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X. -- Gundulf's Tower at Rochester, and the first Norman Cathedral Church there.
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The first Norman cathedral church erected at Rochester was a building presenting remarkable, and in some respects unique, features. Though very little of the original fabric remains above ground, discoveries made from time to time, and fortunately put on record, enable us to ascertain its precise extent. Its documentary history, too, is fairly clear.

Like so many of our great churches, the first Norman cathedral church at Rochester succeeded a much smaller one built by our old-English forefathers; and, in order to elucidate the architectural history of the later church, it is first necessary to review briefly certain facts concerning the earlier one.

According to Baeda,^{/a} in the year 604, Augustine having consecrated bishops to the newly-founded sees of London and Rochester, Æthelbert, king of Kent, built a church in each of those cities, and endowed them with lands and possessions. The churches are said to have been built by the king *a fundamentis*, a phrase which may imply they were of stone and not of wood. The church at Rochester was dedicated to St. Andrew, and Justus, the first bishop, although he was himself a monk, placed it in the hands of secular priests.

^{/a} "Anno Dominicae Incarnationis sexcentesimo quarto Augustinus Britanniarum archiepiscopus, ordinavit duos episcopos, Mellitum videlicet et Justum Justum vero in ipsa Cantia Augustinus episcopum ordinavit in civitate Dorubrevi in qua rex Ædilberct ecclesiam beati Andreae apostoli fecit, qui etiam episcopis utriusque ecclesiae dona multa obtulit; sed et territoria ac possessiones in usum eorum qui erant cum episcopis adjecit." *Baedae Historia Ecclesiastica Gentis Anglorum*, ii. 3.

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The only other items in the history of the old-English church which concern us are -- (1) that bishop Paulinus, formerly bishop of York, was buried in it in 644 -- a century earlier than the concession of the privilege of intramural interment to the metropolitan church of Canterbury;^{/a} (2) that bishop Tobias was buried in 726, "in the apse (*porticu*) of St. Paul, which within the church of St. Andrew he had made into a place of sepulture for himself;"^{/b} and (3) that bishop Ythamar, who died in 655, was buried in the first church.

From analogy with contemporary buildings, there is reason to suppose the first church was built on the Roman or Basilican type, with an apse at each end; the western one containing the high altar of St. Andrew, with the tombs of bishops Paulinus and Ythamar; the eastern the altar of St. Paul and the tomb of bishop Tobias. The old-English church appears to have stood on the site of part of the nave of the present building.

We now come to the history of the first Norman church.

According to the chronicles of the church itself, in the year 1075, Syward, bishop of Rochester (who was consecrated in 1058), died, and was succeeded by

Arnost, a monk of Bec. At that time the church was in a most miserable plight, being steeped in poverty within and without, and the four canons who formed the chapter had scarcely any means of support, and neglected the services. With a view of correcting these abuses, and of eventually replacing the college of seculars by a convent of monks, archbishop Lanfranc had appointed Arnost to the vacant see on Syward's death, but Arnost died after half a year, and the primate's scheme fell to the ground. Lanfranc appears to have experienced considerable difficulty in finding a suitable successor to Arnost, and the see of Rochester remained unfilled for more than a year. The archbishop then appointed his own chamberlain, the famous Gundulf, to the vacancy. Gundulf had been a monk and sacrist of the abbey of Bec in Normandy while Lanfranc was prior, and had there made the friendship of the great Anselm. On Lanfranc's advancement to the see of Canterbury, Gundulf accompanied him to England, and was placed over his household. The first endeavour of the new bishop was to replace the canons of Rochester by monks, but the poverty of the church was very great,

/a "Ab incarnatione Dominica anno sexcentesimo quadragesimo quarto, reverentissimus pater Paulinus, quondam quidem Eburacensis, sed tunc Hrovensis episcopus civitatis, transivit ad Dominum sexto iduum Octobrii die sepultusque est in secretario beati apostoli Andreae, quod rex Ædilberct a fundamentis in eadem Hrofi civitate construxit." Baeda, iii. 14.

/b "Sepultus vero est in porticu sancti Pauli apostoli, quam intra ecclesiam sancti Andreae sibi ipse in locum sepulchri fecerat." Baeda, v. 23.

