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> To demonstrate that undecorated capitals were laid out to eight simple geometric arrangements and that these formed the basis for all formal foliate designs.

About a third of the capitals in the Paris Basin have undecorated plates, another third are incised with foliage and the rest are too individual to classify. The latter will be discussed in chapter $* * *$

Examine any complex capital, such as those in the Laon gallery and Noyon ambulatory, and you will find there is an underlying geometry from which it was constructed. You may have to look hard, or you may have to adjust the way you perceive the work, but it is there. It cannot be otherwise if the mason was to be able to hold the design together and maintain symmetry [v.3/15-22].

As can be seen right, the first step was the form, and then the decoration was cut into that. The decoration of leaves, branches, folds and so on, were all restrained within the layout of the first form. Analysis has to begin where the creator himself began, with the subdivision of the block of stone before the application of any details.

In many places some capitals will display a simple arrangement on one half, and a fully decorated or foliated design on the other [right]. They clearly show the original form and setting-out procedure that is lost in the finished work. These 'unfinished' carvings are from the 1130s through to the 70 s , and are seldom found before or after.

There are three stages in the execution of a capital: the layout, the detailing and the decoration. All layouts, no matter how complex, begin with geometry incised onto the surface of the squared block. Adornment comes later. The initial steps in laying out the stones are generally simple, whereas the 'decoration' that follows often disguises the initial simplicity. Even the most complex arrangements rely on some underlying geometry to hold the design in place. The lists will


Provins, Saint-Quirace ECsw(a)
5-***1


Domont, AN2(a)
4-ppp1

give a few other examples. This chapter will discuss the range of basic geometric structures onto which sculptors incised and undercut the decorative niceties of the foliage.

In setting out, the master only had to mark out the circle of the astragal and the square of the abacus and (from mid-1160 onwards), the projecting blocks for the terminals [ref]. When worked back from these essentials a few drill holes would locate the depth of the main elements.

Simples represent the fundamental forms of most medieval capitals. They are arrangements so basic and so austere that they could act as the foundation for many different styles of foliage. There are a finite number of basic shapes that apply to nearly all layouts, even the most ornate and complex. When we leave out the decoration we discover we are in front of a simple geometric image.

In the two capitals in the Laon gallery [below], the one on the right is the form for the foliage on the left, including the incision down the centre of each leaf, though without the outlines for the upper leaves of the lateral plates. There is such beauty in each capital that we have to see them as distinct works of art, even though one was just the formbearer for the other.

Therefore, to begin this investigation with a study of the basic forms quite apart from what is placed within them is to follow the process used by the sculptors themselves.

This design originates with arcs of a compass centred at or near the base of the capital. It is the opposite to cushion capitals that are set out from an arc centred on the middle of the abacus. Paris Basin capitals are designed upwards from the shaft, rather than downwards from the arches. One has the sense that in the Basin the shaft is seen to be pushing upwards, and that the capital flows up and out of that movement, whereas the cushion is as static as the pillow under one's head. The cushion capital is almost never to be seen in the Basin, though ubiquitous in England and Normandy.

In its plain-form simples have smooth surfaces and evenly curved edges. There is minimal decoration. Chivy-les-Etouvelles from the 1080s is one of the earliest. Before that all surfaces were invariably decorated. After the 1120s this basic conical arrangement was universally employed. There is hardly a church without it

## Other dual-style capitals

| Soissons cathedral SW2(a) | $2-* * * 1$ |
| :--- | ---: |
| Urcel, WN1w(a) | 5-ppppp1 |
| Saint-Germer-de-Fly, EN1(g) | $5-\mathrm{ppp1}$ |
| Saint-Germer-de-Fly, WS3e(a) | $5-* * * 1$ |
| Pontpoint, Gervase, EN2se(a) | $5-\mathrm{ppp1}$ |
| Saint-Remi, EN2w(g) | $5-\$ \$ \$ 1$ |
| Saint-Germer-de-Fly NE2(c) | $5-((1$ |
| Saint-Remi, ES1(g) | $5-@ @ 1$ |
| Verneuil-sur-Seine Ws2(a) | $5-\mathrm{pp1}$ |




## Basic forms

In extracting the various geometries I placed myself at the middle face of the block from which the capital would be carved, and defined only those resting on the astragal. Thus the corners of the square abacus were to the sides, and the axis through the circular shaft in the centre.

