KENT BLOOMER TRANSCRIPT

THE NECESSITY FOR ORNAMENT

The AA School of Architecture

October 30, 2008

Introduction by Oliver Domeisen:

Before I introduce tonight the inaugural speaker, Kent Bloomer, let me explain some of the reasoning behind staging such a series at this point in time. We are currently witnessing the early stages of an ornamental renaissance in architectural practice. Ornament has once more become a widely spoken language in international architecture. This reemergence is often attributed to the new methods of spatial manufacturing which finally allow for intricate and complex forms characteristic of ornament to translate from spatial modeling into built reality. These industrial processes, as they now become more economically viable, have assisted in overcoming the cost and labor intensive and often disappearing craft methods that traditionally formed the basis of ornament. As a result, contemporary practice seems to effortlessly embrace the eloquent exuberance of an architectural idiom that has long thought to be lost.

Interestingly, the ease with which this renaissance seems to have evolved from practical applications does not translate into theoretical discourse. Ask any two architects to discuss the topic of ornament and you will find that they almost certainly cannot agree on a shared definition of the term. There are several reasons for this notorious indeterminacy of the word "ornament," especially when applied to architecture. The most obvious one is its absence from architectural discourse for almost a century. After Adolf Loos's *Ornament and Crime,* written a hundred years ago, there simply hasn't been any ornamental theory that would keep abreast of the shift in the tectonic nature of buildings. Much that is written today confuses the terms of ornament with those of decoration or pattern. The vocabularies of ornament are all but lost. And so, it seems the right time for some ground work to be done, to lay some solid foundations upon which some new theories of ornament can be constructed. This series of lectures is aimed at doing exactly that. And who better to kick off this mammoth task than Kent Bloomer? I know from personal experience that his seminal book titled, *The Nature of Ornament*, *Rhythm and Metamorphosis in Architecture;* published in 2000, has to be the first port of call for any daring soul foolish enough

to enter into the treacherous *terra incognita* of ornament. The book is a rich concoction of art history, architectural theory, linguistics and polemics. It comes as no surprise that its author is very much a renaissance man; a bit of a polymath himself.

Kent Bloomer studied physics and architecture at MIT and then sculpture at Yale University. He has been teaching as a professor of architecture at Yale for forty-two years now. And he still runs his studio on the theory and design of ornament. His academic career includes a five-year stint at the Carnegie Mellon Institute of Technology, and he's served as a visiting critic at many universities, including UCLA, UT Austin, Harvard, McGill, and Columbia. Kent Bloomer is also the principal and founder of Bloomer Studio in New Haven, Connecticut, and has served as the chief designer since 1965. His professional activities focus on sculpture and large-scale architectural ornament. Major projects in public art and architectural ornament include the Tree Domes for the New Orleans World Exposition, roof ornaments for the Harold Washington Library in Chicago, a large tracery for the Ronald Regan Washington National Airport which was designed by Cesar Pelli and the decorative frieze on the public library in Nashville, Tennessee which was designed by Robert Stern, architect. In addition, he has designed light fixtures for Central Park and 8th Avenue in New York and for several university campuses. Kent Bloomer's sculptures have been exhibited by numerous museums and galleries, including the Museum of Modern Art in New York, the Los Angeles County Museum of Art in California, the Wadsworth Atheneum in Hartford, Connecticut, and the Carnegie Museum of Art in Pittsburgh. His work is included in the permanent collection of the Hirschhorn Gallery, Smithsonian Institution in Washington, the Yale University Art Gallery in New Haven, and the Carnegie Museum of Art in Pittsburgh. Besides the already mentioned *Nature of Ornament,* he is also the primary author, with Charles W. Moore, of *Body, Memory, and Architecture*, published by Yale University Press in 1977. And now he is back at the AA after twenty-two years. Twenty-two years ago, he gave a talk called "Visions of Nature." We'll see how much has changed in those twenty-two years. Please join me in giving a warm welcome.

