



UNIVERSE OF STONE PART 4

MEDIEVAL GOTHIC RENEWAL OF THE ART OF SCULPTURE

- In his determination to eliminate non-Christian religions, the Roman emperor of the east, Theodosius II, decreed in 408 that all statues should be removed from pagan temples.
 - When medieval sculptors began again to carve in stone, the classical tradition was all but lost and the art had to be reinvented.
- **Sculpture in a medieval church was, like its stained glass, a way of telling stories** and illustrating allegories and morals to the illiterate worshippers.
- The Last Judgement was a favorite scene to place on the tympanum above the main portal, as a caution to churchgoers that only by passing through this apocalyptic trial could they enter the kingdom of Heaven.
- But there is something different about the Royal Portal of Chartres. On the colonnades flanking the doors (the jambs), the figures – kings and queens of Judah, prophets and patriarchs of the Old Testament – are starting to float free from their supports. They are not quite free-standing, but neither are they part of the columns. They seem to be suspended
- Comparison with **sticks of celery** is an apt comparison
- The proportions look about right from the ground.
- These figures of plain and humble stone were originally bright with paint and gilt.

QUARRIES AND STONE

- The quarries in the Île-de-France, such as that at Berchères-les-Pierres in the Beauce provided most of the purple - grey limestone for Chartres
- The man who knew how to work stone could generally find a comfortable standard of living
- Winters in northern Europe were, however, relatively mild in the age of cathedral - building : this was a time now known to climatologists as the Medieval Warm Period. It is partly this fortuitous coincidence that made the cathedrals crusade viable.



MASONS

- **Strange symbols** engraved on some of the cathedral's stones, such as those of a column in the south transept, were first discovered
- The notion probably owes more to the regulation of lodges in the 14th century, was aimed primarily at ensuring good professional conduct from their members but also included statutes that forbade the indiscriminate divulging of the techniques of the trade.
- Gradually these non-operatives, who did not work with stone but instead had more antiquarian interests in the masonic tradition, came to dominate the organization, transforming it from a trade guild into the 'speculative' fraternity that still exists today.
- Not all the cryptic markings found on the stones of cathedrals are **masons' marks**. Some were added at the quarry, intended merely as a kind of '**medieval barcode**'.
- Other markings were used to encode assembly instructions
- **Tracing floor**: the floor of a convenient room in the building, which was covered in a thin coat of white lime plaster. The designs were drawn onto the plaster and then carved through it into the stone floor.
- The 'cathedrals crusade' and of building 'campaign' is not merely to speak metaphorically: warfare and church building in the High Gothic era were the two most demanding enterprises of Christendom, both placing unparalleled demands on the economies and technologies of the times while sustaining and indeed complementing one another in ways that seem vaguely disturbing today.

