SOME OBSERVATIONS ON THE BUILDING SEQUENCE OF THE NAVE OF ROCHESTER CATHEDRAL

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The nave of Rochester Cathedral is the product of three obvious periods of construction.¹ To the earliest belong the first two storeys of the six western bays, easily recognisable because of the heavy piers and semicircular arches characteristic of the Romanesque. To the latest period belong all the clerestory windows, and the wooden roof, with the tracery forms and four-centred arches typical of the Perpendicular. The work of the second period is less immediately visible upon entry from the west, as it constitutes the two eastern bays of the nave. This work of c. 1300 marks the beginning of an intended reconstruction of the nave in the Decorated Gothic style, which proceeded no further after the central tower was completed c. 1343. As a result, the Romanesque work was spared, although we do not know the reasons why the reconstruction of the nave ceased.

¹ The basic architectural histories of the cathedral are: G.H. Palmer, *The Cathedral Church of Rochester (Bell's Cathedral Series, 1897)*, especially 9–10, 43–8 for the Romanesque building; and W.H. St. John Hope, 'The Architectural History of the Cathedral and Monastery of St. Andrew at Rochester', *Arch. Cant.*, xxiii (1898), 194–328, and xxiv (1900), 1–85, also published separately (1900; all further references will be to this later edition), especially 22–34. For a summary history and description, see J. Newman, *West Kent and the Weald (The Buildings of England)*, 2nd Edn. (1976), 470–81.

For his articles on Rochester Cathedral, Hope made use of the notes and drawings of James Thomas Irvine who, on and off over a period of twenty years (c. 1874–94), worked on the restoration of the fabric under Sir G. G. Scott and J.L. Pearson. Irvine’s papers are preserved in the Kent Archives Office (Maidstone), DRC/Emf 77/1–134: as the cataloguer commented, ‘a brief study of [his articles] reveals most clearly St. John Hope’s debt to Irvine, which, despite his acknowledgement, is far greater than might be imagined’. A description of the items from Irvine’s papers relevant to this study is presented in the Appendix.
Shortage of the necessary funds may have been one of them, although other reasons are possible, even likely.

The surviving bays of the Romanesque nave have a number of distinctive characteristics, and not a few puzzling features. Among the former is the rather unusual feature of each pair of piers being of a different design, rather than, as is more often the case, either a uniform series, or the alternation of two contrasting forms such as the great round and compound piers at Durham Cathedral. Both distinctive and puzzling is the design of the second storey which has a passageway through the thickness of the piers in each bay, and two centre shafts set on the inner and outer edges of the wall. Stepping into the aisles another puzzling feature is revealed: the aisle is neither vaulted nor covered by a wooden ceiling at the level between the nave arcade and the second storey; instead, the roof is found at the level just below the clerestory sill.

The history of the construction of the nave has always presented a problem: that is, how much of the present structure incorporates or represents masonry that should be associated with the first Romanesque church, usually said to have been begun by the second Norman Bishop, Gundulf of Bec (1077–1108), c. 1080. Indeed, the problem is really a set of problems, for it has been questioned if the nave of Gundulf's church was ever completed. Furthermore, Bishop Ernulf (1115–24), who is generally credited with having rebuilt the original east end, as he had at Canterbury, altering its plan to include a crypt and a flat-ended choir with an ambulatory above, is also often credited with a reconstruction or completion of the nave. Therefore, what work now visible in the nave can be associated with him? And it also may be asked if any work in the nave is later than the period of Ernulf?

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THE NAVE OF ROCHESTER CATHEDRAL

Although early sources maintain that the church begun by Gundulf was rapidly completed with aid from Archbishop Lanfranc of Canterbury, a consecration is not recorded until 1130. That date, however, could mark the dedication of the new choir begun by Ernulf, rather than the completion of the entire fabric. Even then, construction in the twelfth century was not ended, as the west front is generally considered to contain details suggesting work in the 1150s or 1160s, or even later. Writing in the early 1930s, Sir A.W. Clapham concluded: 'The surviving remains of the early church at Rochester are thus very scanty, including only parts of the outer walls of the nave aisles and perhaps the core of some of the nave piers'. Twenty years later, T.S.R. Boase wrote: 'There is structural evidence that on the south side of the nave the earliest Norman work has been encased by this newer more ornate style, whereas the north arcade and aisle were built from the start in the new manner, which may well mark the completion of Gundulf's church by Ernulf'. The little guide book to the cathedral by Francis Underhill and Ernest M. Blackie has this to say: 'In the south aisle of the nave are the rude early arches of Gundulf's Church of 1080. Forty years later Ernulf cas ed the plain columns and enriched the inner sides of the arches with mouldings; but the round arches of the aisle remain in their primitive simplicity'. Fundamental to these later authors was the

5 Gervase of Canterbury, op. cit., in note 2, ii, 383; Palmer, op. cit., in note 1, 10; Hope, op. cit., in note 1, 34.
6 Cf. Palmer, op. cit., in note 1, 9–10, 46, and Hope, op. cit., in note 1, 33, with A.W. Clapham, English Romanesque Architecture, ii. After the Conquest (1934), 143, Pl. 28 (1160–70); G. Webb, Architecture in Britain: The Middle Ages (The Pelican History of Art, 1956), 49, Pl. 43B (mid-twelfth century); Newman, op. cit., in note 1, 472 (mid-twelfth century). L. Stone, Sculpture in Britain: The Middle Ages (The Pelican History of Art, 1955), 246, n. 17, and Pl. 65, dated the tympanum and column figures of the central portal as c. 1150–55, or no later than 1155–60. Slightly earlier, T.S.R. Boase, English Art, 1100–1216 (The Oxford History of English Art, 1953), 205–6, had tended to follow E.S. Prior and A. Gardner, Figure Sculpture in England (1908), 198, and to consider tympanum and column figures as insertions made at some period in the latter half of the century, possibly following the fire of 1177, although he acknowledged (206, n. 1) that Prior and Gardner's stylistic reasons for assigning the figures a date after 1177 were no longer valid. G. Zarnicki, Later English Romanesque Sculpture, 1140–1210 (1953), 39, 59, dated the voussoirs of the west portal 'to about 1160'; at the time he considered the tympanum and column figures as later insertions, c. 1175.
7 Clapham, op. cit, in note 6, 24.
8 Boase, op. cit., in note 6, 60.
architectural history of the cathedral prepared by Sir Wm. H. St. John Hope at the end of the nineteenth century.  