KB I thank the directors, Mr. Steele, for allowing me to give this talk, and in particular Oliver for inviting me. It's great to be here at the AA. It's my second time. It's an honor, in fact, so thank you and thank you Oliver, as well, for that incredible show you just put on in Basel. I didn't get to the show, I was out of the country; I was in a different direction. But I did get the

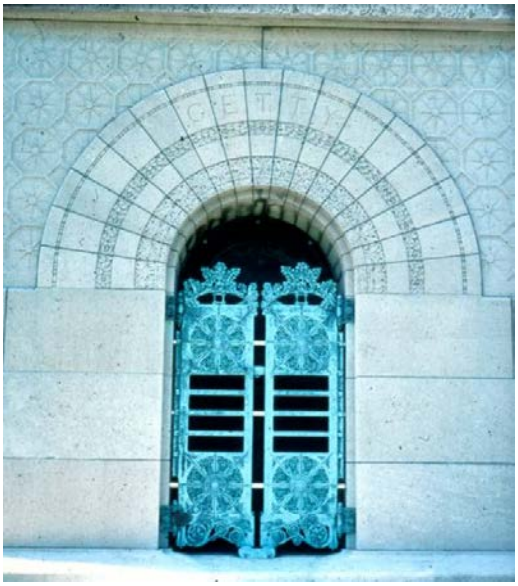
catalog which is really one of the good journals, I call it a journal, on the subject; I collect these journals.

The last lecture I gave in London was at the British Psychoanalytic Society; that's where my lectures on ornament were going at that time. And when I gave the lecture, they told me to slow down – that was the Psychoanalytic Society. I'm going to read part of this lecture and the reason I'm going to do that is if I don't, I will digress. When I get on to the subject of ornament, I just fly in too many directions; I can only control it by reading certain parts, and that I will do. I'm just going to jump into it because I'd like to stay within a comfortable time frame. So, I'll just start.

Twentieth-century modernist doctrines of architectural design radically focused on formal abstractions, systems of basic physical structure, and raw space, choosing to discard ornament and to deny the function of decoration as well, in their quest for an allegedly pure and definitive new architecture. Ornament became detached from professional practice, although it continued to flourish in other disciplines such as music. In the seminar on ornament which I started at Yale in 1976, thirty-two years ago; this is dating me terribly, but here it is true. Thirty-two years ago, we struggled. We struggled to identify universal principles governing great ornament, treating it as a science as well as an art, while attempting to design ornament in the architecture of today's world.

Within a few years, our research inspired me to actively produce ornament, to become an ornamenter – the Italians have a great word for that: "ornatista," a title you don't hear very much. You hear "decorators," but you don't hear "ornatista" – to become an ornamenter and to substantiate the project of ornament in the public domain. And I've been doing that for as long as the seminar and longer, in fact, I started doing ornament without even knowing what I was doing – that it was ornament.

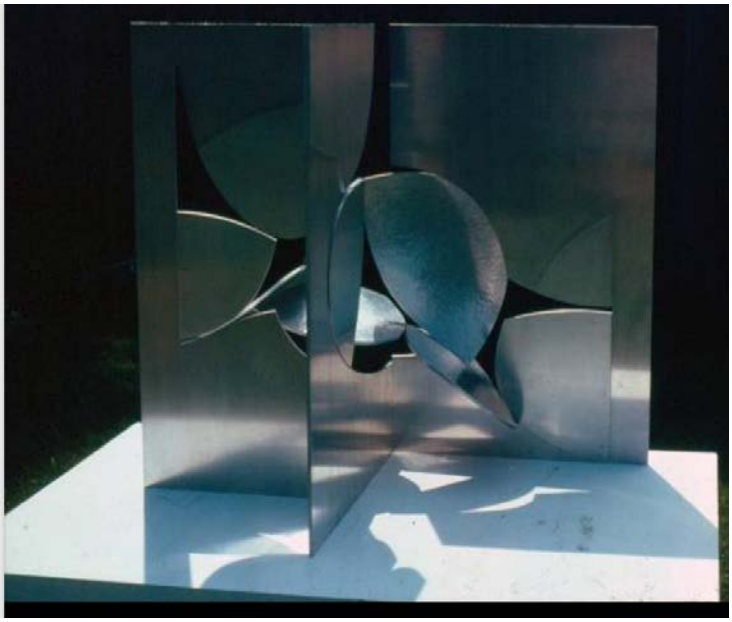
The early Latin definition of ornament was helpful. The ancient Latin verb, *ornare*, meant to equip something with ornamentum. The ancient Greek language did not have a word for ornament, although it seems that they were responsible for its emergence as a special category implicated with the term *Kosmos*. The term *ornare* is crucial because it immediately declares ornament to be auxiliary to something; that is, there is ornament and there is the thing to be equipped, ornamented, upon which ornament depends for it function and its illumination.