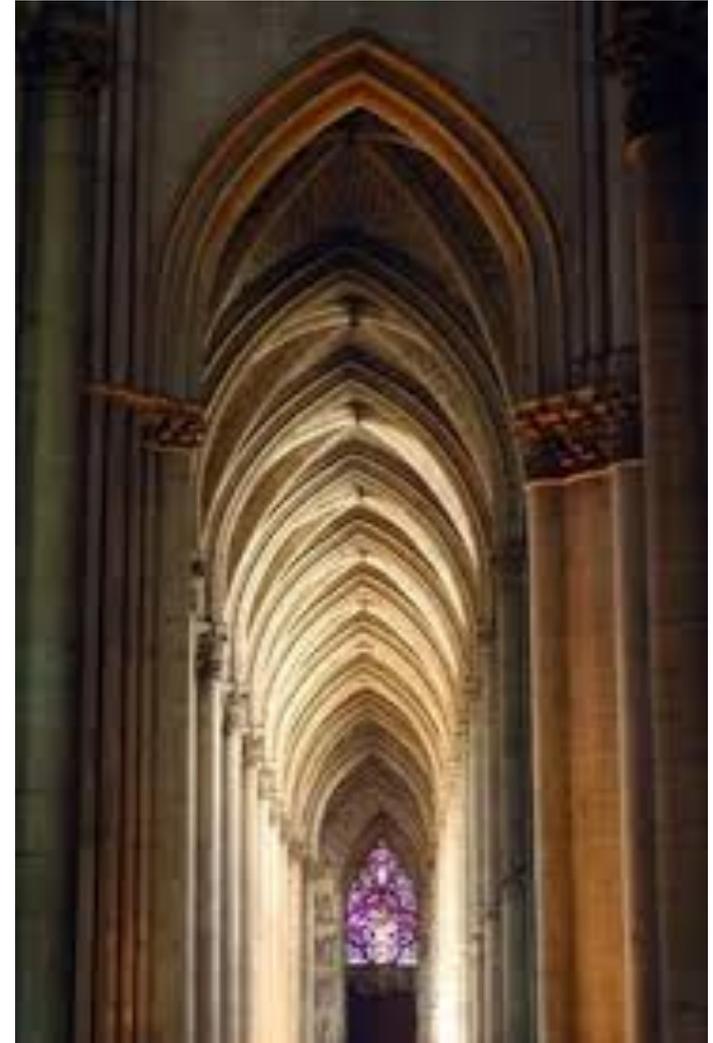
THE FLYING BUTTRESS AND PRINCIPLES OF GOTHIC ARCHITECTURE

- With this innovation, it must have seemed to the Gothic builders that any heights could now be reached without peril of collapse.
- Here they are uniquely elaborate in having radial spokes connecting the lower arch and the upper sloping beam.
- Gothic architecture had a stability that seems almost eternal: the stones lock together in an impervious web of forces.
- Put together using sound mechanical principles, **a web of forces**
- With Gothic, the forces are interwoven, counterpoised and managed with a seemingly **miraculous economy of materials**
- The reason stone buildings fall is not because the stones break under the load, but because the structures topple – because they are pushed or displaced sideways until they lose balance.
- What holds Chartres together is not the mortar (which is after all spread extremely thinly) but the weight of the masonry itself, which squeezes the blocks together and locks them in place.



STONE AND BUILDING POINTED ARCHES

- Unlikely as it may seem, stone bends.
- But a church is not like this, because the walls and pillars generally have something on top that alters the thrust line. In particular, they may support arches.
- Lassaulx's proposed method for making an arch or vault without centering involves hanging weights over the edge of the arch to create compression. Then the vault can be built 'freehand', without any centering at all.
- Another way to pull the thrust line towards the center of the wall is to put additional weight on top. That may be done by adding pinnacles or statues.



THE POINTED ARCH AND VAULTS

- One of the factors that made this style possible was the **adoption of the pointed arch**. This classic signature of Gothic architecture was not chosen for its aesthetic qualities, or not simply for that.
 - Pointed arch **reduces lateral thrust of an arch by 20%**
 - Allowed Gothic architects to build walls higher without fear that the arched vaults would push them apart.
 - Pointed arch was simply ugly regardless of its functional value. They saw it as a barbaric invention, claiming that it was devised by the Teutons when, living in forests, they tied the branches of trees together for shelter.
- Such arches can be found in 6th-century Syria, and are common in Islamic architecture from the eighth century
- The Normans, who conquered Sicily in the 1060s and 1070s and were building cathedrals there from the late 1080s, used pointed arches in the churches of their homeland by the end of the 11th century.

DEVELOPMENT OF GROIN VAULTS

- The earliest vaults were of the barrel form
 - This solution to the mechanics of vaulting worked fine – except that it didn't leave space for windows
- The answer to the **shortcomings of barrel vaulting** was to carry the barrel vaulting in two orthogonal directions at once
- The groin vault transforms the entire web of forces
- The cross vaults have the effect of opening up the downward - curving sides of the barrel vault, creating space for windows.
- It might be argued that once the **groin vault** was invented, Gothic became inevitable.
- The groin vault has a drawback, however: the geometry of two intersecting cylinders is complex enough to make Euclid blanch.
- Natural next step was to start each bay by putting in place the diagonal arches delineating the groins: an X-shaped pair of intersecting arches with a single keystone at the apex.
- The rib skeleton of the groin vault
- The rib serves a structural purpose as a very necessary, but perhaps not finally essential, reinforcement for the groins; it enables vaulting compartments to be laid out more easily
- A cathedral was at its most vulnerable while being built
- The stone armature of the cathedral is a conduit for the power surging through the stones

WINDOWS AND LIGHT

- Yet the windows of Chartres are remarkable for their pristine state: of the 186 originals, 152 still survive.
- There had been western roses before – Saint-Denis had one – but never so large or so bold.
- It is, of course, the bleu de Chartres, dominating these kaleidoscopic windows, that enjoys the greatest renown.
 - That sapphire ‘is vigorously honored by God’.
 - It is said of the blue of Chartres that it is ‘darkness made visible’.
 - Preference for attenuated light was felt until the late thirteenth century
- The biblical key to the Platonic metaphysics of luminosity was found at the start of the Gospel of St John: ‘In him was life, and that life was the light of men. The light shines in the darkness, but the darkness has not understood it.’ To draw men and women into contemplation of this divine light so that it might enter and illuminate their hearts, it had to be shown radiating into gloom.
- **Divine light** seemed to have the quality not of blinding brilliance but of the gleam of gemstones.
- ‘Shone with the glory of God,
- Precious stones and jewels collected and concentrated light, which made them particularly apt as the focus of **meditation on the light of divinity**.

