisions of the panes are therefore omitted, in order to show the centres from which the various curves are struck.

Towards the close of the reign of Edward III. the outlines of window-tracery began to show a tendency to adapt themselves to the vertical bearings of the mullions, instead of branching off from them in flowing undulations. This, the death-blow to flowing tracery, and with it to Decorated Gothic, gave rise to a new variety, at present known by the name of the Perpendicular style. Here, however, as in the previous changes, the alteration was very gradual, consisting at first merely of the introduction here and there of a perpendicular member into a design in other respects flowing in character; and this vertical bearing of the mullions is the foundation of all perpendicular tracery.

Circular windows, filled with beautiful tracery, are often met with in large structures. Windows in the shapes of squares, trefoils, quatrefoils, spherical triangles, hexafoiled circles, &c., are also frequent, but are generally of small size, and are usually seen in subordinate situations, such as in clerestories, gables, &c.

Decorated English Butresses.

THESE are not in some instances easily distinguishable from those of the Early English period, for they sometimes consist merely of plain piers, with one or more slopes or set-offs, without any further decoration; but in many cases they may be known by being set

diagonally at the angles of the buildings, whilst, as has already been stated, those of the preceding periods were set at right angles to the two walls. Even this, however, must not be taken as an absolute rule, for some Decorated buttresses are similarly placed. The distinctions will therefore principally lie in the mouldings, the finials, crockets, &c. In rich examples the faces are often recessed for niches, which are surmounted by rich canopies, small buttresses, pinnacles, &c. The buttress seldom reaches above the parapet, unless surmounted by a pinnacle, which is mostly of an elaborate description.

The parapet is frequently used in the Decorated period, and is often pierced in various shapes—such as trefoils or quatrefoils—inserted in the spaces left on either side of an undulating moulding.

Decorated English Mouldings.

PLATE XXI.

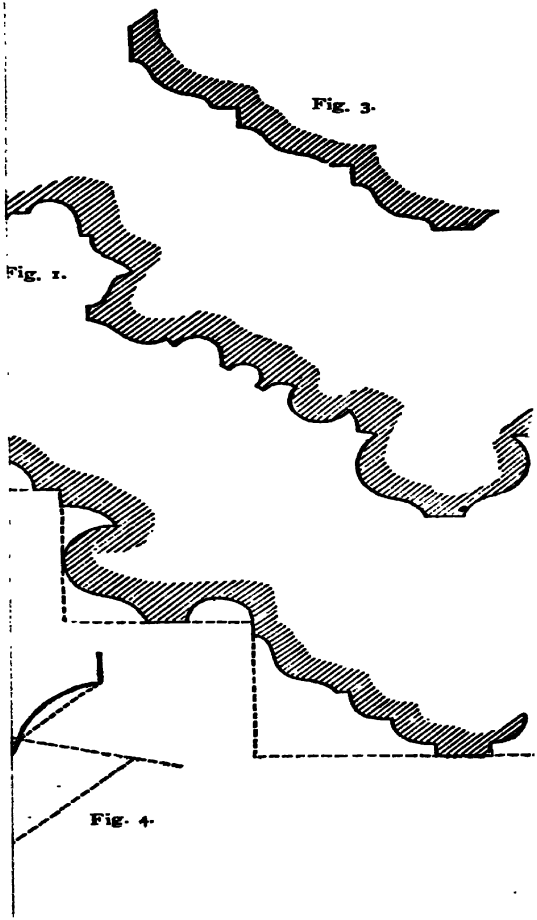
THESE are, as a rule, larger and bolder than those of the Early English period, and are arranged with a more studied regard to broad effects of light and shade. The somewhat monotonous similarity of numerous small members is no longer found, and the eye is at once arrested by two or three prominent forms, whose broad shadows produce the leading

lines in a suit of mouldings, and divide the whole into masses, whilst numerous small mouldings produce a streaky effect. Fig. 1 is a section of the pier-arch of St. Oswald's, Chester, in which will be observed one prominent member in each order—a fine roll-and-fillet in the first, another (differently set) in the second, and a bold round-and-hollow in the third. So, also, in the pier-arch of the nave of the cathedral (Fig. 2), we have a remarkably bold roll-and-fillet in the second, and a roll-and-hollow in the third. "The effect of these," says the Rev. T. N. Hutchinson, and the author has often observed the same, "is very striking when received in full sunlight." Fig. 3 is a section of the pier and arch moulding of one of the pier-arches in Chester Cathedral adjoining the central tower, and exhibits a form of moulding which is of constant occurrence in Decorated work. This is the "wave moulding," or "*swelled chamfer.*" It is little more than an ordinary chamfered edge, with a slightly-sunk channel on each side, thus raising the middle portion into a curved or swelled form. The arch in question is of three orders, each chamfered with the wave moulding. The curve of the wave moulding is struck from the three points of an equilateral triangle (Fig. 4). A group of two or more wave moulds, with intervening hollows, was a common and most beautiful Decorated arrangement.