I meant to start with this slide because on the left is Frank Lloyd Wright and, on the right, you have Louis Sullivan. When I was a student, Frank Lloyd Wright was still alive and we were aware of his work. And, of course, Louis Sullivan was one of his students. So, when the word "ornament" was used in these years, when it was practically banned from the studio, we all knew that Louis Sullivan did ornament, so that was the word for ornament, it was "Louis Sullivan" in the same way that Louis Armstrong did jazz, the word for jazz was "Louis Armstrong." We had to pick a person, rather than the topic.

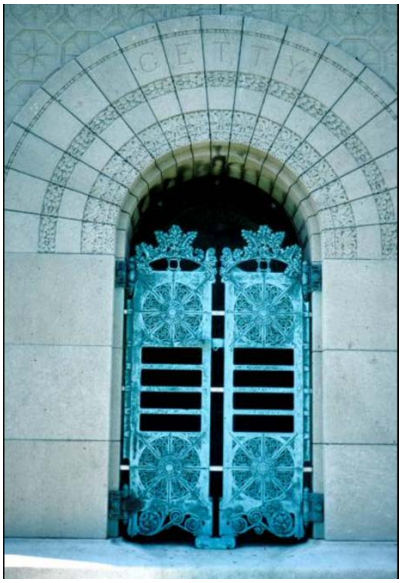
So, these are beautiful examples. That is the Hollyhock house which is very late. Frank Lloyd Wright was working on ornament until after the second World War which hasn't been sufficiently published. And, of course, Louis Sullivan died in 1922 and he was still going.

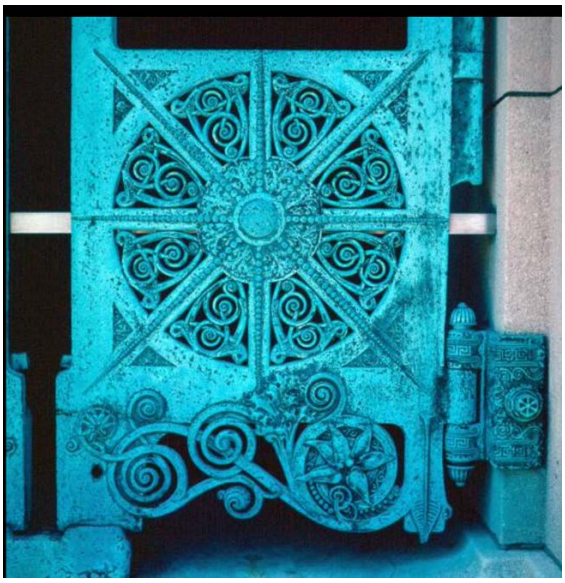
I was saying, "there is something to be equipped upon which the ornament depends for its function."



On the right is a Chinese chair with what I am calling, “ornament,” those figures on the back, and on the left is one of my early works that was the location of a leaf formation inside the cross section of an axis. So, in both cases you have something that has an object in order to exist. The Keys have the chair and the leaves have this cross section.