His conclusions, which took account of the work of earlier writers and various excavations, the product of the need to strengthen the foundations of the building, were: that Gundulf’s nave, which was meant to serve as the parish church, was probably never completed; that the ‘reconstruction’ and completion of the nave should be ascribed to the period of Ernulf; that the west front was probably completed during the time of Bishop John of Canterbury (1125–37), when the consecration took place (1130); and that the lower parts of the nave piers and of the west end show scorched and reddened surfaces, although whether due to the fire of 1137/38 or of 1177/79 it was impossibly to say.  

Judging from the published plans of the cathedral, it appears that there has been more or less general agreement that the three east bays of the north aisle wall, as well as its two west bays – except for the inserted doorway (now blocked), and the five western bays of the south aisle wall are late eleventh-century (time of Gundulf, or at least are pre-Ernulf/1115).  

Therefore, it might be appropriate to begin the re-examination of the building history of the nave with a consideration of the aisle walls. In 1875–76 the aisle walls were underpinned and a few years later, in 1888, the west front was underpinned. During these operations the

10 Hope, op. cit., in note 1, especially 22–34 for the Romanesque building.

11 Gervase of Canterbury, op. cit., in note 2, i, (see also Lehmann-Brockhaus, op. cit., in note 2, ii, no. 3729), 100, cites 1137 (‘Tertio nonas Junii combusta est ecclesia Sancti Andreae Roffensis et tota civitas cum officinis episcopi et monachorum’); and, i, 292 (Lehmann-Brockhaus, ii, no. 3738), 1179 (‘Quarto idus Aprilis, feria scilicet tertia post octavas Paschaev, eildem Roffensi ecclesiae triste accidit incommodum. Nam ipsa ecclesia Sancti Andreae cum officinis suis, cum ipsa civitate, igne consumpta est et in cinerem redacta’).

The alternate dates are from British Library, MS. Cotton Nero D II (Rochester Chronicle of Edmund de Hadenham [Annales ecclesiae Roffensis, ex historia ecclesiastica Edmundi de Hadenham monachi Roffensis]); see Hope, op. cit., in note 1, 34, and Palmer, op. cit., in note 1, 11.

12 Hope’s Pl. I, 10/11 [op. cit., in note 1], the plan of Gundulf’s church, indicates as existing remains the three east bays of the north aisle wall with three shallow exterior buttresses but no interior ones; four and a half bays of the south aisle wall with five shallow exterior buttresses and no interior ones. His Pl. II, however, shows both the exterior buttresses and interior responds as insertions (‘Later Norman’ = 1115–30) into the north wall, as well as the responds of the interior of the south wall; the four exterior buttresses of the south are identified as modern. The two western bays of the north aisle also are shown as 1115–30, including the western buttress which in Pl. VII is shown as modern. The plan of surviving eleventh-century elements at Rochester prepared by R. Gem, op. cit., in note 17, 12, includes the three east bays and two west ones of the north aisle, without any buttresses, and the five western bays of the south aisle and only its interior westernmost respond.
foundations were examined and, most importantly, an earlier west front was discovered consisting of a wall thinner than the present one, with a central doorway of two jamb shafts: it was preserved for a height of 2 ft. 6 in. and was plastered on the inside.\textsuperscript{13} According to the published accounts, the foundations of the south wall revealed a change in character just one-half bay short of the west front; on the north side, however, the change occurred at the end of the three eastern bays of the aisle.\textsuperscript{14} The foundations west of these points, including those under the west front, were identified as ‘Early Norman’, and were generally broader, deeper, and better prepared than those of the work to the east identified as ‘Gundulf’.\textsuperscript{15} As described by G.M. Livett, the ‘Early Norman foundations belong to a building which is quite distinct from that of Gundulf; but they cannot be more than a few years later in date. They are doubtless the work of the parishioners of St. Nicholas, undertaken, say, between the years 1095 and 1100’.\textsuperscript{16}

The break in the nature of the foundations traced by Livett was interpreted by him as a distinction between work of Gundulf and of the parishioners, c. 1095–1100, that is, still within the bishopric of Gundulf (\textit{d. 1108}) – so all the work is actually dated to the time of Gundulf. But, is this necessarily the significance of, or only explanation for, the break? Can the change in character, for instance, indicate the laying of the nave foundations for a certain length before building upon them, and then their resumption after some of the east bays had been constructed? Or could the break indicate a halt occasioned by the death of Gundulf and the resumption of work a few years later? The dates 1095–1100 seem very arbitrary; presumably, they were chosen in order to distance the work from that of the initial period of c. 1080. The church of Gundulf must have been at least nearly a decade in construction, or at least as long as the shortest period advanced for Canterbury – seven years.\textsuperscript{17} However, as

\textsuperscript{13} G.M. Livett, ‘Foundations of the Saxon Cathedral Church at Rochester’, \textit{Arch. Cant.}, xviii (1889), 261, 269–78, Pl. I.

\textsuperscript{14} W.H. St. John Hope, ‘Gundulf’s Tower at Rochester, and the First Norman Cathedral There’, \textit{Archaeologia}, xlix (1886), 333.

\textsuperscript{15} Livett, \textit{op. cit.}, in note 13, 272–4, Pl. II, nos. 1–4.

\textsuperscript{16} \textit{Ibid.}, 270.

