
who built
Beverley Minster?

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Masons' marks and the working practices of medieval stone masons

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Look closely at the walls of many medieval churches and, if the light is right, carefully inscribed marks can be seen (Fig. 2.1). They are masons' marks and they were made by the stone masons who cut the blocks that make up the walls, piers, arches and windows of the churches. Beverley Minster is especially prolific in such marks.

There are many other marks on the walls as well, mostly made by visitors or other people for a whole variety of reasons, ranging from the simple desire to record a visit through to complex systems of working out where processions are to start, or particular clergy are to stand. Masons' marks stand out from this background of visual 'noise' by their repetition, as



2.1. Masons' marks on the vaulting shaft, arch and spandrel wall of the transept arcade in the cathedral of Santiago de Compostela, Spain [Author].

there are usually several examples of the same mark in close proximity, and by their decisiveness in cutting, since they were made by people evidently skilled in using sharp tools. That much is clear, but what remains to be discovered is what purpose these marks served.

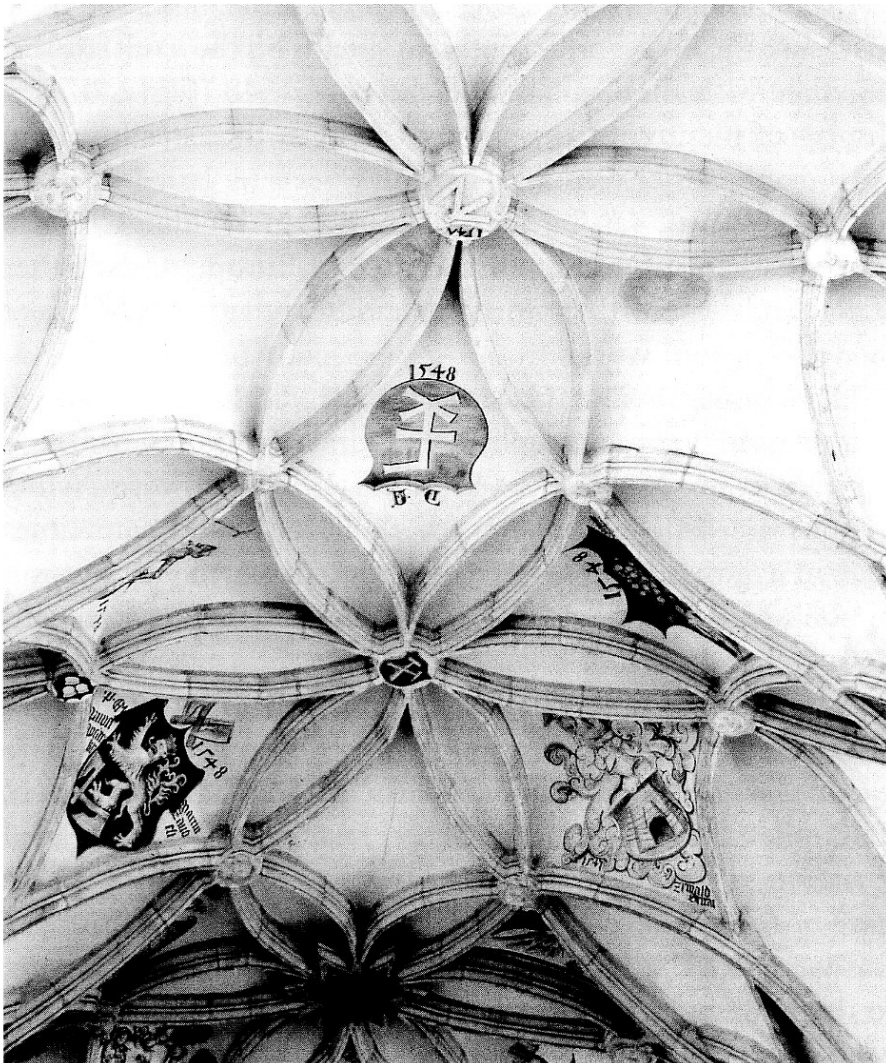
The great churches and cathedrals of medieval Europe were built by skilled artisans about whom we know a great deal. For some buildings (though not Beverley) documents survive in large quantities in which names, rates of pay, types of work done and other details are recorded. Contracts tell us about the nature of the projects the masons carried out, the tools they used, their conditions of employment, and in sections that seem more modern than medieval, sometimes even include reference to penalties for overrunning. From these, and from other documents, we can tell where the masons came from, how many days they worked and how many holidays they were allowed to take. We also know that most only worked on the site between the spring and the autumn and that works departments were scaled right down in the winter when it was not possible to build for fear of frost damaging the partially complete structure. In some cases this meant that a skilled workforce was disbanded, and at Lichfield the master of works made an impassioned plea to the Dean and Chapter to be allowed to pay his key workers over the winter since they had skills that it would take some considerable time to teach to new masons in the next season.¹

Although the documentary record is generally very rich and John Harvey was able to compile biographies for an astonishingly large number of medieval masons in his masterly *English Mediaeval Architects: A Biographical Dictionary down to 1550*,² most of this information has been deduced from documents written for a purpose other than that of explaining the medieval practices of stone masons. The documents that refer to building operations were usually written to provide a record of expenditure and to demonstrate that the monies had been spent appropriately.

