

EARLY-NORMAN CHURCHES IN AND NEAR  
THE MEDWAY VALLEY.

BY THE REV. GREVILLE M. LIVETT.

I. INTRODUCTORY: MATERIALS, STYLE, AND PLAN.

THE early-Norman builders naturally made use of the stones which they found near at hand. In and about the Medway Valley they discovered tufa, chalk, flints, Kentish Rag, and Sarsen-boulders in abundance, as well as a smaller amount of iron-sandstone. Of all these materials that which may be looked upon as being most characteristic of the early-Norman buildings is calcareous tufa, called travertin by the older generation of geologists. It is what geologists would call a Recent deposit, and may be found wherever there are limestone rocks in any quantity. Rainwater carries with it into the earth a certain amount of carbonic acid gas; and as the water percolates through limestone rocks the gas dissolves some of the carbonate of lime, which is carried along in solution until the water issues in springs from the ground. Then evaporation ensues, the gas escapes, and the freed carbonate of lime is deposited on the ground over which the water flows. This natural process, which is artificially produced in kettles and boilers when hard water is used, is constantly going on. It may be seen at Matlock in Derbyshire. In the olden times, before streams were diverted and fields cultivated by man's hand, in places where such springs issued in any quantity and spreading out flowed over a gentle slope,

covered, perhaps, with moss and brushwood, the deposit formed an ever-growing crust of tufa, which grew sometimes to some feet in thickness. The tufa beds so formed were easily dug by our forefathers, and yielded a favourite and economical building-stone, very light and durable. When freshly dug it has the appearance of a white petrified sponge, being full of irregular holes, except that here and there it has streaks compact and crystalline. Great quantities of tufa are found in Italy and elsewhere,\* but the idea that it was imported thence for use in this country must be abandoned.

The Romans, like the Normans, used the materials they found at their feet. They might import a valuable marble for ornamental purposes, but for rough work they used the tufa and Kentish Rag which abound in this part of the county. The *Pharos* at Dover is mainly built of tufa which the Romans dug in the Dour Valley at Buckland, a mile or two away, where the stuff still exists.† A bed of tufa has lately been discovered at East Malling. There is also one at Leeds. A third is said to exist at Wateringbury. These are all upon the Lower Greensand. Doubtless there are other beds, but tufa has gone out of fashion

\* Described in Lyell's *Principles of Geology*, chap. xvii., 10th edition.

† *The Church and Fortress of Dover* (1864), p. 11, by the Rev. J. Puckle. Mr. W. Whitaker, F.R.S., has kindly sent me the following note, made many years ago: "A light vesicular tufaceous deposit occurs in the bottom of the Dour Valley, and may be seen on the high road a little E.S.E. of Buckland Church, above the flint-rubble." Mr. Whitaker tells me that he has more recently found considerable deposits in Hampshire, and that these have been mapped by the Geological Survey, in the valleys of the Test and of the Itchen.

as a building-stone, and the sites of the deposits have long ago been forgotten. No perfect Roman building like the Pharos at Dover remains in our district, but the materials of destroyed buildings may be seen in the walls of our churches. Traces of Roman buildings have been found near Snodland, and the walls of the churches of Snodland and Burham are full of tufa associated with Roman brick and pink mortar. In mediæval buildings a clear distinction must be drawn between those in which tufa occurs associated with other Roman materials and those in which it occurs without a trace of such other materials. In the first case it may be taken for granted that the builders quarried from some Roman buildings hard by, and the material gives no clue to the date of the building in which they are now seen. In the latter case, in buildings, that is, in which tufa is found in quoins or windows without admixture of Roman brick and mortar in the walls, it may be assumed that the tufa was freshly dug, and a careful study proves that nearly all such buildings are early-Norman in date. It was occasionally dug at a later date, but then chiefly for the backing of stone vaults, for which it was especially suitable on account of its lightness.