With only a few exceptions there are two approaches, and two placements, and two setting-out procedures. The approaches are either two-dimensional or three across one level or more; the placements make either the flanking plates or the central one dominant by setting out from the sides or from the middle; the procedures let the plates grow from the base or from each other within the block. These are illustrated in the examples below.


Approach: Two-dimensional on one level
Placement: flanking plates
Procedure: from the base


Approach: Two-dimensional on one level
Placement: flanking arcs intersect
Procedure: within the block, sharp pointed


Voulton, S5(a)
Approach: Two-dimensional on two levels Placement: flanking and overlapping Procedure: from the base


Approach: Three-dimensional on one level Placement: flanking, tongue behind Procedure: within the block, sharp pointed

Types are designated with 2 or 3 for two- or three-dimensional layouts, and with ' $c$ ' or ' $f$ ' to distinguish those where the central or flanking plate is dominant. There are only 8 basic geometric designs:

2-D with central or flanking plates dominant $\quad 2 \mathrm{c}$ or 2 f
2-D with central or flanking plates framing a leaf $2 \mathrm{c}+$ or $2 \mathrm{f}+$
3-D with central or flanking plates dominant $\quad 3 \mathrm{c}$ or 3 f
3-D interlaced or 2-D laced
I shall discuss the 2-D approach first with each of its three procedures, starting with plates that begin on the astragal. They comprise almost exactly half the simples in the Paris Basin. The plates lie on one plane with varying degrees of snugness around the cone. If there is more than one row or if plates overlap or the terminals curl over they continue to lie within the one curved face of the capital. There is also a very popular group in which the upper arcs of the plates cross over to outline a third between them.


Approach: Three-dimensional on one level
Placement: central in front
Procedure: within the block, rounded

In 3-D designs the plates emerge from one another so they are joined at the base and some are obscured by others. Plates 'grow' out of each other, and their edges overlap. Whether there are crockets or buds at the corners, or straps ending in whorls makes no difference to the underlying layout. These elements are just additions. The twodimensional forms are by no means less interesting because they are not as spatially complex as the three-dimensional ones.

## Variations of 2-D arrangements:

The most common style of capital has plates at each corner that rest on the astragal, and come to a point under the corner of the abacus, like Pont-Loup. The simplest have nothing else: there are relatively few of these, and give no indication of date.

The plates emerge from the astragal and are not connected to each other. They are independent and there is little sense of horizontal flow between them. They stress the vertical, and in this sense they are more part of the shaft than the arch [right]. The different junctions and added decoration make no difference to the basic twin-plate form. This arrangement was universally employed: there is hardly a church without it.

Setting the plate on top of the astragal gives the impression that the plates have been applied to the surface, rather than being integral with the stonework, and therefore part of the structure itself.

The design originates with arcs of a compass centred at or near the base of the capital. This is the opposite to cushion capitals that are set out from an arc centred on the middle of the abacus. Paris Basin capitals are designed upwards from the shaft, rather than downwards from the arches. One has the sense that the shaft is seen to be pushing upwards, and that the capital flows up and out of that movement, whereas the cushion is as static as the pillow under one's head. The cushion capital is almost never to be seen in the Basin, though ubiquitous in England and Normandy.

In its plain-form the shapes have smooth surfaces and curved edges. There is minimal decoration. The very simplicity is disarming. Sculptors use chisels. Chisels leave traces like tracks on any smooth surface. If at the wrong angle the corner of the chisel can leave small indentations in the stone. It required a great deal of care to smooth the surfaces that are even enough to have been moulded from plaster. They did not have mechanical sanders with fine carborundum to gently smooth the stone. It took great skill and patience to produce these majestic works, such as these huge stone at Gaillon and Meulan [below]. Their professionalism was intended to be seen and appreciated for its austerity and simplicity, a simplicity that disguised the skills that went into it.

