

MASONIC MUSINGS

The Masonic Education Newsletter
of Lodge Epicurean No 906 and Lodge Amalthea No 914

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Issue 4 – August 2012

Welcome to *Issue Four*. This time around, we look at *The Operative Masons* – again a paper (with some annotations by me) from Bro. Clive Moore. This is an excellent introduction, if you like, to the subject. There is a theory that modern Masonry is wholly or partly directly-descended from Operative Masonry. However, there are about a dozen other theories also! The truth is no one really knows where Speculative Freemasonry came from. Our origins are, very largely, lost in the mists of time.

Fraternal regards,
Kent Henderson.

OH WONDERFUL MASONS!

INTRODUCTION

Medieval city dwellers lived in the shadow of the greatest man-made structures of their time; the soaring Gothic cathedrals that still fill us with wonder today. This talk is about the masons who built them and the tangible reminders of their working lives to be found in a modern speculative lodge.

Later historians would portray the middle ages as crude and uncivilised; but in fact there were many advances in learning and despite the famine and plagues of the 14th century it was a period of growing prosperity and stability. The population grew, commerce flourished and the church became increasingly powerful – by 1300 it owned nearly a third of England's landed wealth.

The resulting building boom demanded well-constructed aesthetically pleasing structures, not the crude utilitarianism of the previous millennium. The biggest commissions still came from royalty or clergy; but public bodies and wealthy individuals also began to instigate projects, not just churches but all types of municipal and private works. The cathedrals are the undoubted gems of this new era, but there were also great monasteries, castles and bridges.

THE MASTER MASON

The middle ages encompass the evolution of Gothic architecture; a technically demanding style that prompted both new construction techniques and the rediscovery of ancient skills.

Masons had been regarded as crude artisans, but those with the necessary technical and organisational abilities now took on the role of both lead contractor and architect.



Operative masons at work.

They were called *master masons*; but unlike our generic degree this was a special distinction, as in addition to managing the masons they would prepare designs, solve technical problems, and liaise with other crafts and suppliers. On larger projects the master mason would appoint under-masters or wardens to supervise the working masons and a clerk of works might take on administrative tasks, such as bookkeeping. This could free the master mason to run more than one project and visit other sites to give advice or gather new ideas.

WORKING MASONS

Trained masons (other than masters) were called fellows. The designation of *freemason* first appears in the early 14th century; despite later connotations it was probably a contraction of the term *freestone mason* – freestone was the best stone for carving so was worked by the more skilled masons.

Masons learnt their skills in the quarries, on site and in the lodge; often these were passed down through families – formal apprenticeships are first recorded in the late 14th century. The most skilled working masons were the stone hewers and carvers; the best might become *imaginators* – the medieval name for sculptors. Less skilled were the stone layers or setters; and the rough masons who built walls and worked alongside the quarrymen cutting the stone into rough blocks. Their work was hard and dangerous, they constantly breathed in stone dust and many were injured by falls from scaffolding. Pensions are recorded for master masons, but most masons had to rely on charity if they could not work. Our almoner's jewel depicts the scrip purses worn by medieval masons.



Canterbury Cathedral

HOURS & WAGES

Many masons were journeymen, moving between sites as required. They worked a 6 or 5½ day week, a normal working day was from sunrise to sunset with breaks for refreshment and an afternoon rest – our opening and closing ceremonies still refer to the rising and setting sun. They had no annual holidays as such; but could have up to 40 (often unpaid) days off for religious festivals, when they sometimes feasted together at festive boards. In winter most outdoor work had to stop, so many masons were laid off; those kept on worked in the lodge or other sheltered areas, but the days being shorter

their wages were cut.

A working mason's earnings depended upon his skill and output; some were paid on a piecework basis and we can still find the identifying marks they cut on stones. In the mid 14th century the average wage for a skilled working mason was about 5 pence a day; at that time a butcher or baker made about 3 pence a day. Masons were often paid wages and bonuses in kind such as accommodation, food or clothing; working masons might be given gloves or aprons but the master mason would get a fur lined robe.

Master masons were paid considerably more than other masons; the best were on a par with educated lawyers and physicians, a few even became master masons to the King. Increasingly from the late 13th century they were employed under contracts; these could include the supply of labour and materials, as well as penalties for failure.

THE LODGE

The lodge was a temporary shelter erected at quarries and building sites where masons could work, eat and rest; the master or his warden(s) would knock on the lodge door to call them from refreshment to labour. The masons associated with each lodge were themselves collectively called 'the lodge' and no doubt they often gathered around a work bench to eat or talk; just as the early Speculative Masons gathered around tables in their lodges. Our pedestals were a much later innovation.