A clue to the fact that tufa was dug and used in great quantities by the early-Normans was obtained when it was noticed that Bishop Gundulf (1077—1108) used it for all the cut and faced work in his cathedral at Rochester and in the abbey at West Malling. The knowledge of this fact led to a careful survey of several of the churches of the neighbourhood. The general results of the survey may be briefly stated. There are not a few churches which contain well-marked features of early-Norman date, and in every case that

I have yet seen tufa is the material used for cut and faced work. In a few churches, almost confined to the strip of country where the "Folkestone Beds" crop out, a dark-red, ferruginous sandstone is used with the tufa: this may be seen at Ditton, Addington, and Leeds. Occasionally chalk is found on the inside of windows, as at Ryarsh. But tufa is always the chief material. Trottescliffe and West Farleigh are among the best examples of churches which are decidedly early-Norman; Leybourne, also, may be noted. Besides these there are many churches whose simplicity of plan suggests an early date, the more decided early-Norman features, such as windows and doors, having been swept away by later alterations or insertions. In such cases an early-Norman date is proved by the character of the walling or the material of the quoins. Addington is a case in point. There is yet another group of churches which must be assigned to an early-Norman foundation: those which have been so much altered by later additions that the original plan is lost to the eye, but in which a quantity of tufa is found in the walls. In these cases a careful scrutiny has been rewarded by the detection here and there of a voussoir or some other well-defined tell-tale stone. In such a case, again, if the church were measured up and plotted on paper, the early-Norman plan would probably reveal itself. Aylesford serves as an example. Sometimes, as at East Farleigh, the nave of which was entirely rebuilt a year or two ago, and at Halling, a single quoin of tufa affords sufficient evidence of the date of the foundation of the first stone church. Thus in nearly all the churches of this district a nucleus of early-Norman date has been actually discovered, or its probability established.

The early-Norman style suited the materials, and the materials suited the style. The materials were not adapted to highly finished work; the style was massive, rough, and singularly plain. The tufa, chalk, or other local material was dressed with axes, chisels being unknown to the Normans. The windows were placed as high in the walls as possible so that the draughts might be kept above the heads of worshippers. The actual openings were small, because glazing was expensive and much light was not wanted. They were closed, when occasion required, with wooden shutters. The shutters sometimes swung on hooks, and fitted into a small rebate on the outside. More commonly the openings were slightly chamfered on the outside and the shutters inserted from the inside and secured by slots near the outer surface. Internally the openings were often considerably splayed, and the sills rose up to them either with a slope or in steps. The arch was made quite plain, and there is one peculiar feature which is very constant in the examples that remain—the springers of the arch on the inside are set back slightly from the plane of the jamb, so that there is an almost imperceptible set-off which dies away along the springing-line as it approaches the external opening. The general proportions of the windows strike a mean between the broader and lower windows of Saxon architecture and the taller and narrower windows of later Norman date. Examples are not at all uncommon, but they are seldom found in a perfect state. Most of the doorways and chancel-arches of the period have been swept away, but those that remain are fairly perfect. The chancel-arch at West Farleigh is of two plain square orders on the nave-side and of one order on the chancel-side. It is

slightly stilted and has no impost or plinth. The head of a small chancel-door remains at Ditton. The imposts are large square blocks which project about three inches from the jamb-plane, the lower angle being chamfered off. The western doorway at West Farleigh is more advanced in character. Internally it is quite plain and slightly splayed. Externally it has two orders. In the arch the recess is partly filled with a bold round which springs on each side from a rudely-cut cushion-cap and chamfered abacus. The jamb-shafts have disappeared, and there are no signs of base-mouldings.

The walls of the early-Norman churches of our district are nearly all from 2 feet 10 inches to 3 feet in thickness. Sometimes the cross-walls are thicker than the side-walls. They are built either of flints or of Kentish Ragstones, set herringbone-wise and in fairly regular courses. They are seldom strengthened by the pilaster strips which the later Normans used. The foundations project 2 or 3 inches beyond the face of the wall, and sometimes this footing is formed of tufa-blocks. Stones of large size underlie the tufa-quoins and the jambs of doorways: huge blocks of Sarsen-stone are often seen in such positions. The mortar is usually of a light-brown colour and contains white specks of imperfectly-burnt lime. The walls were always plastered on the inside, and plastered and rough-cast on the outside. The persistent occurrence, throughout the district, of some of these features, notably the thickness of the walls and the character of the soft, sandy mortar, is most remarkable: it seems to suggest a band of masons going from place to place to build the churches.

There are some very early towers in this district.