This moulding was also of frequent occurrence in Perpendicular, though belonging to the former period; its presence alone is, in the absence of other criterion, nearly sufficient to stamp an example in which it occurs, as Decorated.

The method of covering flat surfaces with ornamental patterns in low relief has been spoken of in connection with the Early English, and it continued to be extensively used in the Decorated period. One of the most beautiful diapers of the time exists in Canterbury Cathedral. The design is composed of a flower of six leaves in low relief, within a hexagonal compartment, the sides of which are formed by the sides of six spherical triangles, and are foliated within. A great number of other beautiful patterns in diapers were used in this style. The origin of the name has been a source of dispute: it is supposed to be taken from a kind of cloth worked in square patterns, and which was then, as now, much used under the name of *dyaper* or *diaper*—originally *d'Ypres*, the chief manufactory being at Ypres, in Belgium. Of this species of decoration, Mr. Brandon says: "It is a peculiar characteristic of pure Gothic that all mouldings, panelling, or sculpture were always sunk from the face of the work. Such an arrangement is the natural result of a style, a distinguishing type of which was *only to introduce ornament as an embellishment*

PLATE XXI



to construction. Thus, a capital would naturally be corbelled from the pier, the better to carry the superincumbent weight; hence its subdivision into head mould, and bell and neck mould. Panelling resulted from a desire to enrich that which would otherwise have been a flat surface, and consequently was wrought out of the face already existing. A row of the dog-tooth ornament generally exemplifies very well how ornaments also were worked out of the block. As the debasement gradually crept in we find the contrary to have taken place."

SECTION VII.

The Perpendicular English Period.

In the latter part of the fourteenth century, and towards the close of the reign of Edward III., symptoms appeared of a transition from the perfect and symmetrical style then prevalent, to one which displayed more elaborate and much richer work than its precursor, but was wanting in that chaste and elegant yet simple effect for which the Decorated period stands unequalled.

This style, when fully developed, is characterised by the exuberance and redundancy of its ornaments. In early examples, this enrichment was not carried

beyond bounds, but in later times it becomes excessive, as if the chief aim of the architects had been to employ as much time as possible in the decoration.

From this profuse ornamentation, and minuteness of its ornamental detail, this style has sometimes been called the *Florid* Gothic, but it is more generally known as Perpendicular, in consequence of the peculiar arrangement of the tracery in the window-heads, which forms a very marked characteristic of the style. The beautiful flowing contour and curvilinear lines of the tracery, which characterise the Decorated period, were now suppressed by mullions running straight up from the bottom to the top of the windows, and transoms crossing horizontally. There was, however, a horizontal as well as a vertical tendency, for we find the high-pitched roof flattened, the arches depressed, the drop, the four-centred, and sometimes square arches having been used.

The arch, in fact, became more and more depressed, the mouldings more and more shallow and ineffective. The drop-arch is perhaps the most prevalent, but as the period advanced, an arch began to be used which is not to be found in any other. It is described, as a rule, from four centres (Plate I., Fig. 9), and is called the Tudor arch. It occurs in every variety of which the form is capable of taking. As a general rule, the

centres of the upper portions of the arch lie immediately below those of the lower, but this is by no means universal. Sometimes the whole of the upper portion uniting the arcs of the ends is struck from one centre, in which case, of course, the arch becomes a three-centred one (Plate I., Fig. 8), being, in fact, half of an ellipse, or rather of a figure approximating to that figure, since no portion of a true ellipse is a part of a circle. Towards the close of the style the curvature of the upper portions is often found so slight that they can hardly be distinguished from straight lines, and in many instances, as the debasement of the style progressed, they were really straight. Ogee arches are of universal occurrence in the style, and foiled arches are very frequent. When the Tudor arch was not employed, we generally find the low drop arch. Other forms were used in arches of small size, and in combinations of window-tracery and panelling.

PLATE XXII.