What began as a smooth conical surface was soon enriched with elements added to hang off the corners and with lines applied to give some decoration to the surface that in time led to the crocket capital.



## Two-dimensional, with plates starting at the base

There were two places to start the geometry: at the corner plates or the central. The former flank the face of the capital and may leave a gap in which most of the development takes place. Slightly more were set out with the central plate dominant. In its simplest application parallel three or more plates were placed next to each other. The ones that rise from the base look as if they were moulded out of slabs of clay [right]. At times additional plates were added behind the corner plates [Antony, previous page]. This was a more common solution in the 20 s and 30 s .

The space between the plates could be filled with an element that centralised the division, often with little to tell us what it was meant to be [below]. Heads were common. It feels like that when you open a space to a creative man he will hurry to embellish it.


To make the capital more interesting the designer added more plates, either horizontally or in layers, while still being guided by the same principles. This was a simple way to enrich larger surfaces. Further enrichment came by emphasizing the central veins, some as a gash and
 some raised, and by making the ends push outwards.

When the capital was large, as at Ennery, the same plates were repeated horizontally and on three levels. Additional plates would nearly always have been made similar to the laterals.

The concept of 2-D overlapping plates led to the crocket capitals of the 1170s and beyond where the plates almost invariably began at the astragal. It became one of the most popular forms, often with a leaf added, either under the plate as in Soissons [right], or somewhere on the surface.

The whole process for some carvers was how to enliven the form without losing the geometry that guided it. A favourite was to introduce sharp re-entrant corners where plates butted one another. Examine Sens from the point of view of the original geometry. The sharp corners represent the intersection of a number of arcs. The upper ones defined the top of the central plates, while the arc at the bottom defined the space between them. This gave these capitals an extra energy that boosted greater three-dimensionality in the terminals.

## Two-dimensional, with plates joined above the base

Where the plates do not start at the base, which is in most cases, there was great creative potential for the space between. A simple groove was the easiest solution, and in many ways the most satisfying. Adding layers above and behind the plates was a common procedure in every arrangement, as in Orbais [right]. The additions enrich the


Sens cathedral WS5ese(a)
5-pp1

foundation geometry without altering its structure. The terminal, be it bud or crocket, usually hangs off the upper plate and immediately under the abacus.

The slot between the plates may have parallel sides, or the slot was expanded into a lozenge that brought a great deal more fluidity between the plates, while the width of the opening turns a vertical movement into a more horizontal one.

Acy has the simple addition of a central plate combined with lozenges that expand the lower part in tune with the turned-back terminals [right]. This brings the movement back to the centre so the eye flows from one plate to the next. One movement leads to another, so that the crockets and plate-tips are also enlivened to present greater sculptural plasticity [Corbeil].

By enlarging the bottom of the slot with a circle [below], its intersection with the upper arcs provided sharp corners that enlivened the capital. It is more than a drill-hole. It lowers the centre of gravity and brings the eye right to the middle of the stone. Turning something simple into a drama was never far away.


In archaic work of the 1120 s and earlier, the upper centre was occupied by a block or cartouche, as in the wide simplicity of Mogneville from that period [right]. In time the block faded away, and the gap between the plates was enriched with a sprig of flowers or with something that mysteriously suggested there was more behind the plates, as in Beauvais and Dourdan.

There are some where the central opening is spread exceptionally wide. Not very popular, I suspect because there were more integrated ways to organise the space that offered a greater sense of unity and more scope for enrichment [below right].



The process of opening spaces between the plates naturally included making openings within the plates. From the 1120s a number of variations appear. The plate may be slivered with a middle flap with a frame around the outside [Cambronne, next page]. The leaf forms an armature for the outer frame that could be elaborated in a myriad ways, as at Saint-Denis. In another pair illustrated from the same two churches, the frame becomes
a continuous ribbon that could be twisted into other forms. An interesting process to follow over a fifteen to twenty-year period. The concept played a great role in future work, and those from Louis' gang at Laon is discussed in chapter ***.