\textsuperscript{17} Seven years is given by Eadmer, \textit{op. cit.}, in note 2, 13; before the death of Bishop Lanfranc (\textit{d. 1089}) is stated in ‘Obituar’ in Wharton, \textit{op. cit.}, in note 4, i, 55. Eadmer’s seven years has been doubted by modern authorities: F. Woodman, \textit{The Architectural History of Canterbury Cathedral} (1981), 35–6; R. Gem, ‘The Significance of the 11th-century Rebuilding of Christ Church and St. Augustine’s Canterbury, in the Development of Romanesque Architecture’, \textit{Medieval Art and Architecture at Canterbury before 1220} (The British Archaeological Association Conference Transactions, v [for the year 1979], 1982), 1, accepts 1089 as the more likely date.
Gundulf was bishop for thirty years, it seems likely and probable that he completed the construction of his relatively small cathedral within his lifetime and that the change in technique noted at the west end marked a break in the preparation of the foundations to which no exact date within Gundulf's rule can be given. The fact that the inside of the west front was plastered strongly suggests that the church had been completed. Completion of the building begun c. 1080 is also strongly suggested by the fact that the parochial altar of St. Nicholas was established in the nave on 11th August, 1107.\footnote{Hope, \textit{op. cit.}, in note 1, 22. Yet, Hope maintained (pp. 23–4), that the north aisle of the nave may never have been finished. Before the discovery of the apse of the Saxon church at the west end of the north aisle in 1888, Hope (\textit{op. cit.}, in note 14, 333) thought that the delay in constructing the north aisle wall was because the Saxon church was 'more or less' on the line of the aisle. According to Livett, \textit{op. cit.}, in note 13, 276 and Pl. 4, no. 2, a layer of mould 1 in. thick at the top of the bottom courses of the north aisle wall suggested that it was never raised up by the first builders. But would the later 'Early Norman' builders have left 1 in. of mould \textit{in situ} before continuing their construction? One wonders how long it would take 1 in. of mould to accumulate, and if the nineteenth-century investigators ascertained if the layer of mould overlay the entire thickness of the wall?} In addition, it should be stressed that when Ernulf became prior he began his rebuilding at the east end with a new larger choir, as he had done at Canterbury before he was appointed abbot of Peterborough in 1107.\footnote{Ernulf was prior at Canterbury, 1096–1107; the building begun by him was completed by Prior Conrad (1108–26). On the new work at Canterbury ('St. Anselm's Choir') see Woodman, \textit{op. cit.}, in note 17, 45–76.} would he have begun a large extension at the east if the nave remained incomplete?\footnote{The early sources do not credit any work on the nave to Ernulf: the attribution of the nave to him is strictly modern: e.g. Palmer, \textit{op. cit.}, in note 1, 9, and Hope, \textit{op. cit.}, in note 1, 25.}

Today, of course, the foundations are not visible; all one can see are the aisle walls built on them. Of the southern, a section equal in length to the six west bays of the nave survives between the south-west turret of the west front and the later Gothic Lady Chapel parallel to the two eastern bays of the nave; unfortunately, it is completely covered by plaster on the inside and the exterior surface has been totally refaced with small flints. Of an 'original' wall, all that remains are four truncated buttresses heavily or totally restored, built of coursed stone, which correspond to interior responds, but which are not placed directly opposite the axis of the existing nave arcade piers.\footnote{See plan, Hope, \textit{op. cit.}, in note 1, Pl. II, between 20 and 21: the buttresses are all slightly off axis to the east; the plan in the guidebook, Underhill and Blackie, \textit{op. cit.}, in note 9, inside cover, incorrectly shows a more exaggerated lack of alignment. The} The north aisle wall is also completely plastered on the
interior, and mostly refaced on the exterior; the fourth to sixth bays from the crossing have been rebuilt. Original masonry seems to be confined to two eastern buttresses, and the remains of a string-course at the east and west ends. Therefore, it is now almost impossible to decide on the basis of their construction if the attribution of any part of the aisle walls to the late eleventh century is correct. A related difficulty is determining whether or not the existing buttresses are insertions into an earlier fabric or if wall and buttresses are of one build. Again, because of the refacing and plastering of the wall, it is at present impossible to decide the answer to that problem on the basis of a conventional analysis of the fabric. Finally, as to the now invisible foundations, even if the foundations date to a period before 1115, the walls themselves could be, in theory, later, rebuilt on earlier foundations.

During the underpinning of the aisle walls, when the footing of the wall was uncovered, the supervising architect, J.T. Irvine, made some record of what was then revealed. At that time, the foundations on both north and south were seen to consist of a layer of dry gravel about 1 ft. deep, followed by 2 ft. 6 in. of chalk. On the south side, there was little evidence left of what had been built on this; on the north side, the chalk was followed by a footing of two courses of Kentish ragstone, about 1 ft. in height. Set back from the face of the footing were the lower parts of three buttresses of tufa, preserved for


22 Hope, op. cit., in note 21, p. xliii: north aisle partly rebuilt, 1670. Even after rebuilding, the north aisle wall continued to present problems and by the early nineteenth century was inclining outwards. At the time of its underpinning in 1875, Sir G.G. Scott reported: 'Upon examination it was found that the Norman wall had on its outer side no spreading footings whatever but overhung a rough chalk foundation. The whole length of the wall has now been carefully underpinned and made secure in its lower part' (KAO, DRC/Emf 65/3 [Report of G.G.S., November 24, 1875]). This observation seems to suggest that the wall and the foundations were not built at the same time – but did Scott distinguish between the Norman build and the seventeenth-century rebuild?

Scott's comment is not borne out or illustrated by J.T. Irvine's section (see above, note 1) of the north wall (DRC/Emf 77/36) which indicates that the buttresses identified as Gundulf's projected 6 in. and were set back 8 in. from the face of the footing courses of Kentish rag. In DRC/Emf 77/16, Irvine notes 'F. Footing Courses (2) 11" deep & projecting ½ from which Gundulp's buttresses rise': whether ½ in. or ft. is not stated. The chamfered plinths of the later buttresses are presently visible inside the ex-coal bunker. Their lowest parts are either cut away or replaced by brickwork. No part of any of the earlier buttresses is now visible.

23 Among Irvine's papers (see above, note 1) is a sketch of this section of wall and the excavated footings: see DRC/Emf 77/16.
a height of 3 ft. Above them, but not centred over them, are the existing buttresses, rising from a high plinth (a little over 2 ft.) of Caen stone. The fact that the lower or earlier buttresses were replaced by later ones, instead of simply being augmented or incased, could imply that the entire wall from a certain level up was rebuilt, rather than that the later buttresses were inserted into an earlier wall.

The two surviving exterior buttresses at the east end of the north aisle are of ashlar – their bases are now hidden. The eastern one is preserved for what might have been its full original height. It is crossed by a broad string-course at a level just below the sills of the Gothic aisle windows, and there are indications of a second string several feet higher up. The western buttress survives only to the level of the lower string, but the removal of the ashlar masonry above that point is clearly visible. The lower string-course is also found in the west bay. The buttresses of the south exterior aisle wall are truncated about 4 ft. 6 in. above the modern pavement, and the wall has been so completely rebuilt above and around them that no traces of upper strings remain. They are, however, each crossed by a chamfer course, about 3 ft. above the pavement.

The string-course of the sections which remain at the east and west ends of the north aisle wall took the form of a large torus moulding. In the eastern three bays, it was carved with a lozenge pattern to which were added pyramidal studs. The pattern on the string of the west bay is similar, but not identical, in the shape of the lozenges which were also studded. The upper string is so eroded, it is now impossible to tell if it was once carved. Nevertheless, these details suggest that the entire north wall – before the Gothic alterations – belonged to one period, certainly from the level of the string up, and that period was, at least, post-Gundulf (after 1108).