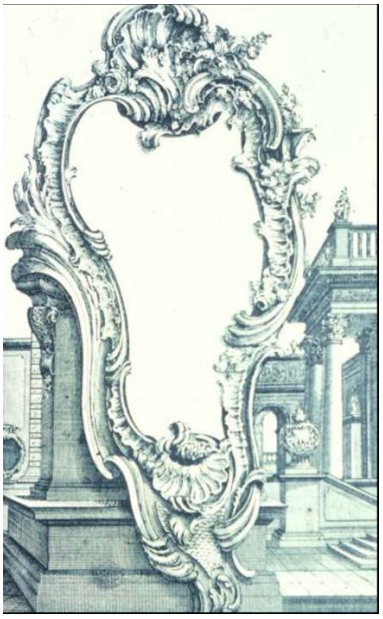
The dyad between ornament and its host, thus became an absolute, and an absolute first principle in our discourse, and I have to underline this; a principle that raised the question, “should the visual distinction between figures of ornament and the pure form of its host remain legible in architecture, or, in architecture could there be a synthesis between the shaping of ornament and the shaping of construction? This is a very serious question. We sketched; we took great examples of ornament, and concluded that ornament in architecture would be dysfunctional were it to lose its visual specificity by being blended or optically synthesized with the vital form of its host. If you make a purée out of a Sullivan project, you would destroy the contrast intention which displays its power through the spectacle of interaction.





This is the same building; this is the famous Getty tomb, ornament winding down through the various scales, all the way down to the hinge. He would ornament elements. He would never allow the ornament to become the host object; he would go after parts, so even those friezes on the Vassure arch; if I blended those with the Vassure arch, I would lose the spectacle of interaction.

But, a spectacle of interaction did not, at least did not initially, explain the peculiar and specific figuration typically illustrated in the encyclopedias dedicated to ornament. To investigate that interaction, we started by sorting out the things that were most usually but not necessarily always ornamented and concluded that they were often utilitarian – that is, things that were understood as conventionally possessing a conventional and practical purpose of their own, such as a hat, a spoon, a chair, or a façade or an entryway. Ornament, thus, is a parergon, that is, an auxiliary to work. Structures like a dome, or enclosures like a lobby, already possess useful meanings that are embedded in everyday language, meanings to which the content of ornament can respond and take shape.



A rococo picture or mirror frame is noteworthy in this respect. While the rocaille figuration ornaments the surface of the frame – this is a mirror [left image] in one of the early lithographs in France that triggered the whole movement before it landed in architecture – while the rocaille figuration – rocaille meaning the sort of shell and leaf and rock forms that are running around the frame – ornaments the surface of the frame, the ornamented picture frame ornaments the picture inside the frame – assume there is a picture in there or the clock [right image] – even as, perhaps more importantly, the rococo frame ornaments the surrounding wall. That final act may be its most active cause, although there is a powerful complicity between the rocaille and the frame and the content of the frame. The entire arrangement is a decorative field, or we might just say, "a decorative arrangement." Decoration is meant to be a well-mannered or fashionable arrangement of many things. Decoration could also simply involve painting everything in the room white – so you could redecorate the thing on the right by painting it white.

But the figuration of ornament, and, as I said, this is very late, would be the rocaille around the perimeter of the frame. So, I'm saying here are the figures of ornament, but those figures are ornamenting the clock as well as the wall around it as well as the frame. Rocaille is a relatively modern example of ornament. Figures of rocaille have a certain lightness from one setting to another. It's almost as though you can pull it off and carry it around. This implies that rocaille could be regarded as a species of autonomous figuration, although removal from its host

would immediately negate its intended function which is to ornament something. Thus, theoretically, the rocaille by itself is not ornament *per se*.