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and it was not until the recovery, by Lanfranc's aid, of the long alienated property of the church and see, that the primate's scheme could be carried out. This did not take place until 1082, in which year the priory of Rochester became an established fact by the introduction of twenty monks. For the accommodation of such a number of religious, the old church built by Æthelbert, which Gundulf found at Rochester, was much too small, and it is, moreover, described as *pene vetustate dirutam*. The bishop therefore pulled it down and commenced a new one, with convenient conventual buildings for the monks. It is expressly said to have been finished in a few years, because Lanfranc assisted with large sums of money./a

The plan of Gundulf's church was peculiar, and differed considerably from the typical Norman one. It consisted of a nave and aisles, which, though unfinished, were intended to be at least nine bays long; an aisleless transept, 120 feet long, but only 14 feet wide; and an eastern arm with aisles six bays long -- an unusual number for a Norman church -- terminating in a square end, instead of an apse, with a small rectangular chapel projecting from the centre of the front. The four easternmost bays were raised upon an undercroft. There was no tower over the crossing, nor any towers flanking the west end, but a detached campanile stood in the angle between the choir and north transept, and to balance it, as it were, another tower was erected in a corresponding position on the south side, but of smaller size, and an integral portion of the fabric.

This remarkable plan seems to have been made, as were those of other buildings erected by Gundulf in Kent, on an English rather than a foreign model, and it is exceedingly interesting to find the native idea reasserting itself so early. The cathedral church of Old Sarum seems to have had a square end like Rochester, but I have not yet found any parallel to the small eastern chapel, or to the disproportionately narrow transept.

Several other considerations appear to have influenced the singularity of plan, of which the chief are (1) the existence of earlier structures; (2) the twofold

division of the church into monastic and parochial; and (3) the possession and acquisition of relics.

Before Gundulf began his new church, and probably just after his consecration, he erected to the east of the old minster a massive tower. This still remains on the north side of the church. It is, however, a mere shell, stripped of its ashlar lining and reduced in height to about forty feet. It was originally

^{/a} "Opus omne intra paucos annos Lanfranco pecunias sumministrante multas perficitur." Cott. MS. Nero, A. 8, f. 52.

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nearly twice that height, for there are no windows in the triforium of the present north transept, opposite its western side, and it was lofty enough for a flying bridge to be thrown over to it from the top of the early-English turret at the north-west angle of the choir transept.^{/a} That this tower was erected previously to Gundulf's church is proved by the existence of four long narrow windows, one in each side of the ground floor, two of which became useless when the church was built. The basement has been so knocked about that it is uncertain where the original entrance was. The present entrances are through a large opening cut in the north wall, and through a door in the south-west corner, formed by knocking out the back of an original recess there. During the early-English period the north-east angle, which is the one that derives least support from the church, was strengthened by massive buttresses, and an upper story, apparently of wood, added on projecting arches resembling machicolations. This was probably to hold the bells.

That Gundulf was the builder of this tower is evident enough to anyone who is familiar with his peculiar mode of building, but the object for which he built it is not easy to show. Primarily it may have been raised for defensive purposes, but we know that at a very early period it was used as a bell-tower. The chronicles of the church fortunately contain several important entries to prove this.

The earliest of these states that prior Reginald (who died 1154) "made two bells and placed them in the greater tower (*in majori turri*). One which had been broken was applied to the making of another bell."

We next find that "Thalebot the sacrist (who lived in the twelfth century) made a great bell (*cloccam magnam*) which, even to the present day," saith the fourteenth century scribe, "retains the name of the aforesaid Thalebot."

A little later we hear that "Radulfus Breton had in his custody 15 marks of silver from his brother, who was killed when crossing the sea. Which Radulfus, when at the point of death, assigned the aforesaid 15 marks to making a bell for his brother's soul. This money was delivered to Radulfus de Ros, then sacrist, who took a broken bell which had stood for a long time in the nave of the church, and brought it to London and made the bell that is called *Bretun*, which cost 44 marks."

Both "Breton" and "Thalebot" were hung in the "greater tower," for the *Custumale Roffense* (written about 1300) directs the servants (*famuli*) of the church to strike three blows, *inter cenam in turri majori de majori signo, vel de Bretun vel de Thalebot*, on principal feasts.

^{/a} See the drawing on Plate I., from Grose's *Antiquities of England and Wales* (vol. v.), showing the tower as it was in 1781. ^{/b} Thorpe, *Registrum Roffense*, 118 et seq.

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The mention of a "greater tower" tells us there was another, and this is

proved by an item in the Instructions given in the *Custumale* for the Commemoration of Benefactors, where, for Odo, bishop of Bayeux, and others, there is ordered *signum grossum unum cum ceteris in parva turri*.