It is, therefore, left to decide how much of the wall below the string may have been retained from the first building. Irvine's elevation of these two eastern bays identifies masonry to either side of the middle

24 A coal bunker is built over their lower parts. The buttresses are about 28\(\frac{1}{4}\) in. wide, and 6–8 in. in projection.

25 The buttresses are about 30 in. wide below the chamfer, and 27 in. wide above. The west buttress is 40 in. wide narrowing to 37. The ashlar masonry has been restored, but there is no reason to believe that they do not duplicate an original form: they would hardly have been invented in 1664. No doubt, they were cut down at that time when the wall was refaced; what remains has been restored in more recent times.

Irvine's drawings (see above, note 1), DRC/Emf 77/41–42, of the excavation along the base of the south wall, in the three east bays just before the Lady Chapel, show little evidence of any 'Gundulfan' masonry above the layers of gravel and chalk, except for the lowest foundation courses (2?) in the easternmost bay.
buttress, extending close to the first and third buttresses and terminating a short distance below the string, as 'white' and 'Gundulphan'. In his notes, Irvine mentioned that a careful inspection revealed traces of herringbone construction, and it was apparently on the basis of these 'traces' that he assigned most of the wall between the buttresses to the period of Gundulf. It is interesting to observe that, according to Irvine's drawing, the so-called Gundulfan masonry abuts both sides of the second or middle buttress directly and continuously for its full length, whereas the joints Irvine traces with regard to the buttresses at either side (the first and third from the east) are irregular and at a distance from the buttresses proper. In other words, the insertion of the middle buttress, which even according to Irvine's estimate is post-Gundulf, did not disturb any masonry, thus raising doubts about the likelihood of its insertion. Further, one can observe today that the western joint actually continues up above the string-course, paralleling the third buttress (now Gothic in form), and so suggests that this joint is actually that resulting from the seventeenth-century rebuilding of the section of the aisle wall to the west of it. Again, the horizontal joint can be taken as simply the appearance of a levelling course, or two, of horizontally-placed stones as preparation for the ashlar string-course. As to the vertical joint at the east indicated by Irvine, it is not now possible to trace it. By contrast, the second bay from the west may preserve some of the original ashlar facing to the wall, to either side of the portal that was inserted in the fourteenth century. The small ashlar blocks do not bond with the door-frame, so they appear to antedate it. These blocks might be taken as evidence that the wall below the string had been rebuilt in the twelfth century, with new and slightly repositioned buttresses integral to the fabric. Considering all these factors, it seems very possible that the areas in the eastern bays of the north aisle wall identified as Gundulfan masonry by Irvine may actually be primarily later patching and refacing.

In sum, there does not seem to be any hard and fast, undisputable evidence that much more than Gundulf's foundations were used in the twelfth-century rebuilding. On the south side, no trace of Gundulf's buttresses remains, and the 'modern' ones are clearly modelled on twelfth-century ones. On the north side, where apparently there was a change in ground level, the lower 3 ft. of Gundulf's buttresses were retained, and buried under the raised ground level. And any evidence of a change in masonry that Irvine saw, but did not precisely describe, in the walls below the two eastern (Gothic) windows of the north aisle, is simply no longer visible. Although it is now impossible to establish definitively that the walls of the eleventh-century aisles were not retained in the twelfth-century
rebuilding, the evidence, such as it is, can support the probability that they were removed down to ground level (north), or to their foundation footings (south).

At this point it is perhaps appropriate to turn to the interior, and to look at the Romanesque arcades, and also the reverse of the aisle walls. A close examination of the details of the arcades suggests a complicated order of construction, and a number of design changes.

The piers forming the south arcade all stand on Purbeck marble bases which form low plinths two courses high, barely rising above the present pavement, and articulated by a simple chamfer. They are all identical, and are also found under the piers of the north arcade, except there the four western ones are decorated with spurs of various designs at the angles. The capitals of all the piers are of the multiscallop variety, but it is interesting to observe that all the capitals of the north arcade have more scallops. The implication is that the lower part of both arcades was built three bays from the crossing, then the south arcade was continued, followed in turn by the remaining four bays of the north side with the slightly more elaborate bases. Then, all the south piers were completed with their capitals before the north ones, which were finally executed with more intensely scalloped capitals.

The aisle responds, which echo the buttresses on the exterior of the wall, as previously noted, are all somewhat out of alignment with the axes of the piers of the existing arcade. This does raise the possibility that the aisle walls and the arcade may not belong to the same design or period of construction. However, an examination of the bases of the interior responds of the north aisle wall discloses the remains of a chamfered plinth under the first, fourth, fifth and sixth responds (counting) from the east. Although in several cases almost covered by the pavement, the stone of the chamfered bases appears to be brownish, similar to the better preserved, and more polished, Purbeck plinths of the nave piers. If the stone is the same, the construction of the responds is definitely tied to that of the piers. They, therefore, do not belong to the initial ‘Gundulfan’ phase of construction but are, at least, insertions into the possibly (but doubtfully) earlier wall.

A rather wide string-course is also found on the interior of the aisle walls, at about the same level as it is found on the exterior of the north aisle wall, that is, below the sills of the Gothic windows. Most

26 See above, note 21. The two responds on the interior of the north aisle are each 28 in. wide and now project about 6 in. The responds of the south aisle are 29 in. wide and now project between 14 and 17½ in.
of it is flat, but several sections, probably the only original ones, have carved decoration preserved on them. On the south, a section is found in the west bay where it has a double row of scallops with rolled edges, and round balls between. In the north aisle, the carved section is found in the three east bays and has a different pattern from that on the south. It is a single trellis executed as a roll, with a four-lobed ‘flower’ in each centre. As the string crosses the interior respond, the trellis gives way in an irregular fashion to a herringbone pattern. The existence of the decorated string-course inside and out implies once again that, if any part of the wall belongs to the period of Gundulf, it can be only the lower part of the wall below the level of the lower string which must have marked the level of the sills of the later Romanesque windows. It might once more be questioned if any part of Gundulf’s walls was retained. If it appears that they were demolished at least to the level of the string, and that the responds (and buttresses) are later, would it not be more likely and possible that the walls of Gundulf’s nave were completely torn down and that only the foundations were re-used?27

At this stage the foundations for a new west front were also begun. Indeed, during the underpinning of the north aisle in 1875 large blocks that could have been intended as the foundations of a tower were discovered. During the later underpinning of the west front in 1888 similar blocks were found under the north stair-tower at the end of the north aisle. However, no evidence of a parallel preparation

27 F.H. Fairweather, ‘Gundulf’s Cathedral and Priory Church of St. Andrew, Rochester; some critical remarks upon the hitherto accepted plan’, Arch. Journ., lxxxvi (1929), 208, disagreed with Hope’s attribution of the north aisle wall, up to the level of the string-course, to the time of Gundulf: because the axis of the wall had been altered, he thought ‘the present wall can only partially overlie the original foundations and its faces at least must belong to the later rebuild, though the core may remain [from Gundulf’s build]’.