Fig. 1 is an arch from the south side of Chester Cathedral. The mouldings of this are continuous, and the soffit, or under surface of the arch, is panelled—both important features in Perpendicular arches.

The mouldings of this period are essentially different from those which preceded them, and have a

character peculiarly their own. As a general rule, they are cut on a slanting or chamfer plane, and the groups of mouldings are separated by a shallow oval-shaped hollow, entirely different from those of the last period.

Fig. 2 is the moulding of the inner and Fig. 3 of the outer doorway of the south-west porch of Chester Cathedral. In each of these the shallow elliptical hollow is very conspicuous. The edges of this hollow were frequently rounded off into two small shafts, as in Fig. 3. The double ogee, or brace moulding, is seen at A, in each of the above examples.

The doorways of the early portion of this period had two-centred arches, but the characteristic form is the four-centred, enclosed in a square head, formed by the outer mouldings with a hood-mould of the same shape, the spandrils being filled with quatrefoils, flambeaux, roses, shields, &c. This square head is not always used inside the doorways, for an ogee canopy is sometimes substituted, or panelling is carried down to the arch, and there are also some small exterior doorways without the square head. Double doorways are not frequently used in this style.

The doors themselves were often covered with panel-work of a rich description, and sometimes with

PLATE XXII.

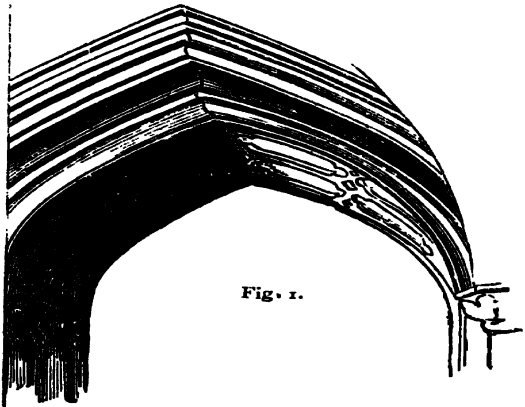


Fig. 1.

Fig. 2.

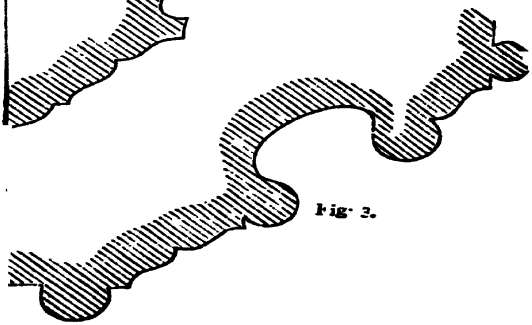


Fig. 3.

tracery in the head. This will be described in the volume devoted to Gothic Woodwork.

Perpendicular English Windows.

PLATE XXIII.

THE general characteristics of the windows of this period—namely, the perpendicular mullions, and the horizontal transoms—have already been alluded to. The heads of the windows, instead of being filled with flowing ramifications, have slender mullions running from the heads of the lights between each mullion, and these have smaller transoms, until the window becomes divided into a series of small panels, and the heads of these being arched, are trefoiled or cinquefoiled. In the later windows of this style, the transoms are often furnished at the top with a small ornamental battlement, and the mullions present a concave outline. It is believed that full half of all the remaining Gothic windows in the kingdom are of this period. The large east window of York Cathedral is admitted to be the finest specimen. The example here given is from the north aisle of Northfleet Church, Kent, and is chosen as illustrating most of the features described, whilst its simplicity will enable the student to copy it without any difficulty.

Perpendicular English Piers

ARE sometimes simple octagons in plan, as in the preceding styles, but these are not so frequent as before. Clustered piers occur very often, their general form being that of a square set diagonally. An example of these is given in Plate XVII., Fig. 4, in order that it may be compared with those of the two preceding styles.

Perpendicular English Capitals and Foliage.

PLATE XXIV.

THE capitals are either circular or octagonal, but the necking is usually the former, and the upper members of the abacus almost invariably of the latter form. The bell portion is mostly plain, but is often enriched with foliage of an exceedingly conventional character. It is shallow and formal—without either the freedom and boldness of the Early English, or the natural grace of the Decorated period, and with a certain squareness of outline which the eye soon detects.

We frequently find the tendrils, leaves, and fruit of the vine carved or sculptured in great profusion in the hollow of rich cornice mouldings. The example here presented will illustrate this description. It is taken from the west doorway of Beverley Church, Yorkshire.