Contrasts across Europe

The one thing conspicuously absent from English documents is any reference to rules concerning the uses

of masons' marks. There are some records that deal with the regulations concerning masons, and two documents in particular provide an insight into the way stone masons (who worked outside the guild system) had regulations about rates of pay, the taking of apprentices and other aspects of working practice, but no mention is made of masons' marks.³ Lack of information in the English documents is particularly noticeable because late-medieval masons in eastern Europe were governed by what seems to be a similar system of regulation, known as the Torgau Statutes, which has detailed instructions on the way that marks were to be allocated and used. Some writers have assumed that the Torgau Statutes



2.2. A vault at Kutná Hora, Czech Republic. The boss at the top of the picture and the painted shield both display masons' marks [Author].

were a codification of long-established practice in Germany and various European countries, but it can be shown that this was not the case before the 14th century, and it is also true that no such system was in use further west during the medieval period.

Another contrast between eastern Europe and the west is that late-medieval masons in places like Vienna or Prague are commemorated in sculpture together with their masons' marks and sometimes the mark is displayed on a shield as a form of unofficial heraldry, much as merchants' marks are shown on brasses to wool merchants in Cotswold churches. The masons who completed the vault in the church of St Barbara in Kutná Hora in the Czech Republic displayed their marks on the bosses and painted in shields on the vault surface, together with their initials and the date, 1548 (Fig. 2.2). This display of masons' marks is only found in the later medieval period and earlier examples have not been recorded. Masons' marks, however, can be seen in numerous buildings from a much earlier date, in countries across Europe and further afield, and indeed their use is a tradition that stretches back into the ancient world.

The most obvious place for public display of a mason's mark would be on his tombstone, a kind of monument which survives in reasonably large numbers. In fact, however, while masons are usually shown with their tools, and sometimes clad in a gown if they were of senior status, in no case is a mason's mark shown even if there is an inscription to record his name and dates.

The reason for this total lack of any formal recording of the allocation and use of masons' marks is probably that there was no single system in use in the middle ages, or earlier. The system was adaptable and there may well have been local variation in the ways that marks were used. Given that marks have been in use for over 4,000 years it would be surprising if this were not the case. Marks are ciphers, that is, they belong to the whole group of symbols that stand outside literacy and enable people to convey very specific information simply. Ciphers form a very flexible system and can be found in many societies in which information about ownership, or authorship, has to be passed within a specific group. The masons' marks

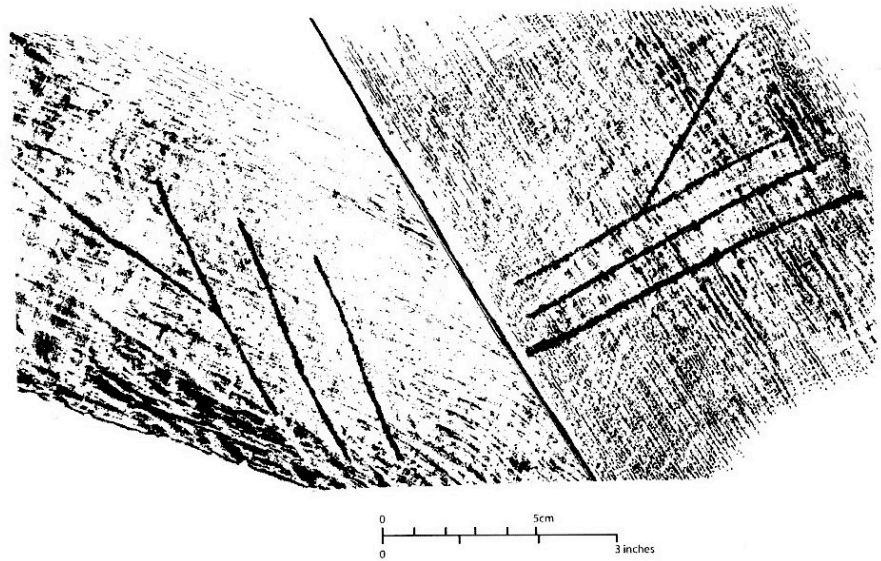
carry no other meaning beyond the practical one and the system is arcane rather than secret, because there was no need for people other than stone masons to know about it.

Quarry marks, assembly marks and banker marks

While it is clear that workshop practice will have determined the way that masons' marks were used, and this will have varied from site to site, there are certain aspects that are universal. Marks can be used in several different ways and these can be separated out quite easily. The first category of mark is the quarry mark. Stone sent out of the quarry in the recent past was given a mark to show to where it was being shipped. This was usually painted on the roughly cut block, and was part of the quarry-master's tally system. In modern times the blocks sent from the Clipsham limestone quarries in Lincolnshire in the 1950s for repairs to the Houses of Parliament had a clear 'HC' for House of Commons on the blocks.