In the mid-60s there was a subtle change that previewed the revolution of the next decade when all formal designs morphed into foliage. A few plates began to take on the shape of a leaf, albeit a very simple one, as in the Angicourt south transept that appears to have been just applied to the surface of the plates [right]. Over the following decade applied leaves became more realistic as they regained their independence from the other plates.

The impression we have from the earlier capitals is that central plates created a sense of separateness. This may have led in the next decade to leaves being added along the tops of the plates and in the upper space between them, as in Voulton [right]. The introduction of recognisable foliage onto the earlier plate structure produced some pretty uncomfortable results. The new-style leaf peeks out of corners and over the edges, and was often applied wherever was most convenient. The integration of design with foliage emerged slowly in the 80 s in the Paris nave and the Saint-Leu-d'Esserent ambulatory piers [v.1/468-].

## Flanking plates with central leaf

In setting out the geometry of 2-D capitals it would have been easy to add a leaf between the flanking plates. Instead of the two arcs being tangential to one another, they intersected, and extended to form a third element between them. When using a compass it was a natural action to continue the arcs in this way. This geometry formed the framework for the decoration. A breeze to set out, and in appearance very satisfying.

Often a vertical groove would be cut into the leaf, like a spine. Geometrically this marked the central axis of the capital. It is in the smaller capitals that the simplicity of this design stands out [Fleurines].

The simplest is where the leaf and plates follow a common plane. The three points formed where the curves intersect were retained, and the bottom of the leaf accented with a small hole, either round or drip-shaped. This could be turned inwards [Laon], or enlarged so the waisting of the leaf was accented [Paris]. Crockets could be left out or they may point upwards, or turn over and backwards, or even placed over the tip of the leaf.



Though they form a quarter of all two-dimensional forms, there are not many variations. I have the impression that the popularity of this arrangement lay in its satisfying geometric simplicity, so that carvers found themselves drawn back to its essence whenever their creativity strayed too far.

Even where every curve has been greatly emphasised with deep hollows and strongly protruding points the initial form remains clear as in Bougligny [right].

Occasionally the sharp geometric junction between the plate and the leaf was turned into soft curves. There are a few examples of this in the 30 s from the Oise, as in Beauvais [right]. They are rare, I would suggest because the points formed by the intersecting arcs of the basic geometric form were so endearing that carvers seldom wanted to disguise them.

## Level flanking plates with central leaf

There is one distinctive group with very flattened upper curves that are set high and almost level with the abacus, Juzieres and Antony. Terminal buds may be left out and the central leaf may be decorated. Many of them date from the 30 s , and the latest would be from the mid-50s. Pushing the upper curve of the plate into the astragal created a platform of support. Where the previous ones feel like they have been applied to the surface of the block, these (though using a similar geometric process) are more structural and enhance the function of the capital: see list.


Where the capital was wide a third plate was at times added with two leaves between them [below left]. But in adding more plates the enthusiasm for multiplicity of elements and intersections tended to break down the geometric simplicity of the layout, and turn the design into something else [below right]. The wriggles, insertions and incisions that followed were apparently less satisfying, as such extravaganzas in the 2-D designs were rare [list].


To emphasise the sculptural potential carvers turned and hollowed out the plates so that the capital writhed and swayed, almost turned around on itself. They are tortured souls, adamantine and ecstatic at the same time.


## Level upper plates

Fleurines WS1 (c)
Laon Bishop's chapel S2(u)
Verneuil-sur-Seine WS2 (c)
Chartres west-south tower WS-eLsw(3)

## Hollowed out plates and terminals

Châlons-en-Champagne, ND An1n(g)

Senlis cathedral AS1e(g)

Turning the bud over so that it faced backwards achieved the same thing. It is like finger tips that hold the corners of the abacus, rather than hanging down from it, and adds to the visceral sense that the capital is carrying a load [right]. There is more variety in this group because the power of the twin-arc geometry was no longer dominant. This allowed for the complexity of many where the rich variations and incisions leave little of the original geometric source.