They shew the same peculiarities of style and construction as the churches. One point only needs special notice: the lower windows are always more splayed internally than those higher up. In fact, in some cases, the jambs of the uppermost windows are not splayed at all. This variation of treatment is seen in buildings of later date, *e.g.*, the keep at Rochester. The early-Norman tower at Dartford is almost a *fac-simile* of St. Leonard's tower at West Malling. The walls are very thick, and the angles are strengthened by clasping buttresses. Tufa and rag were the materials used in their construction. Gundulf's tower at Rochester, now in ruins, was very similar. Possibly all three were built under Gundulf's supervision. The towers of the churches of East and West Malling belong to another group. The quoins are of rag-stone and the windows of tufa; the angles have no buttresses. Aylesford church tower is unlike any of those I have mentioned. The walls are not so thick, and no tufa appears either in the quoins or in the windows. Originally wooden "luffers" were built into the ragstone jambs of the windows. They were destroyed by fire and the openings blocked at an early date. In a recent restoration the blocking was removed and free-stone jambs were inserted within the old jambs. The tower is probably the *castellum* noted in the Domesday Survey, built, may be, to guard the passage of the Medway while the Saxon wooden church was still standing. Perhaps when this tower was built the Normans had not yet discovered the local beds of tufa.

Early-Norman churches should be classified according to their ground-plans. In our district the builders usually followed one of the two simplest types of plan.

1. The simpler but less common plan is a plain oblong or rectangle, without aisle, tower, porch, or chancel-arch.\* The best example of this type I have yet seen is Barming church. The original plan may be easily traced, notwithstanding the insertion of a later chancel-arch and the addition of tower, south porch, and north aisle. Trottescliffe also is a good example, but presents some difficulties which I have not yet solved. 2. The second and more common type has been thus described by Mr. J. T. Micklethwaite in his paper on *The Growth of English Parish Churches*, read at the Lincoln Meeting of the Archaeological Institute in the year 1880: "The simple nave and sanctuary, the square east end, and the narrow chancel arch." This towerless, aisleless plan appears in all its unaltered simplicity in the ruined chapel of Dowd. It had nothing in common with the Italian or basilican type, with its apse and aisles, adopted by the builders of our abbeys and cathedrals. Both these types were common in Saxon times, and survived the change of style at the coming in of the Normans. The plain rectangle was probably suggested by the Saxon wattle-churches; the second type was no doubt a survival of the simpler of the Saxon churches built with stone.

A few more examples may be mentioned. Bicknor church was originally a simple rectangle in plan. The aisles and tower were middle-Norman additions. The tower is curiously placed at the west end of the south

\* Perhaps the veil or curtain served the purpose alone. Cf. Durandus (quoted by Bloxam in his *Principles of Gothic Ecclesiastical Architecture*, vol. ii., p. 35, note): Notandum est quod triplex genus veli suspenditur in ecclesia, videlicet quod sacra operit quod sanctuarium a clero dividit, et quod clerum a populo secernit.

aisle, west of the line of the west wall of the church. The church was restored many years ago by Mr. Bodley. The whole of the interior was then faced with chalk-ashlar; and the exterior was rough-cast, so that the walling and quoins are hidden. The only sign that is left to view of the early-Norman work is the blocked western doorway: this is made of tufa with shallow imposts of chalk. The imposts are mutilated. The present incumbent, Mr. Gardner-Waterman, has a photograph or drawing of the west end, exterior, taken before the restoration, which shews the original north-western quoin, and affords additional and conclusive proof that the aisles were not coeval with the body of the church. Cut off the aisles and block up the arcades and we have the form of the early-Norman building. The striking features of these plain rectangular churches are the absence of chancel arch on the inside and the unbroken level of the external ridge of the roof. Huckling was originally built on the same plan, but its later additions are not so easily understood on account of an unsympathetic restoration. Tufa may be seen in some of the later windows, and also in the jambs of the remarkable semi-circular arch of large span in the original north wall inside the entrance. The materials of these jambs probably came from the original narrow doorway in the same wall. The cut-stone of the additions of one period was Caen-stone, of another, chalk, and of a third, ragstone. The proportions of these two small churches are remarkable for their great length compared with their breadth.