We know from stone recovered from Roman sites in England and elsewhere in the Empire that masons, who were literate, had their names inscribed on the stone they wanted for their building projects after they had inspected it at the quarry. Similarly L.F. Salzman discovered that the master mason working on Gloucester castle for the king in the 15th century marked the stone which he had selected for the work.⁴ This was the only medieval reference to marks that Salzman was able to find despite considerable searches of the records. Later masons also marked stone in this way: Nicholas Stone, the 17th-century London mason and sculptor, wrote in his account book for 1646, 'I went to Mr Wilson's yard and marked 80 [...] of stone wch he sent the next day'. Henry Wilson's stone yard was in Petticoat Lane and supplied Portland stone to St Martin's churchyard.⁵ The mark widely believed to be that used by Sir Christopher Wren to select Portland stone can be seen on a block displayed in the crypt of St Paul's Cathedral in London.

Stone blocks left abandoned in the Ham Hill quarry in Somerset have incised numbers on the side of the block for a purpose that cannot now be explained, but would have made sense to the quarryman at the time. In another case



2.3. Carpenters' numbers on either side of a joint between a rafter and a brace in the roof of Beverley Minster. The numeral is a Roman III with an additional tag that the carpenters used to distinguish joints on the north side of the roof from those on the south side [*Alison C. Armstrong*].

where we can find out what such marks meant, the works department at Lincoln Cathedral received a shipment of stone blocks from a quarry at Ancaster in the south of the county in the 1830s and queried the amount that they had been sent. In order to make their complaint the cathedral authorities measured the blocks and checked them against a schedule that the quarry had been asked to supply so that the marks on the blocks could be understood. These marks were based on Roman numerals, with bars to allow for halves and quarters, and identified the block size in cubic feet and twelfths of a cubic foot. The Cathedral had a case as the quarry had not sent the amount ordered.⁶

Quarry marks are unlikely to survive the process of cutting up the stone and dressing it for use in the building, and indeed their purpose is served once the block has been delivered to site. Marks of the second category can often still be seen on the faces of the stone since they were part of the process of construction. This type is the assembly mark and it enabled complex sections of things like doorways, niches or other such work to be built up in the correct order. The marks form

a sequence in many cases and they are often still visible in the finished building. Sometimes the sequence was based on a version of Roman numerals. At other times a domino system was used in which the end of one block had the same symbol as the end of the next block, which in turn had a different symbol on its other end to relate to the next one.

Stone masons were not the only people to use such marks. Assembly marks can be seen on anything constructed from parts which need to be put together. They can be seen on medieval altarpieces; on the individual coloured pieces of glass that make up stained glass windows; on 18th-century gun mechanisms; and on the bearings of massive Victorian steam engines, to give just a few examples. Particularly relevant here are the assembly marks scribed by carpenters on the beams and joists of timber-framed buildings, and on the rafters, ties and braces of roofs, to show how they were to fit together. Marks of this kind on the roof timbers of the nave at Beverley Minster will be discussed in a later chapter (Fig. 2.3). The advantage of this system is that it prevents things being



2.4. Joint marks on blocks of stone used in a newel stair of the Lincoln Cathedral Angel Choir, mid-13th century [*Author*].

assembled incorrectly and it allows someone other than the person who made the various component parts to put the whole thing together. A variation on this, sometimes found in stone and timber buildings, is a joint mark made when the sections have been dry-assembled to check the fit. These marks are cut across the assembled joint and make aligning the sections simple (Fig. 2.4). They are particularly valuable when the stone blocks appear to be very similar, for example, the blocks used to build up the outer walls of spiral staircases, which all have a concave surface, but may not all be of the same dimensions.

The enigmatic and much-discussed *Sketchbook* of Villard de Honnecourt, from 13th-century France, actually documents one very specific use of a type of assembly mark. The marks were needed to log the templates that were used for different parts of the cathedral at Rheims, which was under construction at this time. Marks are shown in the *Sketchbook* on drawings of the templates and on elevation drawings of the nave and the chapels of the east end, and were also cut into the joint faces of the stones. Rheims pioneered the use of bar-tracery for windows and a special mark was shown on the template for the part of the tracery that was to have a cusp fitted to it. This mark, which is actually a drawing of the cusp, is shown in the *Sketchbook* next to the template, and remarkably was found on the actual windows themselves when the building was restored in the 1920s.⁷

The third type of mark is the one most often referred to by the term 'mason's mark'. It was made by men working at a bench known as a banker, and hence can also be called a 'banker mark'. It identified work done by the highly skilled stone masons who cut the stone into the regularly squared blocks or more complex sections of mouldings, capitals, bases and similar. These people were always paid more than the masons who laid the cut stone in the walls of the building, and had to undergo a lengthy training before they were able to achieve the accuracy needed to do this work. These days it is still the case that a mason would need to train full-time for two to three years to be proficient, and for about six years to be able to do more intricate work.⁸ The medieval mason was unlikely to have much understanding of the written word,

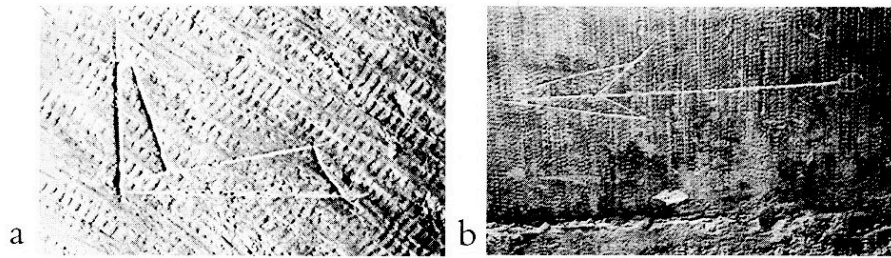
but would have been able to work with figures and to have followed oral instructions. His training would have made him familiar with templates for cutting complex shapes and with using books of drawings when he had to carve animals, plants and birds, whether real or fabulous.