Fairweather did identify a portion of the exterior of the nave aisle wall ‘where the courses are much the same size and consist of stones set herringbone wise with a larger stone set straight here and there only’ as Gundulf’s. Where was this? Presumably the north aisle wall was meant, but the masonry now visible in the east bays around the coal bunker does not, to my eyes, fit Fairweather’s description, and so does not help to confirm or reinforce Irvine’s attribution of the same area to the period of Gundulf.

Another patch of ‘Gundulfan’ masonry was identified by Professor R. Willis, and for a while revealed, on the inside of the south aisle wall in the second bay from the west: see Irvine’s drawing, as in note 1, DRC/Emf 77/20. The purported herringbone character of the work in the south aisle, like that at the east end of the exterior of the north aisle, appears to me to be very slight and dubious in quality, especially in comparison with the undoubted herringbone work in Gundulf’s Tower at West Malling.
was encountered on the south side. The intention of constructing two west towers is seemingly confirmed by a peculiarity of the westernmost pair of nave arcade piers. Their shape is an elongated octagon and their mass is considerably larger than any of the other piers to the east. This increase in the size of the western piers is just what is found in those churches that do have western towers, as can be seen, for example, at Durham Cathedral, Worksop Priory and Southwell Minster, the three most complete to survive from the twelfth century. The evidence of the enlarged piers is also supported by the wider buttress on the exterior of the south aisle wall (the north one has been rebuilt). If the buttresses were an integral part of the fabric, the exterior wall was built, at least up to the interior string-course, with the piers at the time towers were intended. The decision not to construct the towers most probably had been reached by the time the piers were completed but before the arcade was actually started.

The changing designs of the nave piers, which adhere to no

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28 Great blocks of tufa and ragstone were first found in front of the north aisle wall west bay by Irvine: Hope, op. cit., in note 1, 28. In 1888, he found similar blocks under the north-west turret: Livett, op. cit., in note 12, 278.

Rather disappointingly, I was not able to find any plans or sections of these blocks among Irvine's papers, other than a tiny sketch on (as in note 1) DRC/Emf 77/39, simply outlining the shape of a tower with its east and north walls hatched in order to indicate the location of the foundations.

29 Twin western towers had also been constructed at both of the early great churches at Canterbury, Christ Church Cathedral and St. Augustine's Abbey. The north-west tower of the cathedral ('Lanfranc's Tower') remained until the 1830s when it was torn down in order to build a new tower matching the south-west one: see Woodman, op. cit., in note 17, 35–6, figs. 20–1. The north-west tower of St. Augustine's ('Ethelbert' Tower) survived in substantial ruins until its collapse in 1822; see Sir A. Clapham, St. Augustine's Abbey, Canterbury, Kent (Department of the Environment Official Handbook, 1955), 23, Pl. on p. 22. It is not certain if the ground stage of the Lanfranc Tower was open to the nave and aisles through large arches, but the Ethelbert Tower was, with the consequent enlargement of the pier under the tower (the Handbook plan is incorrect in this respect). The Ethelbert Tower was probably in construction by at least 1100.

30 The respond on the interior of the wall is overlapped on the west by the casing for the furnace flue. The fact that the visible part is to the east of the axis of the octagonal pier suggests that more of it exists under the flue casing or part of it was cut back to accommodate the flue.

31 An interesting parallel is found at Peterborough Abbey. It was originally intended to end the nave with a twin-tower façade. The evidence is found at the eighth and ninth bays: an enlarged set of piers, a wider than normal set of aisle wall buttress and respond (i.e., inside and out), a broad transverse arch (the Peterborough aisles are vaulted), and a slight increase in the thickness of the exterior wall in what would have been the westernmost tower bay. See C.R. Peers and J.A. Gotch in V.C.H.: Northamptonshire, ii (1906), 'Peterborough Minster', 440–1.
principal and which produce abaci of different plans, makes it
difficult to anticipate or understand what kind of an arcade design
was intended. Nevertheless, when the arcades were built, they were
uniformly of two orders, a design which, in spite of its simplicity, sits
less well on some piers than on others. The arcade wall gives the
impression of being slightly thinner than first intended – judging by
the width of the piers, and this reduction may be the result of
introducing a single wall shaft over the axis of each pier, in every
bay.\textsuperscript{32} The position or axis of the wall shaft does not correspond with
the design of the nave side of any of the piers, even those with shafts.

The inner order of all the arcades is left a bare angle, but the outer
order is carved with a rich chevron design, formed by a double roll,
and surrounded by a label with scalloped pyramids. The arcade
arches all appear uniform from the nave side. However, their faces to
the aisles are different. On the north, they are decorated with a
chevron of a single roll, with an arris, and with a chamfer label which
has a radially arranged saw-tooth pattern; on the south, the orders
are plain, there is no label and, instead, there is a chamfered
horizontal string-course at the top of the arcade.\textsuperscript{33} Thus, one could
suggest, on the evidence of the decoration and the label, that, when
the north arcade was constructed, it was intended to vault the aisle.
The surfaces of the spandrels between the arches are also very rough,
as if in anticipation of receiving vaults.\textsuperscript{34} The easternmost respondsof
the north aisle have thin angle-shafts with scallop capitals, rising from
the string-course at window-sill level. Although the capitals are at a

\textsuperscript{32} The ‘thinness’ of the arcade wall might seem to suggest that it is indeed the
Gundulfan arcade. But the difference in thickness between pier and arcade wall is not
great, so if the present piers are a recasing of the Gundulfan ones, the addition would
have been very thin. As the span of the arcades would be the same in the earlier arcade
as in the present one according to this theory, there is no room for enlarging the piers
in the east–west direction: i.e., if the arcade is of the Gundulf building, its piers would
have to have had the same east–west dimension as they do at present. This does not
seem to allow for any recasing. And if not thickened, why would their design have
been changed?

\textsuperscript{33} There are only slight traces of what may have been a similar chamfered string
above the arcade on the north side.