Though the unique sculptural quality of the scrolls and cuts and tapers may give the impression they are three-dimensional, they remain, in spite of the detail, within the one curved plane. We should not be misled by the strong projections in crocket-balls or in edges into seeing them as spatially part of the 3-D group. The procedure for setting them out remains on the surface of the cone.

Another way to enrich the form while maintaining the geometry was to subdivide the flanking plates with arcs that give the impression of additional leaves. They lean to one side and do not have the symmetry we would expect of a leaf. They have no independence from the plate, but are purely offshoots of geometry. They often look more like small pointed ice picks.

But as formalism declined in the 70s these subdivisions became more realistic. From the Sens clerestory of the 60 s to the Gonesse apse in the next decade [below] the capitals show how this concept was developed from ice picks into recognisable foliage. In the process the connections with the original geometry were irrevocably lost, so much so that during the transition a viable form of geometry had to be developed that would suit real foliage. This was a task for the 80s.


## Variations of 3-D arrangements

In almost two-thirds of the simples (and of the foliates that depend on them) the plates grow out of one another. Instead of all the plates of one level lying within the one curved plane, they interpenetrate until some lie behind others. They weave, so that one plate can cover another, but not entirely. Some part of the covered plate will always be visible, usually poking out at the top.

This was a most aesthetically satisfying solution. It reflected the vertical action of a circular shaft with the square of the imposts by continuing the thrust of the one through and behind the solid of the other: a transition through penetration. It vitalised the space under the square imposts. It offered support with integration.

The major plate may be placed under the corners or at the centre, as with the 2-D forms. The only difference lies in way the plates are covered and exposed. The ones in front will define whether the plates are flanking (as being under the corners in Noyon) or central in covering


Vernouillet EN3w(a)

Hammer leaves

Fosses tower 4-1
Saint-Denis-en-France, AN+2(u)
5-1
Fleurines EN2w(a)


## Ice-pick foliage

Corbeil, Saint-Spire N6(a)

## Convoluted designs

Fleurines WS1(c) Laon Bishop's chapel S2(u)

4-1
Senlis cathedral AS1e(g)
Verneuil-sur-Seine WS2(c

those under the corners (as in Bransles). Only a third of 3-D capitals have the central plate in front. The procedure was so satisfying and the movements both sculptural and restrained, that there are fewer variations in the design of this group than among their flatter companions.

Among the variations there are one-off excursions into new territory that are seldom replicated in other places, showing that once the door into more plasticity was opened design element became a sort of free-for-all.

Plates placed under the corners will usually meet with a sharp point.
 Less than a third form a soft curve at this junction. Compare these small capitals in Ferrière and Brumetz.

In contrast, the majority of capitals with a central plate prefer mellifluous junctions where only a third will have points. Compare Glennes with Provins.

The reason may lie in the way geometry was applied to the surface. Each capital comes from a block of squared stone. In marking the corner plates onto the faces of the block before they were cut, the location of the upper point and the lower junction would have been close to the surface. The fact that it was closer to the face of the block would have encouraged the carver to finish the sides of the plates with another compass arc. He would have marked it on the face with the expectation that it would not be lost in cutting the block back.

This did not apply where the plate was in the centre. The place where the maximum amount of unwanted stone would have to be removed was just where the plates met. It


Ferriere-en-Gâtinais WN7(a)


Provins, Quirace EC-Nsw(a)


Brumetz WN1se(c)


Glennes WS1s(a) would not have been possible to make a geometric junction on the outside and expect it to be still available when the stone was taken back to the astragal. The carver would have had every reason to treat these junctions freehand when he came to them. Those that are sharp-ended bear testament to the particular carver's skill.