That the *major turris* and *parva turris* were Gundulf's two Norman towers is certain, because there was no central tower until 1343 -- subsequent to the entries in the *Custumale* -- when we learn that bishop Haymo de Heythe caused the new campanile of the church of Rochester to be made higher with stone and wood, and to be covered with lead; he also placed in the same four new bells, which were named Dunstan, Paulinus, Ithamar, and Lanfranc.^{/a} Lastly, Thorpe quotes a lease by the Dean and Chapter, in 1545, to Nicholas Arnold, priest, of "all their lodgings, which was sometimes called the wax chandler's chambers, together with the little gallery next adjoining, with all usual ways, that is to say, through the three-bell steeple, sometimes so called, and so up to the north side of the church, and so on to the stairs that goeth to the six-bell steeple."

The ruined tower at Rochester is therefore an example of a detached campanile; and, if Gundulf built it as such, it is probably the earliest one erected in this country.

With regard to the division of the church between the monks and citizens, it is only necessary to say that the parish altar was dedicated to St. Nicholas (like so many maritime examples), and is first mentioned in a charter of bishop Gundulf *circa* 1105.^{/b} It stood in the nave *sub pulpito*, against the rood-loft, where it remained till 1423, when, in consequence of the usual squabbles, it was removed into a new church built by the parishioners themselves on the north side of the cathedral church in the cemetery called Green Church Haw.

After Gundulf had built his new monastic church, the chronicle states that "the same venerable father, when he had called an assembly of monks and clerics, as well as a great multitude of people, with much solemnity went to the sepulchre of the most holy confessor Paulinus, who had been buried in the old church, and caused the treasure of his holy relics to be removed into the new church, and to be laid in the place decently prepared for the purpose."^{/c} The credit of this translation is elsewhere attributed to Lanfranc, who is said to have "caused the body of St. Paulinus to be raised, and to be placed in a silver shrine which he himself

^{/a} *Anglia Sacra*, i. 375. ^{/b} *Reg. Roff.* 6.

^{/c} "Perfectis igitur omnibus; sicut dictum est que servis dei apud rovecestriam manentibus poterant esse sufficientia. habito cum sapientibus consilio idem venerabilis pater collecto monachorum et clericorum conventu. necnon et copiosa multitudine plebis. cum magna solennitate accessit ad

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had caused to be made."^{/a} That Gundulf had a hankering after relics is shown by the curious incident that occurred at Westminster in 1102, when abbot Gilbert dug up the body of Edward the Confessor to ascertain whether it had "seen corruption." Gundulf happening to be present, was desirous of plucking out a hair of the saint's beard as a relic, but was stopped by the abbot, though he said "do not attribute this my endeavour to presumption, but to devotion, seeing that if the opportunity were given me, I should have preferred even a scanty portion of his relics to the wealth of Croesus."

In spite of a number of rebuildings, and patchings and alterations, we can identify the following parts of the first Norman church:^{/b} --

(1.) Three bays of the north wall of the north nave-aisle, up to the first string-course, with the bases of three buttresses (though one of these is no longer visible).

(2.) Four and a half bays of the south wall of the south nave-aisle, but to what height is uncertain.

(3.) Five bays of the south arcade of the nave, as high as the triforium passage -- now with later Norman outer order substituted on the nave side, and the piers recased.

(4.) The great north tower.

(5.) The western half of the undercroft.

The entire ground-plan is recoverable from these portions, and from discoveries made during the repairs of 1872 and subsequent years. Also from borings made by Mr. Ashpitel in 1851, and excavations undertaken by myself in October and November, 1881.

The question, How did Gundulf's church end? was first answered with any degree of accuracy thirty years ago.^c From the analogy of Canterbury, Norwich, etc., and Gundulf's own work in the Tower of London, Rochester ought to have had an apsidal termination. Mr. Ashpitel, however, by means of a boring-rod, struck the foundation of a broad wall running across the width of the central portion of the undercroft, from which he inferred that the end of the church was square.

sepulchrum sanctissimi confessoris Paulini. qui in veteri ecclesia reconditus fuerat; et thesaurum sanctorum reliquiarum eius in novam ecclesiam transferri. et in loco decenter ad hoc preparato reponi fecit." Cott. MS. Nero A. 8, f. 53.

^{/a} "Lanfrancus archiepiscopus fecit etiam levare corpus sancti Paulini et in feretro argenteo quod ipse fieri fecit poni." Cott. MS. Vesp. A. 22.