The 14th century saw devastating famines and plagues; and coupled with rising taxation this led to an increasing unrest between the ruling aristocracy, the new middle classes, and a growing number of wage earners not reliant upon feudalism. These social tensions may have spurred masons to become better organized, with some well-established lodges adopting written charges or *constitutions*. Two early 15th century charges survive, the *Regius* and *Cooke manuscripts*; both were probably written or copied for lodges by ecclesiastical employers.

The trade regulations in them would have reflected established practices, but they also gave guidance on manners, morals and religious duties. Most notable are the legendary histories they provided for the craft; these drew upon many sources and may have included some pre-existing Masonic folklore. These charges were read aloud to masons before they took an oath to obey them and guard each other's secrets; such

oaths are recorded at York in the 1370s. Our modern *Book of Constitutions* still opens with a *Summary of the Antient Charges*, that is read aloud to every master-elect prior to his obligation.

The medieval charges and wage statues do refer to general assemblies of masons, but it seems unlikely that working masons would have travelled far to attend such gatherings. Indeed there is no direct evidence that they took place or for that level of Masonic association having existed; although journeymen masons did provide informal links between lodges.

Nor, as a rule, did medieval masons form their own guilds; even though guilds would later have a major influence on Speculative Masonry. Medieval masons were generally wage earners, and moved around too much to become part of the urban commercial world of the trade and craft guilds. The exceptions were in cities where a number of masons did become resident; as in London where there was a Masons' Company in the mid 14th century.

CLOTHING

Most working masons wore long leather aprons over their everyday tunics. The more skilled may have left the apron bib or flap down to show that they did not do the rough tasks requiring its protection; in some speculative lodges today Entered Apprentices still wear their apron flap up (notably in America and Europe). Some masons wore gauntleted gloves, usually as protection from the lime mortar they used – made from un-dyed skins they were naturally whitish in colour. Medieval carvings and illustrations also show many masons wearing hoods or skull-caps at work; in summer some employers provided them with straw hats.

Our speculative forebears adopted as their badge the operative's plain leather apron and also wore white gauntleted gloves. However, over the years our aprons have become smaller and apart from the Entered Apprentice's apron have been adorned with ribbons, rosettes and badges. We do still wear plain white gloves, but only principal officers are gauntleted with embroidered cuffs.

MYSTERIOUS SECRETS

To medieval writers the word 'mystery' also meant a calling or skill, not just that something was inexplicable. The special skills or mystery of a master mason were certainly beyond the

understanding of most men, but the better educated could discern the underlying geometrical principles. The 13th century Archbishop Robert Kilwardby wrote 'does not geometry teach how to measure every dimension, through which carpenters and stoneworkers work'? Indeed the actual title of the Masonic Charge we call the *Regius Manuscript* is 'The Constitutions of the Art of Geometry According to Euclid'; whose *47th Proposition* is our Past Master's jewel.



An aerial photo of York Minster
– England's largest cathedral.

However, few operative masons would have studied theoretical geometry or mathematics; most learnt their skills from other masons and empirically. Nor did they study structural engineering; initially they had relied solely upon the inherent stability of well fitted stone blocks in compression, but as they gained experience building increasingly complex designs they learnt to build in safeguards, such as flying buttresses and tie bars. Even so vaults did crack and towers collapse, often due to inadequate foundations.

Their patrons may have been classically educated and have seen Islamic or Byzantine architecture, but the designs of the early master masons derived mostly from local traditions and skills. New ideas spread and develop more quickly when both patrons and masons began to travel more; as in 1175 when William of Sens became master mason at Canterbury Cathedral and brought from France the *Early Gothic style* with its high pointed arches, rib vaulting and large windows. Developing increasingly ornate features, such as tracery and fan vaulting, the Gothic styles would become the embodiment of the medieval masons' skill.

Patrons would outline their requirements to the master mason, who might then prepare studio drawings of the key features. Sometimes these were coloured to show how the stonework and plaster would be painted; high status medieval

buildings were extensively painted, often in bright colours. The design-approved working drawings or tracings were prepared from wooden templates known as 'moldes' which would guide the working masons. The working drawings rarely survive as most were incised on plaster covered floors or wooden tracing boards. The latter possibly gave their name to the boards our masters are charged to draw designs upon; some modern stonemasons still use whitewashed boards.

The drawings employed a technique we call *constructive geometry*; that uses simple squares, triangles, polygons and circles to define more complex shapes. They did not have scales, but provided proportional ratios for each dimension relative to a set baseline; such as a bay width – although experienced master masons would have known many of the ratios they needed without recourse to drawings.

Most drawings were one dimensional, but different levels or an elevation might sometimes be superimposed on one drawing. Master masons had techniques for taking elevations from simple ground plans; such as drawing projecting arcs to determine the curvature of a vaulted ceiling, a Masonic secret that literally involved finding *a point within a circle*.