Documents describe the different ways that masons were paid, with piecework frequently the norm and it is this that accounts for the use of banker masons' marks. Masons marked their stone to let the paymaster know how much work they had done. Two documents make this clear, one for a building that has marks visible and one from a building that does not. Lincoln Cathedral contracted with a mason to build the upper part of the crossing tower in 1306 and specified that the plain work, that is the walling stone, was to be costed by measure and the more complex work by the day. The stone blocks of the tower are covered in masons' marks. Exeter Cathedral, by contrast, paid its masons regular wages during the great rebuilding that lasted from *c.* 1280 to 1350, and there are no marks to be seen on the masonry erected during that period.⁹

In many other places apart from Lincoln, cutting stone for plain walling was paid on a piecework basis while more complex work, including carving, was paid by the day. There are no documents to tell us which system was used at Beverley Minster, but the carver of the famous sculptures of musicians in the north aisle of the nave is not identified by a mason's mark, whereas in the plain walling below and above the musicians, every stone has a mark. Hence the plain walling must have been paid for as piecework. The carvings of musicians are made from separate pieces of stone, although the joint with the block that supports each one is so well hidden that it is hardly noticeable. The mason's mark on the supporting block only identifies the mason who cut that block at the banker. The mark does not identify the carver who created the sculpture, and there seem to have been specialist carvers at Beverley quite distinct from the banker masons.

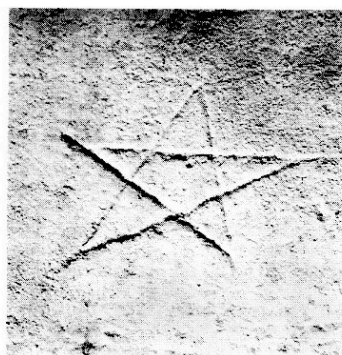
Recording and studying banker marks

Since there is no direct documentary evidence for the way that medieval marks were allocated we can only speculate,



2.5. Masons' marks from the 13th-century Angel Choir at Lincoln Cathedral. a: apparently a drawing of a mason's square; b: in the form of an arrow [Author].

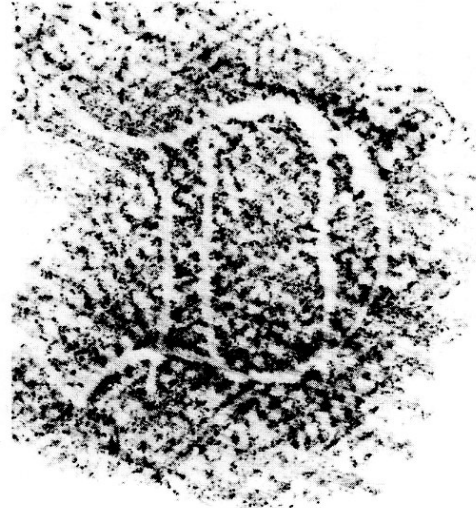
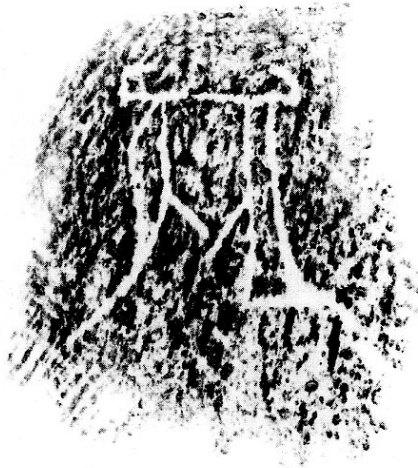
and look at later evidence. Masons may have chosen their own mark, or been given one when they joined the site. Later masons sometimes based their mark on that of the master who trained them, and 20th-century masons often used their initials arranged in a pattern. Marks do sometimes form groups and this may indicate that they belong to a team of masons working together. An example of this is a mark like a capital letter 'W' which can be found in that form or with extra strokes across the ends of one, or more, lines. The marks are mostly drawn freehand and consist of lines that meet or cross in a pattern (Fig. 2.5), although compasses are sometimes used for marks based on circles. The marks are made with a chisel or a punch, and a point is sometimes used to drill the ends of the lines. Although it was important that marks were not easy to confuse it is clear that masons did not spend a long time cutting elaborate marks made up of a large number of lines. Analysis of 13th-century marks shows that most marks



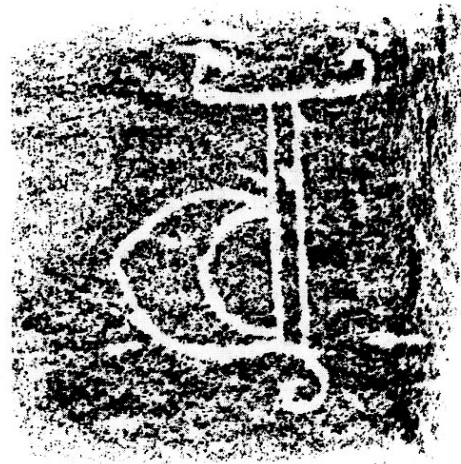
2.6. Mark in the form of a star at 'the barn', Kenilworth Priory [Author].

from that period consist of between four and six lines and that marks of more than seven or eight lines are rare. There is the occasional mark of twelve or fourteen lines but these are not often found.