Of the second kind of plan also a few examples may be mentioned. Padlesworth\* is unaltered save for the

\* Near Snodland. Not the place of that name near Hythe.

destruction of the narrow chancel-arch and the insertion of a wider, corbelled arch. The two churches of Padlesworth-cum-Dowd will be more fully described in a separate paper in a future volume. At Addington two chantry-chapels and a western tower have been added to the original structure, but the quoins of the latter are still visible. Ditton is a good example for the study of quoins. Buttresses have been built up against four of the six angles, and in each case some of the tufa-quoins were removed in the process to allow the new and old work to be bonded together. The tower is perpendicular; the vestry and the chancel-arch are modern. The church was restored in 1869 by Sir G. G. Scott, who removed the original narrow chancel-arch. The recess in the north wall of the chancel, seen inside the vestry, was made at the time of the restoration, but the head of it is evidently that of an original doorway into the chancel, as proved by the block-capitals. These imposts have already been described. The semi-circular head is supposed to have been a window at some time; if so, the doorway must have been blocked and the head glazed. The remains of a corresponding doorway exactly opposite this one and in the south wall of the chancel may be seen on the outside. In this case the head has been destroyed, and the lower part blocked. The jambs and block-capitals may be seen on close examination. Above them there is a later window. These facts yield a peculiar arrangement: a doorway to the west and a window to the east in each of the side walls of the original chancel. The original windows of the nave have disappeared. The tufa-footing is exposed at the bottom of the chancel-walls, and just above it on the south side a plain instance of herringbone masonry in iron-sandstone. Ryarsh church is another

good example. The chancel-walls shew herringbone masonry in Kentish Rag, two good tufa-quoins, a small window on the north side, and the remains of three openings in the east wall which were constructed with chalk on the inside. The perpendicular south aisle and the western tower are, of course, additions. The north wall of the nave is original, and contains one of its original windows. The tufa-quoin of the north-eastern angle of the nave has been rebuilt into the angle of the modern organ-chamber attached to the north side of the chancel. The upper part of north-western quoin is *in situ*, the lower part rebuilt into a buttress built up against the western face of the angle. The old chancel-arch was removed when the aisle was built. Another church worth notice is that of Leybourne. There the south wall is early-Norman, and its eastern quoin remains intact. The western quoin has been rebuilt lately, but one or two of the tufa-blocks of the old quoin may be detected in the walling hard by. The old chancel-walls have been refaced throughout and angle buttresses added. The north aisle and tower are both additions to the original building. Yet another example exists at Deptling, where almost the whole of the south walls of the nave and chancel are early-Norman. A close scrutiny detects the jamb of one of the old windows.

These examples suffice to shew how much early-Norman work remains in the neighbourhood, and to illustrate the additions made to the original buildings. Seldom or never, in mediæval times, was a church pulled down and rebuilt on a larger scale for the sake of increased accommodation or of greater glory. In those days there were no schools to which the services might be transferred during rebuilding or alteration.

It was invariably so arranged that some part of the church was available for use. In some cases the only addition to a church has been that of a chantry-chapel on one side or both sides of the chancel. As a rule the first addition to a church was that of an aisle. This was generally built on the side of the nave away from the graveyard, through which ran the path leading to the chief or only entrance. In a double-aisled church it is safe to assume that the aisle standing on part of the graveyard is later in date than its companion. The graveyard was usually placed on the south or sunny-side of the church. Mr. Micklethwaite tells us that western towers, as well as aisles and chapels, are usually additions to the earlier churches. There are many examples of this rule in our district. The early-Norman towers which have been mentioned above do not come under this rule. They appear to have been built, not as mere church-towers, as we are now used to consider them, but rather for defensive purposes and apart from the churches which stood near them.\*

In most of our churches, however many the additions, whether they have been destroyed or still exist, the student who has some knowledge of Norman ground-plans, and of local building-stones and the periods at which the use was fashionable, may generally succeed in tracing the original building and the history of the changes and additions which may have well-nigh absorbed it.

\* These early towers deserve more attention than they have received: a description of St. Leonard's tower and chapel at West Malling is already in MS., but the illustrations cannot be finished in time for this Volume.