Masons like other craftsmen would have been reticent about sharing their special know-how with outsiders, but there is no evidence of any esoteric secrets or rituals, as such. Some urban masons did take part in religious pageants called mystery or miracle plays and these have been likened to our rituals, but they were public performances and not specifically Masonic.

Speculative masons would adopt the charges, legendary history and many trappings of the medieval mason; but our rituals, secret signs, grips and passwords probably derive from other periods and sources. Speculative lodges needed such modes of recognition, whereas a medieval mason's operative skills were easily tested. That said there is a school of thought that suggests some Masonic 'modern' secrets may have originated in earlier operative days. The itinerant nature of the Mason trade meant that methods were needed to establish skills and experience – obviously a journeyman craftsman had to travel from building site to building site to gain work. Outside the clergy few people were literate, and even if written qualifications existed they would have been of no use to people could not read. It has been suggested certain *modes of recognition* may have been employed that indicated varying skills and experience of those arriving a new building site.

WORKING TOOLS

Since ancient times writers have used tools such as plumb lines and squares symbolically; some medieval religious texts depicted God as an architect with a pair of compasses. However, there is no evidence that medieval masons ever moralised upon their tools and the first records of speculative masons doing so do not appear until the 18th century.

Operative masons used many different tools; the disposable ones such as chisels were often provided for them but they probably kept their own squares and compasses. We allocate just three to each degree, the first set relevant to labour, the second to testing the stone and the third to design. Let us now consider these, but in their original forms not our stylised versions.



A heavy setting maul.

A medieval mason's wooden rule or straight edge did not fold and was not necessarily 24" long; they also used much longer measuring staffs and lines. Standard linear measures were not fixed by law until 1340, they varied regionally and could even be site specific. Masons drew with a metal stylus called a lead point, although drawings might afterwards be inked or coloured in. A medieval pencil was a fine brush used by painters; graphite for the type of pencils we know was not discovered until the 1560s. Their squares and compasses were usually much larger than our symbolic versions; being used not just to prepare drawings but to mark out ground plans, scribe templates and test stones. Iron squares are recorded but most were made of wood, often old cask staves were used, and they usually had arms of unequal length. The early illustrations also show us that the arms of their compasses were sometimes fitted with a curved guide to facilitate their use.

When marking out ground plans they used reels, very like our skirrets, to feed out the line. These are pictured in medieval documents but not named; the term 'skirret' was not used for such tools until the early 19th century and then only in a speculative context. Operative masons used a variety of hammers and mauls. The dictionary defines a gavel as a setting maul, but our rituals describe it as the scappling hammer or axe masons used to prepare the rough stone; mallets not gavels were used to strike the chisels.

Increasingly from the 12th century steel-tipped chisels would replace axes as the chief tool for dressing and carving stone. Plumb lines and bobs were an essential tool of the medieval mason; some speculative lodges today have them as an extra working tool. Medieval masons used them not only as simple plumb lines, but also mounted on straight edges or in wooden frames to form levels and plumb rules.

THE BUILDING SITE

Living and working accommodation had to be arranged for a sometimes large workforce; such as when craftsmen were impressed to work on royal projects. At Harlech Castle in 1286 there were 227 masons, 115 quarrymen, 30 smiths, 22 carpenters, and 546 general workmen or labourers; although just 4 clerks to do the paperwork.

Organising the supply and carriage of building materials was a major task. The master mason had to find quarries with the right stone, as well as ensuring supplies of other materials such as timber and lead; the works at Vale Royal Abbey between 1278 and 1280 needed 35,000 cartloads of stone!

Construction started with marking out the foundations; in 1277 the ledgers at Vale Royal Abbey record the levelling of 'a place on which the ground plan of the monastery was to be traced'. Using *constructive geometry*, measuring poles and chalk lines the plan was marked out in the soil or with pegged ropes.

The first speculative masons drew simple ground plans on their meeting room floors, and our tracing boards developed from those drawings. The corner tassels depicted on our 1st Degree board, and on some lodge carpets, may represent rope ends. Indeed the chequered lodge floor itself could be a grid for plotting designs.

Churches were usually orientated east-west and when possible construction commenced in the east, but the foundation stone was not always laid in the North East corner. A rectangular

mason's lodge erected alongside such works would also lie east-west; just as we deem our lodges to do. This orientation also maximized the daylight coming into the lodge. Medieval masons rarely worked by candlelight; our Junior Warden sitting midway along the south wall would also enjoy the most daylight were our lodges open sided.

The master mason would provide measurements, patterns and templates for the hewers at the quarry and on site; and they would use them to work the stone into rectangular blocks called ashlar and the other basic shapes needed. Both a rough unfinished and a smooth or perfect ashlar are displayed in our lodges; our early ritualists possibly confused perfect with 'perpend' or 'perpent', which were ashlar that had been dressed on two faces as they would be visible on both sides of a wall.