The antiquarians who first noticed marks in the 18th and 19th centuries assumed that marks belonged to individual masons and that it should therefore be possible to trace these itinerant workers from one building to another. It soon became apparent



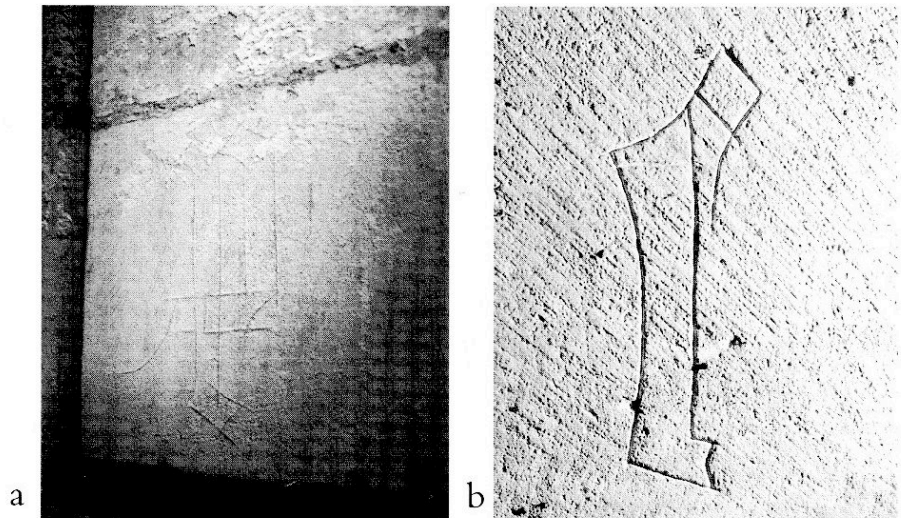
2.7. Lombard-letter marks. Above left and right: Lincoln Cathedral. Lower right: St Mary, Nottingham [*Author*].



that this was not true, but it is a view that is still sometimes voiced. Marks from Bronze-Age Knossos (c. 2500 B.C.) look very much like marks from 13th-century Southwell Minster and coincidences are very common. An unwary collector of marks could outline a career for the mason whose mark was a five-pointed star that began at Winchester in the 1080s and ended at Apethorpe Hall, Northamptonshire in the 1620s, taking in Buildwas Abbey, a building at Kenilworth Priory known as the barn, and Santiago de Compostela and Lincoln cathedrals along the way (Fig. 2.6). Clearly this cannot be true.

Later writers concentrated on the more complex marks and tried to use them to connect dated buildings with marks with those that had the same marks but were not dated.¹⁰ This approach has much to offer, but it needs refining.

Certain marks, from the 13th to 16th centuries, are very closely based on letter-types and this helps to date the marks. Some marks at Beverley, as also at Lincoln, Southwell, and



2.8. Textura-letter marks. a: tomb of Archbishop Blowet († 1423), York Minster. b: 14th-century work at Lincoln Cathedral [Author].

Nottingham, St Mary, are similar to Lombard capitals, found in the 13th century (Fig. 2.7), and marks at Ludlow, King's College Chapel, Cambridge, and York are well-drawn versions of the later *textura* letters (Fig. 2.8).¹¹ Although similarities with letters do not date the marks precisely they do provide some indication of period since these letter-forms were in use at particular times. They can also tell us something about the masons who used them, but not necessarily whether they were literate. The marks always occur alongside the more usual line-based marks, so it would be unlikely that one or two masons in the team were more literate than the others. It may have been the case that the letter refers to the mason's name and that he was shown it and learned how to cut it. Fotheringhay church has a series of marks including a beautifully cut *textura* 'h'. The church nave was built in the 15th century by a master mason called William Horwood and it is possible that the mark is his, although it is found on plain stonework which he would have probably assigned to an ordinary banker mason. Perhaps a select team of his masons used it.

We get some insight into the problem by looking at the range of work that the medieval mason did. His skills were many, and included sculptural work involving cutting mouldings and capitals as well as squaring blocks. The most skilled men were able to carve sculpture, and the distinctions

we draw between masons and sculptors would not have been recognised in the middle ages. Equally the cutting of inscriptions was in the hands of the same masons and some will have learned about letter-types this way. It is clear from the mistakes that can be found, letters reversed or upside down, that these men could not necessarily read what they were cutting. Texts were often written out at full-scale on sheets and these were pricked through to transfer the letters to the slab. Monumental masons today who have to cut inscriptions in Chinese characters, or other unfamiliar alphabets, have to rely on a text written for them in a similar way.