## APPENDIX.

IN order to avoid distracting the reader's mind by frequent digression and reference to footnotes, I have thrown some additional matter into an Appendix. This will serve to bring the results of the paper into line with facts drawn from a wider area and prevent the possibility of those results being applied too rigorously in a study of the churches of other districts. It would be absurd, for instance, to apply the tufa test to districts where tufa does not occur; and it is not necessarily applicable wherever it does occur: all that has been asserted, and I think proved, is that this test is a faithful one in the district that has been under review. At the same time it seems that the study of local materials has not received the attention it deserves here or elsewhere: no description of a church can be considered complete unless it gives the names of the stones of which the church is built, and the sources, local, or otherwise, from which the stones were drawn. Again: it has been laid down as an axiom that most of our churches have a nucleus of early-Norman date, that is of late 11th century or very early 12th century date. Of course this period must have been extended had not the paper been treating of a particular district, and that district near the centre of Bishop Gundulf's influence. Under that influence the Saxon churches were rebuilt by the Normans at an early date after their coming into the country. The Normans found the parochial system well developed, and a church in every parish. As the Saxon churches in the great majority of cases were built of wood, the Normans, in rebuilding them in stone, had to find fresh material and felt themselves untrammelled in respect of plan and design. Still, there was a goodly number of Saxon churches built of stone, and these the Normans wisely refrained from destroying. Darenth and Wouldham, in our district, are undoubted examples of Saxon stone churches which the Normans left standing, and to which they made additions when they felt they were necessary.

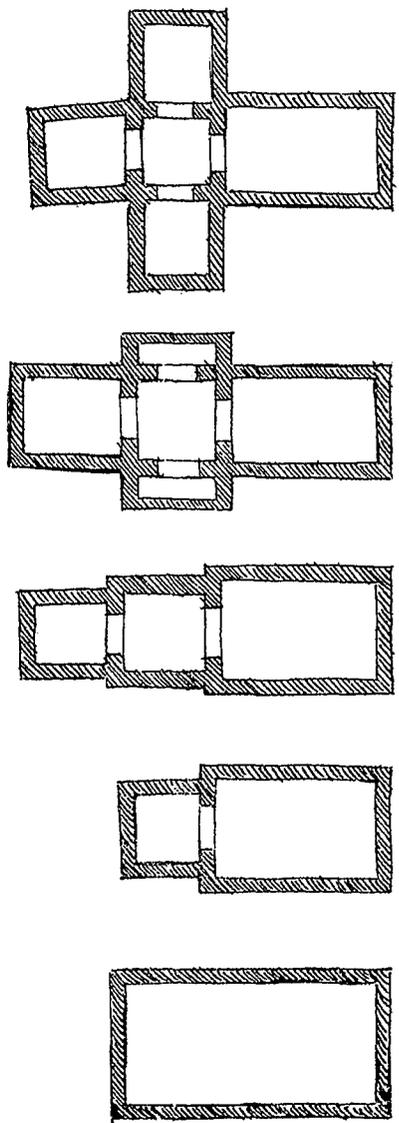
With regard to the plan, neither the Saxons nor their Norman successors restricted themselves to the two simple types of plan which I have described. Mr. Micklethwaite, who does not mention the oblong plan, speaking of the other—the plain nave and square-

ended chancel—tells us it remains in a perfect state in the Saxon church of Escomb in Durham, † and it is seen, with a porch (originally, Mr. Irvine says, with two porches) at Bradford-on-Avon. But at Stow in Lincolnshire the Saxon church was built on the fully-developed cruciform plan; and the Saxon churches of Deerhurst and Worth were likewise cruciform, though at Worth the transepts were small, and at Deerhurst they were separated from the nave by a solid wall. With such examples before them it is natural that the Normans sometimes used more complex forms. Occasionally, as at Melbourne in Derbyshire, a fully-developed monastic plan with aisles and apses was followed; but the monastic influence was not often felt in country churches, which at first were remarkable merely for the square east-end and the absence of aisles to the nave. According to Mr. Micklethwaite the types which in some districts asserted themselves in Norman times side by side with the more simple and common types, are, firstly, nave and chancel with tower in the middle; and, secondly, nave, transepts, and chancel, with central tower. The second will probably be found to have been a development from the first, the transepts supplying the necessary support to the tower as well as giving the cross form. Albury in Surrey is a good example of a plain, unbuttressed tower standing between chancel and nave. At Shiere, the next parish, the same plan was adopted, but the tower strengthened by deeply-projecting buttresses on the north and south sides. The space between the two buttresses on each side was thrown into the church, so that on the inside the cross form is suggested. It is easy to imagine the development of these wings into true transepts.

The four types, then, of Norman ground-plans are these:

1. The simple oblong; 2. The simple nave and small sanctuary;
3. The more complex nave and sanctuary with tower between them;
4. The complete cruciform plan with central tower.