When carving more elaborate features the masons were guided by full sized drawings incised on plaster tracing floors; such floors have survived at York Minster and Wells Cathedral. The drawings could be very complex; to draw the east window tracery for Carlisle Cathedral arcs must have been scribed using 263 different centres.

Measurements could be taken from these drawings or the stones tested directly upon them, each stone being marked to show its final location. Drawings might also be scratched on a convenient flat surface near the feature being constructed; these were later covered over but a 13th century example is now visible by a rose window in Byland Abbey.

The carpenters erected hoists and scaffolding for the masons, including timber frameworks called centering to support the arches and vaults during construction. Scaffolding rose with the building or was laid upon beams slotted into the walls; it was reached by ramps, ladders or spiral staircases built into the rising walls.

Jacob's ladder and a winding staircase both figure in our ritual and a few lodge rooms even have wooden representations of them. We usually depict the staircase as curved not spiral, but Josephus, the 1st century AD historian, said that the original in King Solomon's temple was built into the thickness of a wall.

Materials were carried or lifted into place using just manpower; a tread mill hoist still survives at Canterbury Cathedral. Our smooth ashlar usually sits beneath a simple tripod hoist, with ropes attached to a hole in its top face by an iron cramp called a lewis. Lewis holes are found in Roman and Saxon masonry, but medieval

masons generally used slings or metal scissor clamps that fitted over the stone; modern operatives call this an 'external lewis'.

Using trowels and heavy mauls, both found in our lodges, the layers bedded the stones in mortar; whilst testing them with levels and plumb lines. Structural cavities were filled with mortared rubble and where necessary the masonry was reinforced with dowels, metal clamps or tie bars; sometimes molten lead was also used to strengthen joints.

Even with a large workforce a project could take many years to complete, especially if funds ran out or a patron died. Typically it took 40 to 60 years to complete the main body of a cathedral, but a tower or elaborate west front might take much longer; work progressed in stages, so that completed sections could be brought into early use.

CONCLUSION

The golden age of the operative mason drew to a close in the 16th century, as brick became more popular, ecclesiastical building declined, and the number of specialist contractors grew. Also architectural design was no longer a predominantly operative skill; as a classical revival and sophisticated new drawing techniques were changing it to a more scholarly profession. In short, technology moved on.

In fact Gothic architecture came to be regarded as 'monstrous and barbaric'. So our speculative forebears chose instead to eulogize about classical architecture; but happily a number of medieval Gothic masterpieces have survived – that can make us exclaim, as did King Solomon, 'Oh Wonderful Masons!'

QUESTIONS & ANSWERS

What is the origin of the Three Knocks?

The use of knocks to call the attention of those present at a meeting is an ancient usage. *The Fabric Rolls of York Minster 1335* record the details of the work, rest and so forth of the Masons employed thereon, and mentions them being called from meals to resume work by a knock on the door of the Lodge. This Lodge would be temporary structure adjoining the building under construction. Knocks are now deliberately varied to distinguish the three Degrees from one another.

Many of our Masonic practices bear a strong resemblance to Ecclesiastical practices – although definite evidence of these connections is lacking. However the fact that Operative Masonry was employed largely in the building of Cathedrals and other buildings for the Church at least suggests that Church practices and customs would not be entirely unknown to those interested in the Operative Lodges from which the Speculative Craft reputedly arose.

An instance of the Ecclesiastical use of knocks is seen when a new Bishop is being enthroned. He approaches the West door of the Cathedral and with three blows of his Pastoral Staff thereon obtains the attention of the Dean and Chapter from whom he seeks permission to enter for the completion of the Ceremony of his full Induction into the Episcopacy.

What do the Three Knocks on the Wardens' shoulders mean?

The Knocks on the Wardens' shoulders are Knocks of Entry. In English Rituals (and those directly descended from them, such as our own) the three Knocks are repetitions of the Knocks of the Tyler.

In these rituals the Tyler's Knocks represent a 'report'. It is held by some leading English Masons that the knocks are fundamental. This view is not universally held.

In our ritual one knock only by the Tyler is used to sound an Alarm in the First Degree. The knocks on the Wardens' shoulders are three, the condition or state of alarm having ceased to exist.

If a general rule could be applied, it might be that the knocks at the Wardens' Pedestals should always repeat the Tyler's Knocks, but a universal rule does not exist. The knocks apparently have no special meaning apart from the fundamental or regular Knocks of the First Degree.

It is considered that they have been retained in this form in the Initiation Ceremony from the time when the brethren sat in Lodge round a table and the candidate was led round behind them. It is easy to understand that this would be the easiest way to attract the attention of the Wardens.