THE SYMBOLISM OF LIGHT AND DIVINITY

- Early Christian Fathers took care to distinguish the true light of God, the light of creation, which they called *lux*, from that of the heavenly bodies, which is sensible light or *lumen*.
- **Worship of light** has mystical roots that reach back far beyond early Christianity. In his Republic Plato equated lightness with goodness, saying that sunlight is 'not only the author of visibility in all visible things but of generation and nourishment and growth'.
- They celebrated light and luminosity as an expression of the creativity of God and, in consequence, as a measure of the beauty of his creations.
- The philosophy of light was expounded most influentially by a Syrian Christian of the fifth century known now as Pseudo-Dionysius.
- Suger suggests that precious, light-charged materials such as gems act as a kind of aid to spiritual meditation – stepping stones, you might say, to knowledge of God.
- Gleaming materials that spread their light through reflection and refraction have intrinsic religious power.
- The worship of light in the 12th and 13th centuries found expression in the natural philosophy of that age.
- So even if the Dionysian Neo-Platonic metaphysics of light played some part in the generous windows of Saint-Denis, one need not suppose an especially profound intellectual link between the two. It may have been that Suger merely found in Pseudo-Dionysius a convenient justification for his almost childlike fascination with baubles and bright things.
- Some historians dismiss entirely the suggestion that the Gothic style was a manifestation of Neo-Platonic light metaphysics.

CULT OF THE CARTS

- In 1194 the townsfolk of Chartres set their shoulders to the raising of a new church. But was that how things really were?
- This 'cult of the carts' has become a part of the legend of the great medieval cathedrals. Not only ordinary men and women but also nobles and even kings worked in a rapture of hysterical piety to put the stones in place.
- Episodes like these do indeed seem to have taken place – there are a dozen such instances recorded for churches built between 1066 and 1308 – but they would have been sporadic.
- It appears that they were orchestrated and supervised by the clerics, based on a common model and designed as acts of penance and piety.
- Fear of condemnation from the clergy would have made it very difficult for anyone to exempt themselves.
- Everything to do with the preparation, loading and unloading, and positioning and setting of stones and timber would undoubtedly have required the expertise of masons, carpenters and other paid craftsmen. And it is unlikely that these professionals would have welcomed assistance from ecstatic locals.
- The church of Notre - Dame de Chartres took shape in a social atmosphere that was often sour and acrimonious, when tensions occasionally spilled over into open violence.

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- All the same time, the viability of a church-building scheme didn't necessarily hinge on the wealth of its town.
 - The financial support provided by citizens for their cathedrals suggests that the sums involved were often meagre.
 - The financing was the responsibility of the chapter and the bishop.
 - So in the end it was bread, not pious donations, that swelled the accounts of the clerics: ' the cultivation of grains ... provided the material basis for building the cathedral'
 - Piles of bread are depicted no fewer than five times in the windows
 - Donations from outside the cloister were essential, and these seldom arrived without persuasion.

WORKERS AND THE TRADES

- It has become part of the Chartres legend that the local trade guilds and brotherhoods of **craftsmen and merchants** in the town pooled their resources to outfit the church with the most glorious glazing.
- There are no fewer than 42 '**windows of the trades**', containing 125 images of at least 25 different trades
- The clerics declared that any work conducted within the cathedral's cloister was **exempt from taxation**.
- Workers were called **avoués**, and they were a thorn in the side of the count and his provost, who would occasionally seize, imprison and even kill them.
- Defensive measures against the local population sometimes included a protective wall around the cathedral complex.
- 1210. The *avoués* were at the centre of that outburst, although the fact that the money-raising by the canons seems to have peaked around this time suggests that the townspeople may have been disgruntled by a heavy burden of tithes and taxes.

SPEED OF CONSTRUCTION AND LOCAL WORKERS

- The windows depict life not as it was but as it ought to be, with workmen going about their business in a dutiful and respectful way, mindful of their proper place in society. This, the windows say, is how the working classes are supposed to behave.
- Among the most lucrative assets of a church were its holy **relics**, which drew **donations** from pilgrims.
- The church had the authority to confer spiritual rewards such as indulgences on those who gave money or payments in kind
- But Chartres was essentially completed by about 1220, only 26 years after it was begun. This very rapid construction must have called for a workforce considerably larger than usual, and it seems the builders had to cut corners to meet the time - demands imposed by the chapter.
- The master builder succeeded in making a virtue of necessity, for the simplifications of the design at Chartres, relative to the early Gothic churches, help to give it a unity and clarity that made it the template for 13th-century church architecture.

GOTHIC CREATIVITY

- The **Gothic era** produced the western portal of Chartres, with its statuary, its glass, and its flèche [spire], as a by-play; as it produced Abélard, Saint Bernard, and Christian of Troyes.
- The building represents a confluence not just of heaven and earth but of mind and matter, and, most crucially, of faith and reason.
- In the Gothic world, the rationalistic framework of the Platonists becomes a structure on which to hang specifics, to look at details, and to cultivate an interest and even delight in the physical world.
- This increasing focus on the tangible and specific can be seen to take root and grow
 - Gradually they acquire more life and naturalism
 - The puzzle is that of how to achieve harmony by the combination of a diverse array of structural elements accumulated over several centuries.
- There was a particular mind-set that crystallized in the 12th century, and which entailed a profound change in the way that humankind interacted with the world.
- Moreover, these conceptual links were particularly explicit in the Platonic tradition, which apotheosized geometry and geometrized theology.