With these four types in mind and some knowledge of local materials the student can seldom fail to discover in a church the original building amid later additions. Perhaps I may venture to say that, for a satisfactory solution on the one hand of the development of the original ground-plans of our country churches, and, on the other hand, of the puzzles presented by later additions in individual cases, there are these *desiderata*: separate descriptions of the remains of Saxon churches, and a master-mind to bring them together and discriminate the styles and periods of Saxon architecture—a gigantic task;



I  
II  
III<sup>a</sup>  
III<sup>b</sup>  
IV

NORMAN GROUND PLANS .

G. R. Invelt del.

and, a careful search for and comparative study\* of original Norman churches in districts bounded by the limits of the different local building-stones—an easier task, towards which the foregoing paper is a slight contribution. The title of the paper implies a short series of papers in which I hope to describe in detail some of the early-Norman buildings of the Medway Valley.

\* \* \* \* \*

The axe has been mentioned as the tool which the early-Normans used in dressing their ashlar-work. It continued in use for this purpose, until, as Gervase of Canterbury tells us, William of Sens introduced the chisel into the country in the year 1174. The late-Normans used a drill to work out the deeper portions of their elaborate carving, but throughout the whole period they finished off even the most delicate work with the axe. This gives us a clue to the reason why Norman ornament is generally so shallow. The marks of the axe form a good test of Norman ashlar-work. Then, as nowadays, stones were squared and faced on the *bench*, the *banker-man* putting his *banker-mark* on each stone when he had finished it. In facing the stone the workman so handled his axe that its marks appear diagonally across it, not quite parallel, but radiating with

\* The need of comparative study may be well illustrated by the results it gives in the district around Guildford and Godalming. Here, as elsewhere, the plain nave and sanctuary, was the common type, but there are a few interesting churches which have grown from the cruciform plan with central tower. The influence may be traced to St. Mary's, Guildford. This church has grown up round a very curious Saxon tower which once stood by itself on the boundary of the enclosure in which, later on, the castle was built. The tower is built of flints and has on each side four pilaster strips of the same material, which are still visible above the roofs of the church, and some of them at the bottom of the tower inside the church. To the east of this tower a small oblong church was added in the early-Norman period. A few years later an aisleless nave and north and south transepts were added to the remaining sides of the tower, and, as these sides were far removed from being square with each other, and as each of the new arms was laid out at right-angles to the side of the tower to which it was attached, the result was a very irregular cross-church. The three added arms have been absorbed by later alterations and additions, but have been recovered by careful measurement of the building. The influence of this cross-plan with central tower was felt at Godalming and elsewhere. At Godalming there was a plain nave and sanctuary, perhaps of Saxon date. When additions were needed, instead of following the usual methods, the builders made the chancel the centre of a cruciform church. They kept the old nave, and added transepts and a new chancel to the three external sides of the old chancel. They also thickened these three sides of the old chancel and built a central tower on them. The original chancel arch with its wall was unaltered, the west wall of the tower resting on its gable. These examples no doubt suggested the fully-developed cruciform chapel (St. Martha's), of later Norman date, which stands on the old Pilgrims' Way near Guildford.

the swing of the arm from the elbow as centre. The diagonal marks are not easily seen on such a rough material as tufa, but on the finer Caen-stone of the later Norman periods they are unmistakable and easily distinguished from the marks of the chisel used in the 13th century. The Early English masons used both plain chisels and claw-tools, according to the nature of the stone they had to deal with, and moved them across the squared stones from side to side, so that the marks always appear vertical. The new tool had much influence in hastening the change of style: the shallow hollows of the Norman arch-mouldings immediately gave place to the deep hollows which characterise the Early English arches and vaulting-ribs. The axe remained in use for rough work for many years, even for centuries, but seldom for finished work. These facts make it most desirable that in restoration or repairs the original face of mediæval ashlar should not be tampered with.

\* \* \* \* \*

The term *middle-Norman* calls for little explanation. It has been applied to what is sometimes merely called Norman, sometimes pure Norman, in distinction from early-Norman and transition-Norman. It is characterised by the finely-jointed and finely-faced ashlar which came into fashion during the early years of the 12th century, accompanied by scalloped capitals, moulded bases, and shallow zigzag and other heraldic-looking ornaments. The subdivision of the style into early, middle, and late-Norman seems natural and convenient. *Later Norman* is merely a relative expression, applied to either middle or late-Norman, or to both together, according to the context.