Instead of trying to trace masons by their marks it is more useful to look at each building that has marks individually, and use the banker masons' marks to tell us about the history of the building. The methods of recording marks are very simple and do not require specialised skills or equipment. Marks show up best when a light is shone across them, that is, a raking light, and a torch is ideal for this. Rubbings make a good record of marks, as long as the stone surface is in good condition, and brass-rubbing wax used with thin paper, like that used in artists' layout pads, produces a good result (see Fig. 2.7 for example). Each occurrence of the mark needs to be noted and its site recorded. If a whole building is being surveyed for marks this is a considerable undertaking, but worth doing in order to provide information about the construction of the building and also about the organisation of the masons' teams at that site. There is always a problem with 'casual' marks on ground-floor wall surfaces, those made by visitors, or bored choir members, and so it is best, if possible, to start the survey as high up the building as possible, or if not, then in a part normally inaccessible to all but the cathedral staff.

Architects' drawings or photogrammetric surveys of buildings make ideal recording sheets, particularly the latter since they show every stone, but if these are not available then a system based on the plan of the building can be used. In this the various sections of the building, the nave, choir, transepts, etc., are further divided into bays, and piers and responds are numbered within sections. The courses of plain walling can be coded from a declared baseline such as a string-course, or the top of a plinth, and stones numbered within

courses. The marks need to be coded as well, and although a simple numbering system is adequate it is dull and has little mnemonic value. A more complex system has been devised which is easier to consult for comparison of marks, based on the marks themselves. This takes as its starting point the number of strokes needed to cut the mark, combined with a letter of the alphabet and followed by a number to make each mark unique. Thus on Fig. 2.9 mark number 3s10 is a three-stroke mark which has the strokes crossing at its centre and 4w1 is a four-stroke mark resembling a capital 'W'. The system can be expanded easily, and resemblances between marks are easy to spot. Not all the differences between marks are significant, and factors such as the handedness of a mark are often unimportant. To take as an example Carlisle marks coded 6x13 and 6x14, the latter occurs thirty-three times but 6x13 only twice, on stones adjacent to 6x14: the two are almost certainly the same mark and indeed to a non-literate person it would seem there is no difference between the marks. The coding scheme, by keeping these marks separate, allows for differences to be explored, and if necessary the data can be combined at a later stage in the analysis.

Once the marks and their sites are coded it is best, if the numbers are large enough to warrant it, to create a database with this material and analyse the results by computer. Simple analysis reveals the connections between areas by showing where the marks occur, and in what quantities. In theory there are five possible sites for a mason to cut his mark on a squared block, since the sixth face of the cube was left unfinished. This means that if all the blocks are marked then there is a 20 per cent chance that the mark will be on a visible face. The database will show whether this is the case and if there is any variation between different parts of the building that might be significant. A different proportion of marked to unmarked stone, or the absence of marks from one area altogether may provide information about the phasing of the building. In much of the nave at Beverley, nearly every block is marked on a visible face.

Salisbury Cathedral has very few marks on the building, which implies that the masons were paid regular wages and this is consistent with the fact that the building was

1c1	2c3	2l1	2l1	2t3	2t8	2v1	2v6
2x1	2x5	2y4	3a1	3a17	3a4	3a5	3a90
3f1	3f3	3f6	3h1	3h5	3h7	3h8	3h9
3n1	3n3	3r2	3s10	3t15	3t4	3t41	3v3
3v30	3v31	3z14	3z2	3z4	4a3	4b1	4b22
4b23	4c2	4c3	4f1	4f2	4f20	4g1	4h3
4h55	4n40	4q3	4s1	4v11	4v8	4w1	4w2
4w3	4z15	5a10	5a3	5f1	5f20	5f22	5f3
5f4	5f5	5h33	5m1	5m2	5m21	5m23	5m4
5s1	5t4	5w2	5x11	5y1	6f3	6m3	6m4
6t10	6t30	6x11	6x12	6x13	6x14	6x16	6x20
7a1	7f2	7q1	7q10	7r1	7r2	7x12	

2.9. Coding sheet of marks from Carlisle Cathedral, Southwell Minster and Lincoln Cathedral [*Author*].

constructed very rapidly. The building was going up on a cleared site, with the backing of powerful patrons, and with the sources of its materials organised, and it is highly likely that the funding had already been secured. The north porch, which has architectural detailing of a more developed form than that of the nave, does have masons' marks and it may well have been built by masons on a new contract, at a slightly later date. At Carlisle the evidence points in a different direction.