The base mouldings are usually set upon a lofty polygonal plinth, which is sometimes double, the lower one projecting, and the projection moulded with a hollow or reversed ogee. In clustered piers the bases are mostly treated separately, as is the case with the capitals; but sometimes the mouldings are continued all round, as are also the plinths.

Perpendicular English Ornaments.

PLATE XXV.

ONE of the most distinguishing features in the system of ornamentation of this period is that called "panel-tracery" (Fig. 1), with which the walls and vaulted ceilings of buildings are almost entirely covered. The patterns were formed by mullions and tracery resembling windows, and a variety of other panels of different forms, such as circles, squares, quatrefoils, &c., are profusely used in subordinate parts, which are enriched with tracery, featherings, foliage, shields, &c., disposed in various ways. A very rich description of vaulting was also frequently used, composed of pendant curved semicones, covered with foliated panel-work, called "fan-tracery," from the design resembling a fan spread open.

Another very general ornament of this period is the Tudor flower (Fig. 2). This ornament is formed of a

series of flat leaves, placed upright on the stalk. It was very much used late in the period, in long suits as a crest or ornamental finishing, on cornices, or in forming a beautiful enriched battlement. The examples differ considerably in detail, but the general effect is nearly the same in all.

Cornices and brackets were frequently ornamented by angels' heads, with shoulders, wings, and arms. These are called Angel-brackets, and Angel-corbels.

A great number of edifices (says Rickman) of this style appear to have been executed in the reign of Henry VII., as the angles so profusely introduced into his own works are abundantly scattered in buildings of this style. Fig. 3 is part of an angel string-course from St. Mary's Church, Oxford.

The Portcullis (Fig. 4) and Rose (Fig. 5), both badges of the Tudors, were constantly carved as ornaments.

The crockets (Fig. 6) belonging to this style for the most part partake of the squareness which pervades all the foliage, and in a few instances animals and figures were used for this purpose.

The buttresses are, as far as the plain ones are concerned, similar to those of the preceding style, but are sometimes finished with a crocketed pinnacle. In richer examples the faces are covered with panel-work, and are finished with square pinnacles some-

PLATE XXV.

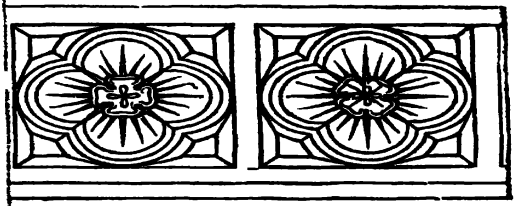


Fig. 1.

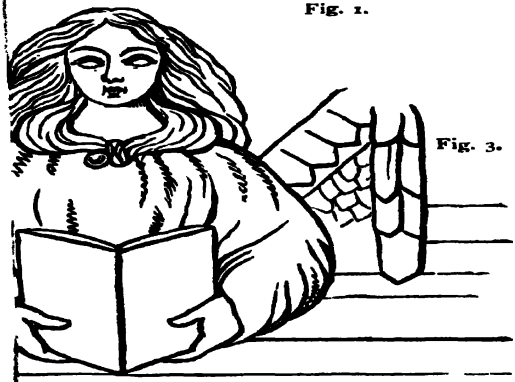
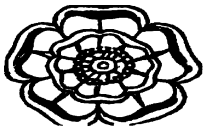


Fig. 3.

Fig. 2.



times set diagonally and terminated with a crocketed spire, or finished with an animal or such-like ornament.

Parapets with square embattlements are very common at this period, but they are also frequently panelled or pierced with tracery in quatrefoils, trefoils inserted in square, circular, or triangular compartments. The cornice is often composed of several mouldings, divided by rather shallow hollows, in some of which flowers of square form are placed at intervals, and in others figures or grotesque animals (as at Mold Church, Flintshire) are introduced.

The towers are frequently on a grand scale, and are often devoid of spires, though frequently surmounted by a lantern, and sometimes by four little turrets placed at the angles. The towers of some of the churches of this period are in some cases almost entirely covered with panel-work, as that at Wrexham, Denbighshire. Towers of this period are very numerous; amongst the best are those of Canterbury, York, and Gloucester Cathedrals, and the churches at Boston and Louth in Lincolnshire; Kettering, Northamptonshire; Cirencester, Gloucestershire; Great Malvern, Worcestershire; Magdalen Collge, Oxford; St. John's, Chester.