In 3-D, as in 2-D, some tips have been emphasized by cutting back underneath the plate or by pushing out the points. The corner plates are emphasised so they appear to bear the full 'load' of the arches by bending slightly under it [Berzy, right]. Yet they feel tensile enough to hold it all. There is a sense they are protecting the juvenile central plate, like two parents and their child. The effect can be like a spring drawn taut, as if reflecting the weight they carry.

One process that gradually gained momentum after 1130 was the splitting of plates and buds, as illustrated earlier for the 2-D plates. This group was seldom decorated with veins and fronds, as the unadorned form itself offered sculptors the freedom to develop some extremely complex arrangements. These evolved in three steps.

In the first the buds were realigned to point backwards [Ferrière at the top of the page]. By tearing open the middle of the plate and then rejoining it at the tips of the terminals a contrapuntal movement appears in the capital. The smooth sideways flow is interrupted. The effect is electric, like touching a spark between the two little buds.

The touching points seem to energetically push the central plate apart, leading to the second step where a leaf was added between the plates and behind them, so emphasising the push in front [Corbeil, right]. The split down the front central plate created an opening through which can be seen another plate that lies behind all the others, and peeps

out at the top. In the sculptor's eye this freed the plate so that it could be manoeuvred independently of the original form, leading to the third step in which the plates become thinner, turn into straps, and then the central leaf fades away leaving interlacing straps.

These arrangements became extraordinarily complex, as in Saint-Germer-de-Fly where there are multiple layers of turned-back terminals and splits in an organised and still-comprehensible chaos of forms. Many are worth considerable study, for the work in splitting and dividing the plates has been taken to extraordinary lengths. The intricacy is so complex we are tempted to gloss over the details, yet they are exactly symmetrical with all their multiple fronds and platelets, and were carved and erected without damage. Look at these and see if you can work out how to disentangle the foundation plates from their dependent subdivisions. In a meditative manner this may have been their purpose.


## Splitting into interlaced straps

## Saint-Denis-en-France AS+2(u) 5-1

 Saint-Denis-en-France As2Cd(u) 5-1 Chartres cathedral WNsee(a) Plailly WN5(a) Laon cathedral WN4n(g)$\begin{array}{ll}\text { Laon cathedral } \operatorname{lon} 4 \mathrm{n}(\mathrm{g}) & 4-1 \\ \text { Lathedral ES2s }(\mathrm{g}) & 4-1\end{array}$ possible. In Betz the central plate loops across what would have been the corner to support the abacus; in Champceuil a stalk with a bud grows through the middle of a plate and supports the projecting crocket, or Laon where the lateral plates have been doubly split and wrapped back over the centre [bottom right].

The breakdown between structural purpose and decoration that is apparent in much of the work of the later 60s coincides with, and
 behind intricacy. They show no evidence of the load-bearing purpose of the capital. This anti-structural mode continued from the 30 s to the 70 s in similar arrangements in which only the details change.

Once they moved into this interpenetrating realm anything was This process of splitting and turning backwards disclosed the
possibility of eliminating the plates altogether and replacing them with straps that end in buds, both round and pointed [right]. Many tips curl backwards upon themselves with buds that drop lower than the top of the strap. Sometimes the shapes produced are extraordinary and fascinating, as in the list.

Straps introduced the concept of weaving where the overlapping forms strong patterns like basket work. The structural function dissolves

possibly indicates, that a shift in perception was on the way. The most obvious are in the Noyon and Paris ambulatories.

In the large capitals of the 60 s the plates are multiplied and divided into an extraordinary proliferation of overlapping and turned-back forms. These richly finished works use the full range of decorative entanglements developed up to then. The many layers of plates add a surface vibrancy that disguises the structural purpose of the capital.

This approach was continued into the Paris nave in the 80 s [right], but with a major change that was the hallmark of the next period of foliate designs: the leaves were separated from the plates so that the foliage sits on the surface rather than being a part of it. This trend is apparent in only a couple of capitals in the ambulatory, but stands out in nearly every one in the nave. Straps and splits and similar formal niceties disappear and plates turn into foliage.