\textsuperscript{34} Above each pier on the aisle side there is a narrow flat pilaster rising up the axis of
the spandrel: that on the west pier is wider that the others. On the north side, each
pilaster has an inclined ‘face’, as if its lower dimension (projection) was determined by
the preparations for a transverse arch: the arch abandoned, it was carried up as a
pilaster, reduced in depth of projection as it rose.

It might be noted that there seem to be two ‘breaks’ in construction on the north
side. The first occurs at the top of the arcade arches – the wall from there up to the
pseudo-gallery sill is slightly thinner; the wall thins again slightly above the sill, also
affecting the pilasters.
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slightly higher level than those of the piers, their design looks as if it could have corresponded to a transverse arch and the diagonal ribs of a vault. The lack of the articulated respond at the level below the string may indicate that there was a change in vault design, from groin to ribbed. By the time the south arcade was actually constructed, all intention to vault was abandoned, as is indicated by the absence of the label, and the relatively smooth surface of the arcade spandrels, especially in comparison with the north arcade. Why? Was this a reaction to some necessary economy, also reflected in the lack of chevron design on the aisle orders? Or was it due to a realisation that the aisle walls were too thin to support vaults, whether they belonged to Gundulf’s church, or had been rebuilt using

35 There are remains of a billet string just above the capital of the westernmost respond.
36 This interpretation of the aisle side of the nave arcades obviously disagrees with earlier ones which saw them as part of Gundulf’s period, reworked or encased during Ernulf’s period (see above notes 7–9). I do not see any evidence in the pier shafts nor, especially, in the uniform design of the marble pier bases that would support this; and the differences between plain and decorated can be ‘read’ as evidence for another interpretation of the building sequence. In fact, the idea that the south arcade is Gundulphan can be traced back to Irvine, and is not due to differences in style. Livett, op. cit., in note 13, 276, note*, reported that Irvine discovered that the lower order, and the ‘upper order on the aisle side’ were of tufa, as opposed to Caen stone (repeated by Hope, op. cit., in note 1, 25–6). Because they were of tufa, they were attributed to Gundulf’s church. However, contradictorily, Livett accepts tufa as belonging to Late Norman work in his description of the north aisle wall, and neither Livett (nor Irvine) attributed the tufa foundation blocks for a putative north façade tower to Gundulf, although Livett (p. 278) implies they were re-used from the earlier front. (On the use and re-use of tufa in post-Gundulf phases see also Fairweather, op. cit., in note 27, 200–1).

Actually, Irvine’s first note about the south arcade, DRc/Emf 77/16–19, described all the lower orders on the south side, and the outer order on the aisle side, as being made of plaster, not stone. By plaster, he clearly did not mean tufa. However, in his later rough draft for a complete architectural history (as in note 1, DRc/Emf 77/133, p. 16), Irvine reveals that ‘a more careful search’ found the arches to be of tufa. Due to the use of tufa in the arcades, and in parts of the flat shallow buttresses, he concluded that the arcade as a whole belonged to Gundulf’s building: ‘In short the whole of the core of the pillars on this side were Gundulph’s pillars either cased or peeled and recased, that the upper order of his arches on nave side had been removed and replaced by the late Norman ornamental arch, while on the square orders of the backs of the triforium openings his plain tufa orders had either been rebuilt or reworked out of his tufa stones’. He does not seem to have considered that all of the tufa present in the south arcade may have been due to re-use and that the Caen stone present did not represent a later rebuilding of parts of the shallow buttresses (more a matter of patching than rebuilding) but suggests a later phase of complete reconstruction. Apparently, the piers were never investigated in order the test the hypothesis that they were Gundulphian in origin. Sir G. Gilbert Scott’s doubts and advice seem not to have been heeded or followed (see DRc/Emf 77/16).
the original foundations? Certainly by the time the arcades were built, the idea of twin west towers also had been given up, as there is no evidence above the western piers of any transverse arches across the aisles having been begun. They would have been necessary as support for western towers, whether or not the aisles were vaulted.

The design of the second storey openings – one large arch subdivided into two with a tympanum between them – in its scale and proportions looks as if a gallery rather than a triforium had been intended. That is, their height and breadth suggest openings into a space above an aisle vault. Such galleries survive in a number of English Romanesque churches and take a variety of forms, from the very tall ones in the elevations of churches such as Ely, Peterborough, and Norwich, to lower ones, such as at Durham, which is unvaulted and has a low exterior wall with small windows. However, the design was altered by the decision not to vault the aisles and, instead of flooring them at the gallery level, it was decided to create a wall passage at the level of the gallery arches. This did not involve any alterations to the gallery openings, perhaps because work had already begun on carving the arches and tympana with their intense decoration. It did involve the production of a second set of arches for the gallery towards the aisle and the building of short tunnel vaults in the wall behind the piers dividing each bay. The space between the two sets of arches, inner and outer, was also barrel-vaulted in two units, each unit corresponding to a pair of arches, sometimes using pointed arches in the sections between them. It is clear that this level was built the way it now stands, and that the passage-way was not inserted, or tunnelled through existing masonry. Presumably, the wall shafts which must have continued

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37 Unless the broad pilaster over the south pier (see above note 34) can be interpreted as the result of an arch begun, and abandoned, and converted into a pilaster. On the north side there is, uniquely, no pilaster over the west pier.

38 The proportions of the existing pseudo-gallery openings are similar to Durham's. The nave of Lanfranc's Canterbury has been reconstructed with a tall (wooden roofed) gallery, about equal in height to the aisle below, as at St. Etienne, Caen, and later in England at Winchester, Ely, Peterborough: see Woodman, op. cit., in note 18, figs. 22, 23; he reconstructs St. Anselm's Choir elevation with a low gallery, fig. 44 (A). The nave of St. Augustine's, Canterbury, also had a gallery with exterior windows: see Clapham, op. cit., in note 28, Pl. on p. 19, which shows the remains of the north aisle and gallery wall.

39 Not all the arches in the passageway are pointed, pace Hope, op. cit., in note 1, 27; many are semicircular, some are ambiguous; there is no discernible pattern to their appearance.

40 Clapham, op. cit., in note 6, 55, n. 2, thought aisle vaults were removed after the fire of 1137, and a triforium passage contrived in the thickness of the main wall.
up the elevation — there are signs of their having existed — were removed when the clerestory was torn down and rebuilt at the end of the fifteenth century.