^{/b} The parts of Gundulf's church which remain above ground are shown in solid black on the block ground plan on Plate I.

^{/c} See Mr. Ashpitel's paper in vol. ix. of the Journal of the British Archaeological Association.

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With this discovery he appears to have been content, and he did not think it worth while to ascertain whether the aisles were of equal length with the central division. Investigations by boring-rods always appear to me unsatisfactory; and as it was possible that Mr. Ashpitel's cross-wall might be, after all, only a bonding-wall across the chord of the apse, I determined to examine the question *de novo*. In the autumn of 1881, having obtained the Dean's kind permission, I sunk a number of holes in various places in the earthen floor of the undercroft, and had a trench cut down the central line. My labours were fully repaid by the finding of the foundations of sundry walls.^a When carefully measured and plotted, the following facts became evident: --

(1.) That the church terminated, as Mr. Ashpitel had surmised, in a square end, and not in an apse, built on a foundation eight feet wide.

(2.) The eastern limb had aisles equal in length to the presbytery.

(3.) Beyond the cross-wall was a small rectangular chapel, about 6½ feet long by 9 feet wide, which, it is to be noticed, projects from the middle alley of the central division of the undercroft, and not its whole width.

To make quite sure I followed the foundations of this chapel all round to their junctions with that of the great wall, with which it is contemporary. What its use was I cannot say, but it must have supported an upper story, on which I shall have some remarks to make presently. Eastward of it, for some distance, the virgin soil which forms the undercroft floor has never been disturbed.

I may mention that the man who cut the trench came upon a box containing bones, the lid of which was level with the earthen floor, on the site of the eastern chapel. I call it a box, because of its shortness, and the bones were arranged anyhow in it, the skull for instance lying with the leg bones. How these remains came there I do not know, but, as they lay level with the floor, it is possible they may be the contents of one of the three shrines of holy persons which stood in the church, viz., St. Paulinus, St. Ythamar, or St. William, and which were swept away with other "cathedral stuff" under Henry VIII. The box was unfortunately not noticed by the workman until he had nearly demolished it. Its contents were reburied when the trench was filled up.

The undercroft, of which the western half remains almost in its original state, consists of a central portion beneath the presbytery of four bays, measuring about 46½ feet long by 26¾ feet wide, with aisles equal in length to itself, about 10¾ feet wide. The central portion was divided into three alleys by two rows of

/a See the ground plans on Plates I. and II.

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three columns supporting the roof, with corresponding engaged responds against the walls. Two of the detached columns still exist and consist of circular monolithic shafts, nearly 4½ feet high, with very plain and rude square cushion caps, and simple bases set on a square plinth. The responds have similar caps and bases, but the semicircular shaft is formed of five or six courses of tufa bonded into the wall. The monolithic shafts and the caps and bases are of Barnack stone. The roof is a plain rubble vault without ribs of any kind, retaining its original plastering. It exhibits a singular instance of ingenuity characteristic of early-Norman work. The edges produced by the intersection of the half cylinders forming the groin are pinched up, as it were, so as to accentuate the lines, which would otherwise be lost where they intersect at the crown of the vault owing to the large size of the elliptical curve at that point. Just above the caps of the isolated shafts the springing of the vault batters slightly to a height of 8 inches before it curves outward. The main portion of the undercroft opens into the aisles on each side by four semicircular-headed arches, each 5 feet 6 inches wide, without a chamfer or a moulding. In fact they are so plain as to resemble holes punched through the wall, which is thus reduced to pier-like masses of masonry 6 feet square, with vaulting shafts on the north and south faces. Probably a similar arch opened into the singular projection on the east. The aisles are vaulted like the central portion, but the vaulting shafts consist of engaged flat pilasters of 9 inches projection and 2 feet in width, having no bases and with a plain abacus chamfered on the lower edge. The pilasters are formed of tufa courses, but the capital is of Barnack stone. The undercroft was lighted by four round-headed windows on each side, and probably three at the east end. Two remain on the north but blocked by later insertions, and one on the south, now cut down to form a doorway. From these we find the opening was 2 feet 3½ inches, and the splay about 4 feet wide. The sill seems to have been stepped, but of this I am not yet certain. Between these windows externally was a flat pilaster buttress --

part of one remains on the south side. Judging from certain square holes cut in the vaulting just above the caps, there appears to have been a wooden screen carried right across the undercroft and its aisles between the two westernmost bays, forming as it were an ante-chapel. The whole of the walls and arch-soffits are still covered with the original plaster in a very perfect state; but the south side of the last bay of the north aisle, together with the voussoirs and flat jambs of all the arches, have never been so covered.