The piers on either side of the choir have different marking schemes: on the south side it is more usual to find only the main lobes of the pier marked whereas the north side has marks more randomly sited across all the lobes of the piers. This, it is suggested, shows that the teams were under separate foremen with their own preferred ways of doing things.¹²

The database will also allow single marks, or groups of marks to be followed around the building and connections made, or distinctions drawn. A number of architectural historians have used the evidence from the masons' marks in this way, although computer analysis is a recent phenomenon. For example, at the abbey church of Saint-Denis in Paris, connections between different sections of the building were made by looking at the masons' marks, and the stylistic links between the west and east ends of the church were confirmed by the presence of the same marks at both sites.¹³

Teasing out the phasing in the construction of the royal church of San Isidoro de León in northern Spain was greatly helped by the presence of thousands of masons' marks clearly inscribed on the interior and exterior stonework of the building.¹⁴ Marks have also been noted when buildings have been excavated and have helped to connect the fragments with better preserved parts of the site, as at Wharram Percy in Yorkshire. In Ireland Roger Stalley used the masons' marks found in the Cistercian abbeys to show that the buildings were the work of professional stone masons from outside the Order rather than the work of monks.¹⁵

Carlisle and Southwell case-studies

Most buildings were constructed over a very long period and changes were also made to accommodate new forms of liturgy or to provide extra space for altars or shrines. Sometimes the changes are very obvious, as when a new architectural style is used, or a different building material, but this is not always the case. At Carlisle Cathedral, for example, the canons had just completed an extensive new choir when fire swept through the city in 1292 and destroyed much of their new work. The outer walls were saved, but the wooden roof and much of the interior of the choir were beyond repair. Rebuilding started immediately and a great deal of care was

taken to ensure that the new work of the 14th century closely matched the earlier work in the choir.

By recording where each mason's mark was located in the building and analysing the results by computer it was possible to show how the rebuilt choir fitted into the saved outer walls.¹⁶ The masons' marks showed that the choir piers were newly made in the 14th century and not cut down from the 13th-century ones, as had been widely believed. It was also possible to estimate the size of the masons' team that worked on the piers and to show that there were different teams working on the north and south arcades, as noted above. Each pier was the work of a team of between twelve and sixteen men, who cut the lobes of the piers and the blocks for the bases, drawn from a total workforce of thirty-six banker masons. Once the piers were standing the building masons re-erected the 13th-century arcade arches that had been taken down and kept, and then raised the aisle vaults, again using fabric saved from the damaged building. During this time the team of masons cutting stone was scaled down and only nine masons from the original thirty-six were still at work when stone was needed for the upper storeys, and twenty new men had to be taken on. Despite the complexities of having new work matched in to the old and of having major architectural elements like arcade arches saved and re-used, it was possible to reconstruct the sequence of events in Carlisle in the early 14th century by analysing the masons' marks.

The masons' marks at Southwell Minster provide evidence for a different sort of construction problem. The choir there was rebuilt in the 13th century, but this was a case of updating a building and was not in response to a disaster. There is plenty of archaeological evidence for the rebuilding still to be seen in the choir. The putlog holes for the scaffolding, for example, can be seen, and it is clear that building work did not proceed smoothly from east to west in a single campaign, but started to the east on clear ground and continued until the old choir east wall was reached. Construction work had to stop and wait until the old choir had been demolished before it could be continued. Since the crossing tower was not part of the rebuilding, the masons had to support it as soon as the old choir was taken down by constructing the new bays next to

it and then build from west to east to meet the bays they had already erected. This caused them a few problems, and there are several places where walls do not quite line up and in one bay a piece of sculpture disguises an awkward joint. Building breaks are clearly visible in line with the known site of the east wall of the old choir and the apses of its aisles. It is not clear, however, how long these breaks lasted. The design of the choir is uniform, although there are a number of differences of detail between the arches on the north and south sides which can probably be attributed to medieval delight in variety, and there is insufficient evidence to show whether the process took months rather than years.

The masons' marks in the choir provide the answer.¹⁷ By using the same technique of recording each mark and analysing the results by computer it was possible to reconstruct a building programme that started in the north-west corner of the presbytery and then moved north and east and finally south. This part of the new building lay to the east of the old choir and may only have required the clearance of a few burials before building work could start. Work then paused for a short time, perhaps over the winter, and a group of masons that consisted of some presbytery masons joined by ten new men, continued work on the outside wall of the choir aisles. The project was only interrupted when the apses of the earlier choir aisles were met. Meanwhile stone was being cut for the choir piers, the first two of which stood outside the old choir.

As at Carlisle, the teams that cut the stone for the piers varied, but the piers that were built first, before the old choir was taken down, had teams of between nine and thirteen masons whereas the western piers required larger teams of between nineteen and twenty-two men, although the piers are of a similar size. It is particularly significant that the teams were made up of different masons on either side of the break, and of the twenty masons who worked on the early piers, only three were still there when stone for the later piers was being cut. Instead a new group of twenty-nine masons was taken on. The upper levels of the building had also been built up as far as the old work before it was demolished and the masons' marks on either side of the break belong to different

teams. Clearly the break in the construction of the choir arcade was of some length. Once building work restarted and stone was needed, progress was swift, with masons cutting stone for piers, for the outside walls, and for the upper parts of the structure. The teams then stayed together until the work was completed and the choir was finished.

The masons whose marks we have been considering used a variety of chisels and axes to square off the stone before they cut their marks and these tools left characteristic patterns across the surface of the blocks. Once we leave the medieval period, and in some cases before it, some masons were smoothing the tooling marks off to leave a perfectly flat finish on the stone. In some buildings built during and after the late 16th century, such as Hardwick Hall in Derbyshire, mortar joints were also reduced to a minimum and the walls were presented as single surfaces, interrupted only by windows and doors. It might be expected that masons' marks would disappear at this stage, but surprisingly this is not the case. Marks are still to be seen and in fact they stand out better against the smooth stone, and are more visible. Marks are also to be found on fireplaces on the interior of the Hall, prominently sited where everyone can see them.