\* \* \* \* \*

A few words on Norman materials, as found in the district under discussion, will not be out of place. The deposit of tufa at East Malling has lately been pierced by Mr. White, a builder of West Malling. This discovery confirms the tradition noted by Mr. W. Topley, F.R.S., in his Geological Survey Memoir, *The Geology of the Weald* (1875), p. 369: "Calcareous tufa occurs at East Malling, lying about in the fields; it is no doubt derived from the Kentish Rag. There is no section shewing it now, but I am told that it runs in a line from the Rectory westwards. It has been dug in some quantity at one time, as large masses are built into the walls of East Malling Church, and it has been much used in St. Leonard's tower. This tower is *Early-Norman*. . . . The arches are constructed with tufa, whilst in later and more finished Norman work

(as the keep at Rochester Castle), Caen-stone is used for this purpose." This note is particularly interesting, shewing that a *Geologist* nearly twenty years ago, knew well that the keep at Rochester was built after the time of Gundulf, to whom to this day it is popularly ascribed.

As the Norman builders gained experience in their art, feeling the need of a finer stone, they abandoned the use of tufa. Caen-stone took its place; but it is not common in our district, for there was little building done here in the middle-Norman style, most of the parish churches having been only recently rebuilt. It is seen in the chapter-house and second Norman nave of Rochester Cathedral, which were built between 1115 and 1130. Frindsbury church was built or rebuilt about 1127, and the middle-Norman chancel of Caen-stone remains. The eastern part of the chancel of Darenth, added to the Saxon chancel (now destroyed) about the same time, is likewise of Caen-stone. The tower-arch at East Farleigh belongs to the same period and style. The chapel of St. John in the Tower of London, which was built by Bishop Gundulf at the King's command, seems to belong to what may be called the transition from early-Norman to middle-Norman. The round pillars of the arcade are built of tufa and Caen-stone used indiscriminately. The tufa was carefully selected and dressed and does not shew its characteristic vesicular nature. The chapel may be dated about 1090, and probably marks the introduction of Caen-stone into use in England by the king's architect. Paddlesworth church (now dismantled) seems to illustrate the change of material in much the same way. In a few cases chalk was used in country churches at this time, as at Wouldham, where a north aisle was added: perhaps the Caen-stone was found too expensive. Caen-stone, however, was used in the tower, with its fine arch and doorway, at Borden and in the similar doorway at Bredgar.

In the late-Norman period, when the Normans had gained a fuller knowledge of the resources of the country, and aisles or chantry-chapels were being added to the churches, they introduced the use of *firestone* quarried from the Upper Greensand at Godstone near Reigate. The chantry-chapels at Gillingham and Newington, and the destroyed chapel on the south of the old chancel at Darenth, of which the arcade still remains, may be cited as examples of the early use of this stone. The more strictly local stone, chalk, was used in some cases, as at Burham and Wouldham. Firestone became very popular in the 13th and 14th centuries. The Early

English choir and the transepts of Rochester Cathedral are built with this stone. In the 15th and 16th centuries Kentish Rag came into common use for all cut and faced work.

It is thus seen that the district affords special advantages to those who care to study the growth of our parish churches. Burham church is a remarkable example of changes. Originally there was the early-Norman church of the common plan. A century later a north aisle was added, to be followed shortly by a south aisle. Then, in the 13th century, a new chancel was built up round the old one, on a much larger scale, having side-chapels separated from it by arcades of two arches. Late in the 14th or early in the 15th century, a tower was built at the west end, and at the same time the aisles and side-chapels were demolished, their arcades blocked, the east wall rebuilt further west, and the whole church thus reduced to a plain rectangular plan with western tower and south porch. Tufa, chalk, firestone, Kentish Rag, were the materials used successively at these four periods. Windows of each period exist either in their original positions or removed from some destroyed portion and placed in the blocking-walls.

In conclusion, I have to express my thanks to Mr. J. T. Micklethwaite, F.S.A., for the loan of his paper on *The Growth of English Parish Churches*, which has given me much help, and to Mr. W. Whitaker, F.R.S., for scoring a few valuable notes on the MS. of this paper.