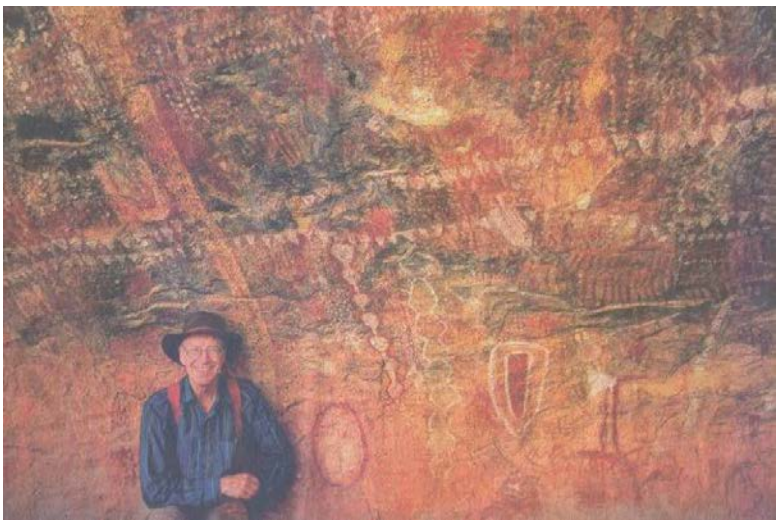
There is a great section of the Chicago Institute of Fine Arts which is a principal art museum dedicated to ornament in which they've gotten a lot of the Chicago ornament and hung it in the main entrance hall. It's an incredible room, but the buildings upon which, and the places upon which that ornament existed are not there, so, strictly speaking you're looking at an exhibition of artifacts, not ornament because it's dysfunctional in that state. But still, incredibly worth going to.

Aloysius Riegl in *Dis Fragen,* a seminal work in the modern theory of ornament, written about 1890, observed that for centuries the figuration of Western ornament was limited in its motifs and geometric kit-of-parts. Moreover, the same limited system of geometry and motifs served distinct techniques such as pottery, metalwork, fabric, and buildings.

What I'm saying here is that if you call this ornament, [left image], it's ornamenting the ceramic piece, and in this case, [right image], it's ornamenting a metal helmet.

In this case, [left image], it's ornamenting fabric and in this case [right image], the very same motif, it's ornamenting the dome in a Grecian tomb. So, the specific figuration of ornament does not change by virtue of materiality or even the object being ornamented.

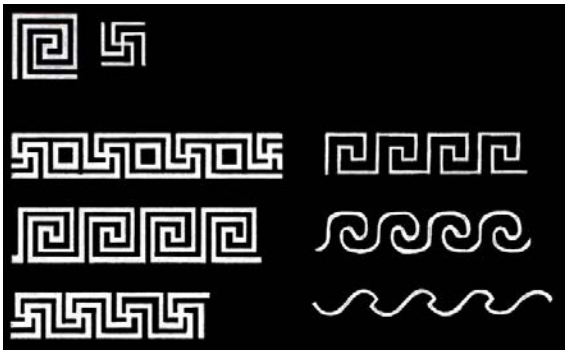
Riegel, pointing this out, disputed Gottfried Semper who earlier in this century ventured a materialist explanation of ornament as a type of formation originally based on weaving. His observation also disputes the conceit that the craft of building could generate its own figures of ornament. It can, as Oliver so well said, allow ornament to happen, but the craft itself does not generate those figures. It became more and more evident that there must be explanations other than materiality, structural form, or even politics, that have shaped the unique and persistent likenesses of a species of figuration considered to be ornament.