The undercroft was entered from the upper church by a round-headed doorway -- 4 feet wide and 7½ feet high -- at the west end of the north aisle. This door

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is now blocked, but was partly opened a few years ago, when it was found that the passage up to the choir aisle was not vaulted, and is still quite perfect with, at any rate, two of the steps *in situ*. This passage was not parallel to the walls but deflected towards the north, so as to permit of the choir aisle containing two sets of steps in its width -- one to the undercroft, the other to the higher level above it. The last bay of the south aisle is filled up with the present steps and entrance doorway put in *circa* 1205, when the eastern half of the undercroft was removed and the fine early-English extension added. From analogy we should suppose there was an original southern entrance, but no trace of it was visible when the present top step was taken up some years ago for laying gaspipes, and had the doorway been there it must have been seen.

We now come to the upper church, which I will endeavour to describe as briefly as possible. The eastern arm measured about 76 feet in length, and 60 feet in width. It was six bays long, with the eastern three-fifths upon the undercroft. The aisles appear to have been completely shut off by solid walls, as the present choir is, and as the presbytery of St. Alban's abbey church was. Light would be obtained from the east end and clerestory. Behind the altar was, it is presumed, the upper story of the small eastern chapel, which would reach probably only two-thirds of the total height of the front, leaving space for an upper range of windows to light the presbytery. It would be interesting to know what this chapel was built for. My own idea is that it is the "place decently prepared" by Gundulf when building his new church to contain the relics of St. Paulinus, but I only put forward this notion in default of a better, and in the absence of a parallel instance of such an eastern adjunct. We seem here to have the first germ of the prolongation of the presbytery by chapels which eventually produced such beautiful buildings as the Lady chapels of Lichfield, Westminster, and Gloucester.

During the repairs of 1872 a tunnel was made from the undercroft to the pulpitum at the entrance of the choir on which the "pair of organs" stands for the windtrunks from the bellows, which are placed in the undercroft. In the course of the work no less than four floors were cut through before reaching the virgin soil.^{/a} The lowest of them was clearly that of Gundulf's church. It is described by Mr. J. T. Irvine^{/b} as made of firm plaster mixed with shells, laid upon mortar with a substratum of flints, and of sufficient strength to serve unsupported as the roof of the tunnel for half its length. This floor varied in level; at

^{/a} See "section" on Plate I.

^{/b} Then clerk of the works under Sir G. G. Scott, and to whose valuable notes of this and other discoveries in connection with the early-Norman work I am much indebted.

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its east end, where it abutted against the west wall of the undercroft, it was

5½ feet below the upper or presbytery floor. It then sloped westward for about 15 feet with a total fall of 7 inches. Here a very short sloping descent brought it 3½ inches lower. It then continued on a level for another 10 feet, when a 6-inch step brought it to the level of the nave floor, which is 1 foot 8 inches below the present one. Mr. Irvine says there was evidence of a screen across the arch at this point and that the plaster floor extended through the central doorway, but was not carried to the right and left within the entrance. It looks therefore as if the monks' stalls did not extend into the nave, but occupied the cramped space between the screen and the west wall of the undercroft. This space in itself is sufficient, but, in addition to the choir fittings for a large number of monks, we have to find room for the steps forming the *gradus chori*. Since the floor runs right up to the wall of the undercroft these steps stood on the floor, and probably were of wood, but we have no information on this point, or as to their number and arrangement, as the upper side of the sloping floor was not examined. It is suggested by Mr. Micklethwaite that the sloping floor was pre-Norman, especially as it runs straight up to the undercroft wall. Mr. Irvine however tells me that he carefully examined the junction and found the wall and floor were contemporary. Of the steps in the north aisle mention has been made. Those in the south aisle, in the absence of a descent to the undercroft, would extend across the whole width. There is no evidence of the number and position of the various doorways and altars.