The arches of the pseudo-gallery are decorated with a chevron design uniformly executed without variation: the superordinate arches employ two rolls to the chevron; the subordinate ones employ only one roll. In contrast to this uniformity, the diaper patterns of the tympana reveal a great deal of variety, although they are all basically radially-disposed flower patterns, each basic design carved on a square stone. The squares were laid up diagonally or horizontally.\footnote{It has been suggested that the area between the sub- and superordinate arches was to be left open, in the manner of the gallery arches at Romsey Abbey, and that the stones with the diaper patterns are an insertion. That they were an insertion is supposedly evidenced by the irregular coursing, the stones having been fitted in with difficulty. However, this statement when applied to the tympana generally, is primarily and most obviously true of the tympana of the three north-west bays — and also the south-west one — where the coursing is indeed irregular (due to later repairs?): but the other tympana (eight) are all reasonably regular, whether laid in diagonal or horizontal courses. The major recurring trouble spots are in the areas where the sub- and supra-arches come together (but not in every case), that is, in the lower courses positioned first, rather than, as one might expect if they were inserted, along the line of the superordinate arch; the irregularities present are partly due to the lack of an absolutely uniform size for the square blocks. Certainly, it must be said, that if neatness actually mattered to the builders, whether working \textit{de novo} or making insertions, the diaper pattern could have been better managed, as it is only a matter of carefulness and patience to make an absolutely regular pattern.}

Yet one more problem must be confronted. How does the existing west front relate to the construction of the nave arcades? The west responds are not, it is true, a 'correct' respond to the polygon of the ex-tower piers, consisting as they do of pairs of half-shafts engaged against a shallow buttress. The west wall of the nave does not bond in with these responds, nor does the end of the south aisle.\footnote{The arcade level of the south aisle does bond in with the south turret. The wall and the turret at the end of the north aisle have been twice rebuilt, \textit{c.} 1772 and \textit{c.} 1888:} Indeed,
the nave west wall does not appear to bond in even at the level of the wall passage of the pseudo-gallery. This suggests that when they abandoned the idea of twin west towers, which had been begun only at the north-west corner of the old façade of Gundulf’s church, they inserted the responds in the old façade. Gundulf’s façade was then later torn down to a level of 2 ft. 6 in. and the new façade built directly on top of it.

As a result of this examination, I would like to suggest the following sequence of building:

1. The church begun by Gundulf c. 1080 was completed, very likely in the lifetime of the bishop, that is by 1107/8. This is based on foundations of the west front found in 1888 and the fact they were plastered on the inside, and that the rebuilding of the east end of this first church was undertaken by Ernulf.

2. Rebuilding by Ernulf was confined to the east end of the church. The new choir was dedicated – the day after that which also had been begun by Ernulf at Canterbury – in 1130, under Bishop John of Canterbury.

3. The work of rebuilding the nave was not begun until well after 1130. Its reconstruction may have been delayed due to the fire of 1137/8 which, on the testimony of Gervase of Canterbury, destroyed the monastic buildings. How much damage, if any, was done to Gundulf’s nave at that time, cannot now be determined. The reconstruction of the nave may not have been begun in earnest until the period of Bishop Ascelin (1142–48), Bishop John of Sées (1137–42) having been occupied with the necessary repair and rebuilding of the destroyed monastic structures.

4. A date no earlier than 1140–50 for the nave – as assigned by see Palmer, op. cit., in note 1, 30, 35–6, 45–6. The plinth of the south respond lacks spurs, which are present on the north respond plinth.

43 Gervase, loc. cit., in note 11. In reporting both the fire of 1137 and, especially, that of 1179, Gervase suggests considerably more damage to the church than actually seems to have taken place. The monastic buildings destroyed were those associated with Ernulf, who we are explicitly told built the chapter-house, dormitory and refectory: B.L., MS. Cotton Vespasian A XXII, f. 88 (‘Erulfus episcopus pater noster post episcopum Gundulfum, fecit dormitorium, capitulum, refectorium’. [Hope, op. cit., in note 1, 142]); MS. Cotton Nero D II (‘Fecit etiam dormitorium, capitulum, refectorium’. [Wharton, op. cit., in note 4, 342]); and Lehmann-Brockhaus, op. cit., in note 2, ii, no. 3722. No trace of any monastic buildings that could be associated with Gundulf has been found. It is only a presumption that they may have been in the usual position on the south side of the nave.

44 Boase, op. cit., in note 6, 60–1, thought that some of the surviving portions of the chapter-house dated to Ernulf’s period; he pointed out that the diaper pattern on its wall (and on a pier of the central tower) is similar to that on the side wall of the north entrance to the crypt at Canterbury. However, he felt the chapter-house and dorter
Clapham\textsuperscript{45} – would make good sense: the details of the pier bases, with spurs, the multiscallop pier capitals, the carved aisle string-courses, the chevron arcade arches, and the decoration of the gallery tympana all make this later date more acceptable than 1115–24 or 1124–37 as previously suggested by others. Actually, a date for the construction of the nave from the 1140s through the 1150s would better tie in with the dates sometimes assigned to the west portal on the basis of its sculpture, the 1160s onward,\textsuperscript{46} and a somewhat longer span of time than a decade might be more plausible.

The rebuilding of the nave proceeded with several significant design changes:

a. construction of aisles and nave piers with intention to build a twin-tower façade;

b. twin-tower façade design abandoned; north nave arcade built with intention to vault aisles; wall shafts introduced;

c. intention to vault aisles abandoned, south nave arcade built; gallery level design altered to include wall passage in construction;

d. nave elevation completed before final west façade design determined.

The changes in design, which are always ones of more ‘economical’ solutions, may have been occasioned by the expense of rebuilding the monastic structures, some of which may still have been in construction, continuing at the same time that work on the nave was advancing.

\footnotetext{45}{Clapham, \textit{op. cit.}, in note 6, Pl. 22.}

\footnotetext{46}{See above, note 6.}

doorways belonged to the second quarter of the century, the tympanum of Abraham’s Sacrifice to the mid-century.


The meagre remains of the monastic buildings, which consist only of the arcades and portals of the east walk, do seem in their decorative details to fall after Ermulf, that is, after 1125, by a decade or more, as Zarneci suggests, c. 1140–50. They may represent the last work on the monastic complex, and Ermulf may have built the more utilitarian and necessary buildings first, but did not complete the entire complex within his lifetime.
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APPENDIX

J.T. Irvine's notes are contained in his papers in the Kent Archives Office, DRc/Emf 77/1–134. His draft for a projected architectural history of the cathedral, DRc/Emf 77/129, stops short of the building of the nave. Another rougher draft, written in two scribblers, DRc/Emf 77/132–133 (unpaged), is also incomplete but includes a description of the discoveries as a result of work carried out in the nave (pp. 12–18 [as I count them] of the 23 written pages of the second scribbler [77/133]).