This trend can be seen on 17th-century buildings as well, at Apethorpe Hall in Northamptonshire from the 1620s, for example, which has large-scale marks on the exterior stonework and prominently sited marks on the fireplaces and on the sculptural work of its porches.¹⁸ By the 18th century, however, marks were only placed on the joint-beds and non-visible faces of blocks used for churches and houses, although stonework on bridges continued to be face-marked. Revival of medieval traditions in the 19th century brought marks back to prominence, coinciding with antiquarian interest in discovering the supposed meaning of medieval masons' marks. Marks are still in use today, although they are usually hidden on joint faces, and are made by masons who wish to continue a tradition that is as old as building in stone.

Masons' marks provide evidence for the working practices of the highly skilled and able men who constructed the magnificent stone churches and country houses of the past. The marks were put on the stone for entirely practical reasons,

in answer to the particular needs of the industry. We may not be able to identify, or name, the masons from their marks, but we can still use the marks to deepen our understanding of their work and appreciate more the buildings that they helped to create.

Chapter 2: Masons' marks and the working practices of medieval stone masons

1. Lichfield Cathedral, Dean and Chapter, D&C C. A. i, f. 9.
2. J. Harvey, *English Mediaeval Architects: A Biographical Dictionary down to 1550*, 2nd edn (Gloucester, 1984).
3. These are the Regius and Cooke Manuscripts (British Library, Royal MS.17, and Add. MS. 23198), now thought to have been written in the West Midlands during the 15th century. See A. Prescott, 'Some Literary Contexts of the Regius and Cooke Manuscripts', forthcoming. I am grateful to Professor Prescott for sending me an advance copy of his text.
4. L.F. Salzman, *Building in England down to 1540: A Documentary History*, 2nd edn (Oxford, 1967), p. 126.
5. The account book is in Sir John Soane's Museum, acc. no. 10/24 vol. 93, f.44.
6. Lincolnshire Archives Office, D&C Audit Vouchers CIV 55 1833-4.
7. J.S. Alexander, 'Villard de Honnecourt and Masons' Marks,' in M.-T. Zenner (editor), *Villard's Legacy: Studies in Medieval Technology, Science*

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and *Art in Memory of Jean Gimpel* (Aldershot, 2004), pp. 53–69.

8. P.R. Hill and J.C.E. David, *Practical Stone Masonry* (Shaftesbury, 1995), p. 159.

9. For the Lincoln document see T. Pownall, 'The Origins of Gothic Architecture', *Archaeologia*, 9 (1789), pp. 110–26, and for Exeter see *The Accounts of the Fabric of Exeter Cathedral, 1279–1353*, edited by A.M. Erskine, Devon and Cornwall Record Society, n.s. 24, 26, 2 vols (Torquay, 1981–3).

10. R.H.C. Davies, 'A Catalogue of Masons' Marks as an Aid to Architectural History', *Journal of the British Archaeological Association*, 3rd ser. 17 (1954), pp. 43–76.

11. See J.S. Alexander, 'The Uses of Masons' Marks and Construction Instructions in Medieval Buildings', in J. Higgitt, K. Forsyth and D. Parsons (editors), *Roman, Runes and Ogham: Medieval Inscriptions in the Insular World and on the Continent* (Donington, 2001), pp. 211–22.

12. J.S. Alexander, 'The Construction of the Gothic choir of Carlisle Cathedral, and the Evidence of the Masons' Marks', in M. McCarthy and D. Weston (editors), *Carlisle and Cumbria: Roman and Medieval Architecture, Art and Archaeology*, British Archaeological Association Conference Transactions, 27 (Leeds, 2004), pp. 106–26, at p. 121.

13. S. McK. Crosby, 'Masons' Marks at Saint-Denis', in P. Gallais and Y.-J. Riou, (editors), *Mélanges offerts à René Crozet* (Poitiers, 1966), pp. 711–17.

14. T. Martin, 'Reading the Walls: Masons' Marks and the Archaeology of Architecture at San Isidoro, León', in T. Martin and J.A. Harris (editors), *Church, State, Vellum and Stone: Essays on Medieval Spain in Honor of John Williams* (Leiden, 2005), pp. 383–412.

15. R.J. Stalley, *The Cistercian Monasteries of Ireland* (London, 1987), pp. 42–3. For Wharram Percy see the interim report in D.M. Wilson and J.G. Hurst, 'Medieval Britain in 1964', *Medieval Archaeology*, 9 (1965), p. 187.

16. Alexander, 'Carlisle Choir', pp. 121–4.

17. J.S. Alexander, 'Southwell Minster Choir: The Evidence of the Masons' Marks', in J.S. Alexander (editor), *Southwell and Nottinghamshire: Medieval Art, Architecture and Industry*, British Archaeological Association Conference Transactions, 21 (Leeds, 1998), pp. 44–59.

18. J.S. Alexander and K.A. Morrison, 'Apethorpe Hall and the Workshop of Thomas Thorpe, Master Mason: A Study in Masons' Marks', *Journal of the Society of Architectural Historians*, 50 (2007), pp. 1–26.