Of the transept there is nothing left above ground. When the south gable of the present transept was underpinned in 1872 the foundations of the east and south walls of the older one were found, shewing that in length it was equal to the present transept, which is 120 feet long. The remarkably narrow width -- only 14 feet -- is fixed by the existence under-ground of the footings of the clasping pilaster buttress at its south-west angle. This was exposed in 1872. There is also to be traced in the wall above a straight joint, with tufa quoin-stones, which pertains to a later rebuilding, but previous to the increase of the width of the transept to its present dimensions. This narrowness of Gundulf's transept is perhaps to be explained by the absence of a tower over the crossing. The east side of each wing of the transept did not open into an apse, as was often the case, for on the north there was the "greater tower" standing in the way, and to balance this, as it were, a smaller tower was built on the south, the north and west walls of which formed the south choir aisle wall and east wall of the transept respectively. A section of the east side of this tower,

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marked by the tufa quoins in the wall by the cloister door, is all that remains of it above ground. But its former existence and dimensions are proved by the foundations of its south and east sides underground, and by the north jamb of a later arch which spanned the east end of the aisle between it and the choir. I have already cited the documentary evidence for this small tower.

The remains of the nave have been previously enumerated. It should have been added that the bases of Gundulf's buttresses were discovered during the underpinning of the aisle walls in 1875--6. At the same time the more curious discovery was made that Gundulf did not finish his nave westward. All round the church, wherever the foundations of Gundulf's work have been met with, they are distinguishable by easily recognised characters from those of later builders. From this difference of foundation it is proved that on the south side Gundulf's wall stops short half a bay from the west front, while on the north it only extends three bays from the present west wall of the transept. In the first Norman

church, it seems likely, from the narrow width of the crossing, that the arcades were continued right up to the choir arch, after the old-English traditional manner of ignoring the transept as a part of the church (e.g. Dover and Deerhurst). There would therefore be nine arches on the south side and five on the north. To find a reason for this, we must remember that when Gundulf built his church the old-English one was standing, as well as the great tower erected by him to the east of it; the new works therefore had to be fitted in somehow between them, for the old church was wanted, at any rate in part, for service until the new one was covered in. I think, therefore, that the lines of the new nave were so set out that without removing the old church the south wall might be built to place the monks' cloister against, and that the work included the south aisle, while on the north, the old church stood in the way, and only five bays could be put up. We may therefore surmise that the site of the first church is to be looked for between the north wall of the present nave and the south arcade. There is no necessity for assuming that the old-English church occupied the site of the central alley, for the recently discovered remains at Peterborough seem to show that the site of the earlier church there is crossed by the south arcade. There is however a discrepancy to be accounted for, viz., that the documentary evidence states the old church to have been destroyed and a new one completed. The latter statement is undoubtedly wrong so far as Gundulf is concerned, and we must look elsewhere for an explanation. This will, I think, be found in the twofold division of the building into conventual and parochial, and the finished church will then be the monastic one, while the nave, being parochial, was only erected to such a height

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and extent as would secure the stability of the choir and transepts and enable the cloister to be set out. The parishioners proceeded with their part more leisurely, and the final completion of the nave seems indicated by an entry in the records that "bishop John (de Canterbury 1125--1137) translated the body of St. Ythamar, bishop of Rochester."/a This entry confirms the previous supposition that the high altar of the first church was placed in a western apse, which also contained the tombs of confessors. Gundulf's translation of St. Paulinus proves that some portion of this old church was standing when he had built his monastic one, and that the bishops' graves were well known, but it is not easy to say why St. Ythamar's bones were not removed at the same time.

Gundulf's arcades consisted of semi-circular arches of two plain square-edged orders. The plan of the piers is not known. There are no grounds for supposing the triforium was ever built, or the walls carried up higher than the first string-course.

The date of the first Norman cathedral church appears to be wholly between about 1080 (for the monks were introduced in 1082) and 1087, in which year certain vestments and ornaments were given to the church by William the Conqueror. The monastic portion must have been complete before Lanfranc's death in 1089.

It only remains to describe the characteristic features of the masonry in all Gundulf's work, so far as I have seen it in Kent. The rough walling is generally Kentish rag, with much flint internally, while the quoins and cut ashlar are of tufa. The only exceptions are the singular monolithic piers in the undercroft, with their caps and bases, and those of the responds. Is it possible that these come from the earlier church, and have been re-used? The rough Kentish-rag walling is notable for being coursed into a rude herring-bone work, often with a thin intervening bond course. This characteristic is well seen in a portion of the

south aisle wall where the plaster has been removed -- it is also visible in the north aisle externally, in the river wall of Rochester castle, at Malling abbey, at Town Malling church, and at the curious tower named St. Leonard's tower, also at Malling. This last is generally considered the oldest example we have of a defensive tower of stone construction, but if the great north campanile at Rochester was first built as a defensive work it would be difficult, not to say impossible, to decide which was entitled to the priority.

/a Reg. Roff. 121.