South Arcade: DRc/Emf 77/16, 17, 19 (copies of a note which vary slightly in wording); DRc/Emf 77/18 (a sketch of the south arcade with scribbled and hastily jotted notes); and DRc/Emf 77/16 (a reply from Sir G. Gilbert Scott); also DRc/Emf 77/133.

77/16, 17, 19: Irvine's note to Sir G. Gilbert Scott reads:

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77/18: Irvine’s notes on the sketch read as follows (‘Rochester Cathedral, South Aisle Nave, March 30, 1876’):

(A) Arcades:
   1. Outer order: modern plaster
      inner: plaster
   2. inner: plast[er]
      spandrel: tufa
   3. —
   4. —
   5. outer: tufa
   6. —

(B) Pilasters:
   respond: new plaster
   1. very broad; tufa; on N side of similar width to others or not much more
   2. new; all Caen stone
   3. partly(?) Caen(?) & Tufa
   4. —
   5. new; new(?) done(?) when(?)
   6. window(?)

(C) Notes referring to impost of ‘triforium’ arches:
   a) in all cases abacus curls (?) back round the 2 orders which it never does on N side
   b) on back of N side always so never returns at A, B.

   It would appear the pilasters are not uniformly built of one material, although what he means by ‘new’ is not here totally clear. As one of the pilasters so described is further noted as being of all Caen stone, it suggests ‘new equals’ Norman or post-Gundulf rebuilding: cf. 77/17.

77/16: In reply, Scott wrote:
   April 10/76:
   My dear Irvine: I think your letter proves that Gundulph built a nave and that at the least his material was reused. I do not fancy feel so certain as to his work actually remaining in situ, but hope you will be able to investigate this to say how and to what extent (if the work remains) it has been subsequently altered.

   Yours very faithfully
   Geo. Gilbert Scott

77/133 (p. 16): Irvine’s rough draft, for the architectural history of the cathedral which was never completed, contains the important information that further investigation revealed that the work he thought initially to be plaster was actually tufa. However, his conclusion that the arcades belonged to the period of Gundulf remained unchanged.

77/17: On a sketch of one bay accompanying his note, he remarks of the pilasters: ‘sometimes these have been repaired or even rebuilt’.

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THE NAVE OF ROCHESTER CATHEDRAL

North Aisle Wall, exterior: DRc/Emf 77/16, 77/36, and 77/46; also 77/133.

77/16: It is dated October 4/5, 1875, and is an elevation sketch of the two eastern bays of the aisle wall, the bays now enclosed by the coal bunker. Irvine indicates a foundation layer of gravel, followed by a deeper layer of chalk, a footing course, three narrow pilaster buttresses with quoins of tufa, and then the three ‘later Norman buttresses’ with plinths of three different forms. Of the latter he notes: ‘The later Norman buttresses are not placed centrally over those of Gundulph. They had plinths and also the whole stone used is Caen’.

77/36: From the diagram in the lower half of the sheet, we learn that the gravel (over a Roman deposit) was 10 in. to 1 ft. deep, the chalk, 2–2 ft. 6 in. deep, the footing (of Kentish rag) 11 in.; the height of the tufa buttresses is not given. The walling below the string-course in the two full east bays is identified as ‘Gundulph’s walling (white)’.

The line of demarcation Irvine indicates, slightly below the string and to the west of buttresses 1 and east of buttress 3, is only partially visible today; the change in colour is no longer apparent.

77/46: A more precise drawing of – it seems – the easternmost buttress. From it one can deduce a scale of 1 ft.=½ in., and that ‘Gundulph’s’ buttresses survived for a height of 3 ft. below the plinths of the later ones.

77/133 (pp. 14–15): The rough draft of the never completed history contains a brief verbal description of the elements shown in 77/16 and 77/36 with the further information that the walling under the string-course was identified as Gundulph’s because of ‘traces of his peculiar herring bone construction in the layers of flints and small rag stone of which the wall was build (sic) . . .’.

South Aisle Wall, interior: DRc/Emf 77/20.

A sketch, dated 29 March, 1876, of a rectangular area of masonry in the second bay from west end, identified as belonging to the time of Gundulf. No scale is included. The masonry shown is not ashlar, but is of what appears to be fairly large, roughly, and irregularly shaped stones (the material is not given); from bottom to top: two courses of horizontally-shaped stones; one course of vertically-placed squarish stones; one course of very narrow horizontally-placed stones; one course of oblong stones; one course of very narrow horizontally-laid stones.

This stretch of wall was thought to constitute a section of herringbone stone-work and was, therefore, attributed to the period of Gundulf by Professor R. Willis.

South Aisle Wall, exterior: DRc/Emf 77/41, 42, 36; also 77/133.

77/42 (two sheets): Constitutes an elevation and section of the first bay west
of the Lady Chapel showing layers of gravel (1 ft. deep) and chalk (2 ft. 6 in.) underlying the foundation course of Gundulf’s wall. The first buttress (‘Modern: said to date 1625’) rises above two large horizontal blocks of stone.

77/41: An elevation of the second and third bays west of the Lady Chapel. Similar features to 77/42, but less detailed, are indicated. No information is included about any surviving foundation courses of Gundulf’s wall.

77/36: Contains a section, on upper half of page, of ‘S side nave aisle’ indicating only the existence of the gravel and chalk foundations of Gundulf’s building, but no surviving stone work.

77/133 (p. 17): About the south wall in general, Irvine, in the rough draft of his unfinished history, notes:

‘The rebuilding appears to have been with the old materials and if so seems to prove that Gundulph’s work has been mostly rebuilt when the late Norman work of the nave was executed as the many Norman fragments used as walling stone in it seems to prove, indeed there seems to be little doubt that this wall contains as much of its old ornamented dressings used as wall stones that if it was ever taken down from any cause probably an entire recovery of the old design might be made’.

West end: Drc/Emf 77/39.

77/39: A tiny sketch at the bottom of the second of the two sheets appears to be the only record of the tufa foundation blocks for a projected west tower. Towers projecting beyond the aisle walls are shown, with the foundations of the east and north walls indicated by hachings.

I have not been able to find any other information about the exact location of the large tufa blocks identified as forming the foundation for a west tower among Irvine’s notes nor those pages, tracings by Irvine from the notebook, dated 1889, of John Thompson of Peterborough, who executed the underpinning of the west front, constituting DRC/Emf 77/90–91.