The gradual decline of the Gothic style is very evident in the later churches of this period, especially

in those of the beginning of the sixteenth century. It will be easily understood that the Reformation was for a time a bar to the revival of this style, and the introduction at the same period of classical architecture, called the Renaissance, whilst the elements of the Gothic, though much degraded, were still in existence, led to that mixture of features, and that incongruity of style which followed, and which has been called the Debased Gothic, in which every real principle of art and of beauty was lost. It may be known by its general heaviness of design and want of elegance in detail—depressed archways, and square-headed windows with beehive mullions, the heads of the lights often without foliation. It is chiefly found in repairs and alterations made between 1540 and 1640; but some few specimens of good work, especially of fantracery, are to be found. In Italy the Gothic was at once superseded by the Classical; but in other countries it waned into forms which have been termed "After-Gothic," which gradually merged into the Revived Classic. Within recent years a revival of the Gothic has taken place in this country, and buildings have been, and are being, erected which will well bear comparison with those of the Middle Ages. We have architects too, who, in their knowledge of scientific principles of design and construction, and whose enthusiasm in their vocation, have never been

surpassed in any country or period; and, further, we have mechanical appliances for working stone and iron, and for building purposes generally, never equalled—but *we want educated workmen.* In the Middle Ages, architects, as distinct practitioners, were scarcely known, and little more than the general arrangements of a building were designed by them. The rest lay with the workmen, who, working in bodies, largely influenced the beauty and appearance of the buildings. Their spirit was in their work, and they were thus enabled to "stamp each stone with earnest feeling." It is with the view of aiding the workmen of the present day that this little book is put forth, in the sanguine hope that it may be of service to them.

SECTION VIII.

Glossary of some of the Terms used in Gothic Architecture, in addition to those explained in the Text.

ABACUS—Derived from the Greek word signifying a tray or flat board. The slab forming the upper part of a column, pier, &c.

ABBEY—A term for the church and other buildings used by those conventual bodies presided over by an abbot or abbess, in contradistinction to cathedral, which is presided over by a bishop, and a priory, the head of which was a prior or prioress. The word is supposed to be derived from the Hebrew *ab*, "father," by which name the abbot was generally designated.

ALMERY, also AUMERY, AUMBRIE, and AMBRY—A recess in a wall of a church, sometimes square-headed and sometimes arched over and closed with a door like a cupboard, and used to contain the chalices, basins, cruets, &c., for the use of the priest: many of them have stone shelves. They are sometimes near the piscina, but more often on the opposite side. The word also seems in mediæval times to be commonly used for any closed cupboard, or even bookcase. In fact, the word *armoire* is applied to such objects to the present day.

ANGEL-LIGHTS—The outer upper lights in a perpendicular window, next to the springing. It is probably only a corruption of the word "angle-lights," as they are nearly triangular.

ARCADE—A range of arches supported either on columns or piers, and detached or attached to the wall. The word is used in contradistinction to colonnade, which is a range of columns carrying level entablatures.

BAY WINDOW—Any window projecting outwards from the wall of a building, either square or polygonal in plan, and commencing from the ground. If they are carried on projecting corbels, they are called *oriel* windows. Their use seems to have been confined to the later periods. In the Tudor and Elizabethan styles they are often semicircular in plan, in which case some think it more correct to call them *Bow*-windows.

BELFRY—Properly speaking, a detached tower or campanile containing bells, but more generally applied to the ringing-room or loft of the tower of a church.

BELL-COT, BELL-GABLE, or BELL-TURRET—The place where one or more bells are hung in chapels or small churches which have no towers. Those which stand on the gable dividing the nave from the chancel, are generally called Sanctus Bells.

BRACKET—An ornamental projection from the face of a wall, to support a statue, &c. They are sometimes nearly plain, or ornamented only with mouldings, but are generally carved either into heads, foliage, angels, or animals. Brackets are very frequently found on the walls in the inside of churches, especially at the east end of the chancel and aisles, where they supported statues which were placed near the altars.

CATHEDRAL—The principal church where the Bishop has his seat (*cathedra*) as diocesan. It is so called in contradistinction to *abbey* or *priory* (see these), which may be churches of equal or greater size or importance, but are not presided over by a bishop. It is said no town can correctly be called a city unless there be a cathedral therein.

FRITHSTOOL, or FREEDSTOOL—Literally, "the seat of peace" (German, *fried-stuhl*, "peace-chair"). A seat or chair placed near the altar in some churches, the last and most sacred refuge for those who claimed the privilege of sanctuary within them, and for the violation of which the severest punishment was decreed. They were frequently, if not always of stone.