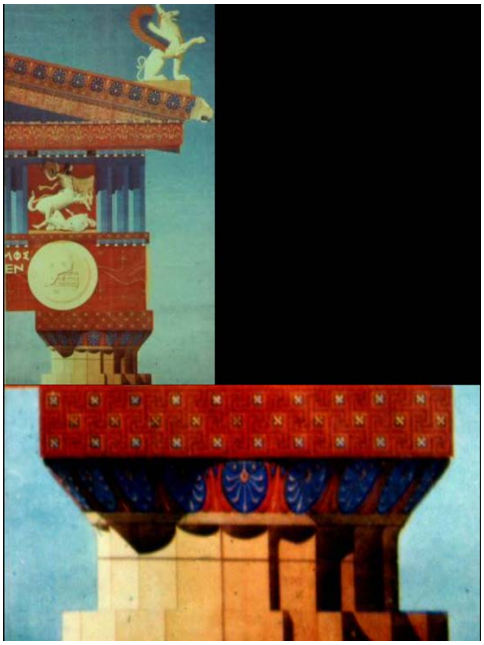
The linguist, Ekkehart Malotki, in his study of early human cultures, has described the pervasive existence of universal and transcultural figures of zigzags, repetitions, and patterns of dots. He called them "phosphenes" – I don't know why, but he did – of transcultural zigzags that he found in all cultures all over the world in the earliest stages of their existence. He called them "phosphenes" which he regarded as a kind of test pattern of the visual system. Perhaps we should allow that the dots and zigzags were a special property or instance of visual thinking, a category that was neither symbolic nor iconographic.

In Rowen Barth's words, "Long before writing was invented, even before parietal writing, which means instruction giving, was practiced, something was produced which may fundamentally distinguish man from animal, the intentional reproduction of a rhythm. There have been found in cave walls certain mysterious incisions and everything suggests that these first rhythmic representations coincided with the first human inhabitations. In Henri Focillon's words, "ornament was the first alphabet to come into contact with space." There is something spatial about this as compared to anything else on that wall. This would be a later development beyond the phosphenes when these things begin to show up on tools and devices.

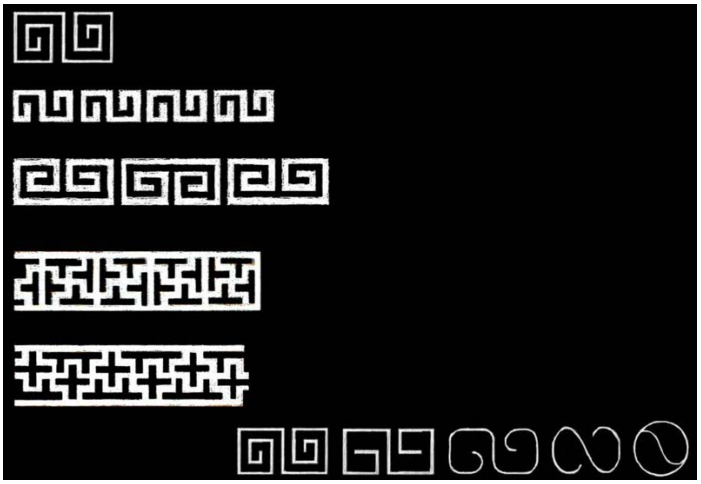
The ancient origins of a type of rhythmized visual thinking matured into elegant geometric shapes in the classical moments of great world cultures. Such shapes are often described as "Keys." For this short talk let's look at three sets of these Keys which are seminal to the Greek, the Chinese, and the Mayan civilization.



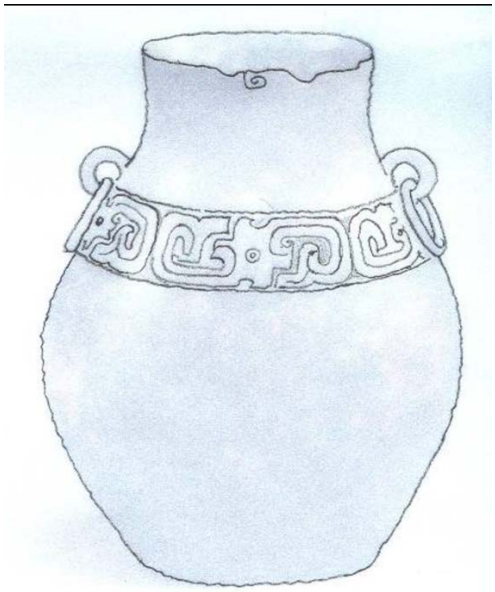
This would be the Greek Key; this is the Key extended into a repetitive pattern; this is a variation in which the circularity of the spiral is worked out with a rotor device, and this is a continuation of that one. What is interesting about the Greek Key is that if you do this, which is their earliest version of it, you can soften it up organically and it turns into a wave action. So, it's something that actually does this and this is very important when you get into comparative studies.