GALILEE—A species of porch, where, it has been said, the female relatives of the monks went to confer with them, they not being permitted to enter the conventual buildings.

GARGOYLE, or GURGOYLE — Carved terminations to the spouts which conveyed away the water from the gutters, and are supposed to be called so from the gurgling noise made by the water passing through them. Sometimes they are perfectly plain, but are oftener carved into figures or animals which are frequently grotesque; these are very commonly represented with open mouths, from which the water issues, but in many cases it is conveyed through a leaden spout, either above or below the stone figure.

GRILLE—The ironwork forming the enclosure-screen to a chapel, or the protecting railing to a tomb or shrine; they are more common in France than in England, and are all of wrought iron.

GROIN—The angle formed by an intersection of vaults. Most of the vaulted ceilings of the buildings of the Middle Ages are groined, and, therefore, called groined vaults, or

groined ceilings. During the early part of the Norman style the groins were left perfectly plain; but afterwards they were invariably covered with ribs.

HAMMER-BEAM — A beam very frequently used in the principal timbers of Gothic roofs to strengthen the framing, and to diminish the lateral pressure that falls upon the walls. Each principal has two hammer-beams, which occupy the situation of a tie-beam, and in some degree serve the same purpose; but they do not extend across the whole width of the roof. The ends of hammer-beams are often ornamented with heads, shields, or foliage, and sometimes with figures.

LANTERN—A turret raised above a roof or tower, and very much pierced, the better to transmit light. In modern practice this term is generally applied to any raised part in a roof or ceiling, containing vertical windows but covered in horizontally.

LICH-GATE—A covered gate at the entrance of a cemetery, under the shelter of which the mourners rested with the corpse while the

procession of the clergy came to meet them.

MISERERE—Seats in the stalls of large churches made to turn up and afford support to a person in a position between sitting and standing. The underside is generally carved with some ornament, and very often with strange, grotesque figures and caricatures.

PISCINÆ—One or more hollows or niches near the altars, with drains to take away the water used in the ablutions at the Mass. They seem at first to have been mere cups or small basins, supported on perforated stems placed close to the wall, and afterwards to have been recessed therein and covered with niche-heads, which often contain shelves to serve as aumbries. They were rare in England till the thirteenth century; but there is scarcely an altar of later date without one. They frequently take the form of a double niche with a shaft between the arched heads, which are often filled with elaborate tracery.

POPPY-HEADS—The finials or other ornaments which terminate the tops of bench-heads, either to pews or stalls. They are sometimes small

human figures or heads; sometimes richly-carved groups, images, knots of foliage, or finials, and sometimes fleurs-de-lys, simply cut out of the thickness of the bench-end and chamfered.

PRIORY—A monastic establishment, generally in connection with an abbey, and presided over by a prior, who was subordinate to the abbot. (*See* ABBEY.)

REFECTORY—The dining-hall or fratery of a convent, college, &c. The internal arrangements and fittings were very similar to those of the ordinary domestic halls, except that it was usually provided with a raised desk or pulpit, from which, on some occasions, one of the inmates of the establishment read to the others during meal-time.

REREDOS—The screen or other ornamental work at the back of an altar.

SACRISTY—A small chamber attached to churches, where the chalices, vestments, books, &c., were kept by the officer called the "Sa-

SEDILIA—The seats near the altar in churches, used by the priest and officiating clergy during certain portions of the Communion Service. They are generally three in number.

TABERNACLE—A species of niche or recess in which an image may be placed.

TABERNACLE-WORK—The rich ornamental tracery forming the canopy, &c., to a tabernacle. It is common in the stalls and screens of cathedrals; and in them is generally open or pierced through.

TYMPANUM—The triangular space between the horizontal and sloping cornices on the front of a pediment in Classical architecture. It is often left plain, but is sometimes covered with sculpture. This name is also given to the space immediately above the opening of a doorway, &c., in mediæval architecture, when the top of the opening is square and has an arch over it. This arrangement is not uncommon in this country in Norman work; and on the Continent is to be found in each of the styles. This kind of Tympanum is occasionally perfectly plain, but is

generally ornamented with carving or sculpture. In Continental work the subjects are usually arranged in tiers one above another, and often embrace a great number of figures. Also when an arch is surmounted by a gable-moulding or triangular hood-mould, the space included between the arch and the triangular hood-mould is termed the tympanum of the gable.

THE END.

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