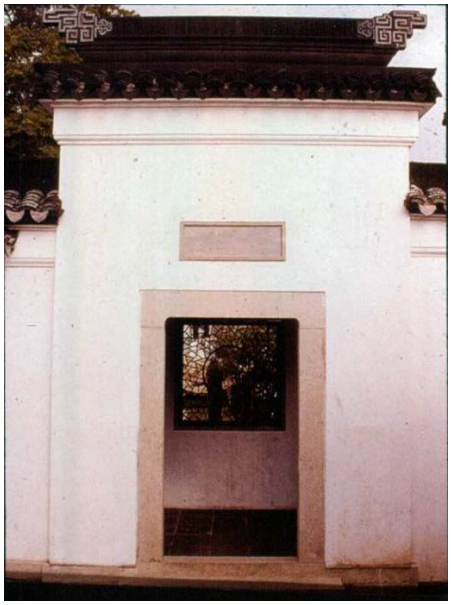


So, the Greeks then, would use that, as I pointed out earlier, on ceramics, or in architecture, in these French interpretations of the Parthenon.

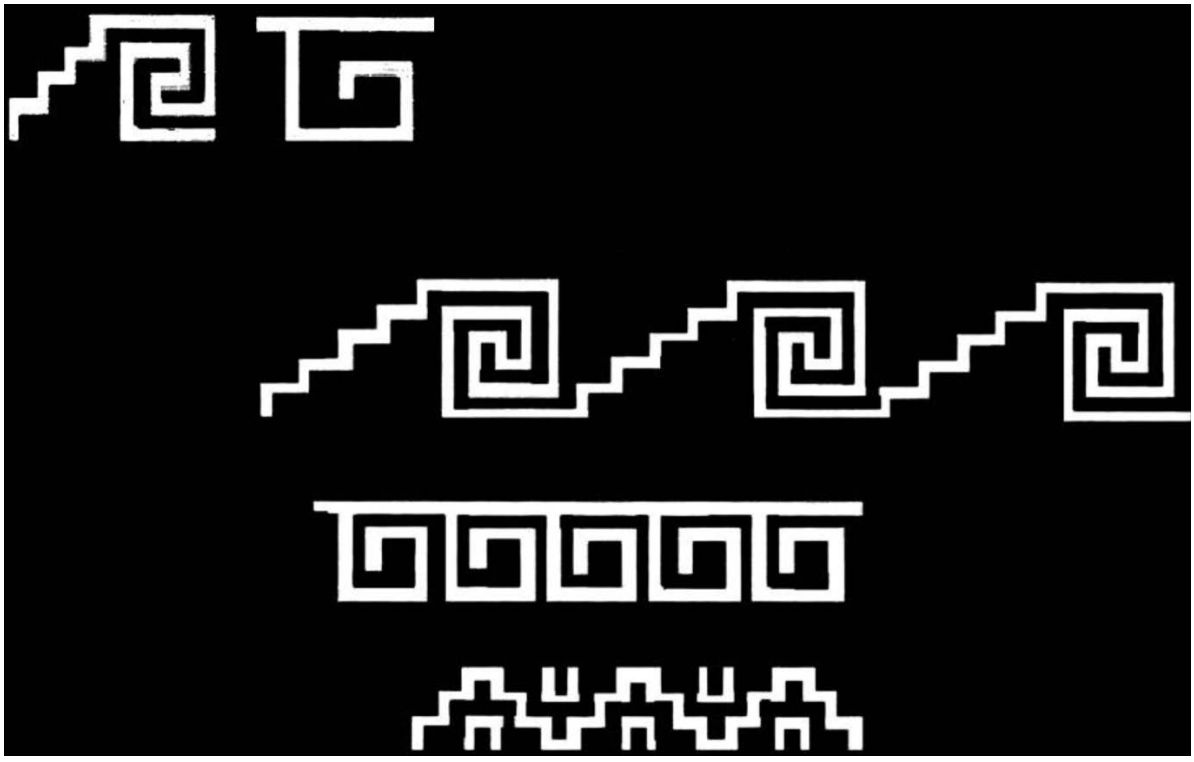


The Chinese Key is different; it does this. So, whereas one went like this, the other goes like that. It goes right; it goes left; stops; right – left stops; right – left stops. I gave this lecture on the Keys in China and they were surprised that I was telling them that. You can see that even in their ceremonies that goes into walking actions. What happens with the Chinese Key, when you extend it, it has this break in it, or when you extend it this way it has this break in it, etc. If you do this sort of morphing, like I'm doing down here, it turns into Ying Yang which is kind of interesting. So, the Chinese use the Key but they always do it as a sequence of opposites.





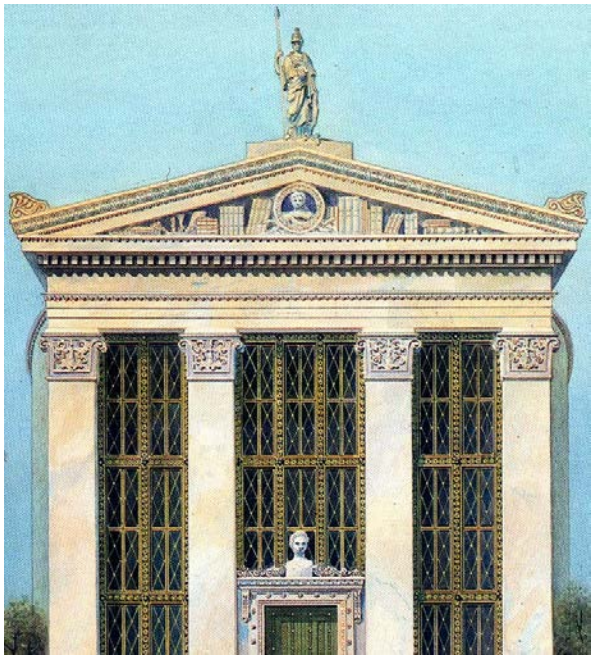
And then, they too bring it into their bronze work or into their architecture, in a variety of specific ways.



This is the Mayan Key, or you can call it the Mexican, which is the mature period of the Mexican civilization. It's often called "the step and hook," and it seems to break up. It either works as a step and hook sequence or a hook sequence with all the hooks going the same way, or a series of steps.

This, too, shows up in their artifacts – this a stone yoke, or in their architecture. These three super cultures, at the peak of their classical development, went from what Malotki was calling "phosphenes" into these very mature Key systems. Note that these classical Keys have all employed the spiral, or the meander if you prefer. In that respect, they are all extremely similar. They show the condensing and dilating spiral form performing a variety of symmetry operations, of translations or rotations, reflecting that way or zig zag. Those are all the basic symmetry operations that exist in Euclidian space which is kind of interesting.

So, each of these cultures – I just mentioned three but we could go to any number – the African, the Indian, etcetera, the Polynesian, you find the same development going on at a certain point in their emergence as urban cultures. Indeed, the spiral meander, performing as a right or left-handed figure, became for thousands of years the most frequent auxiliary shape found in ornament distributed upon utilitarian objects. The ambivalence of the spiral is at the core of understanding ornament.

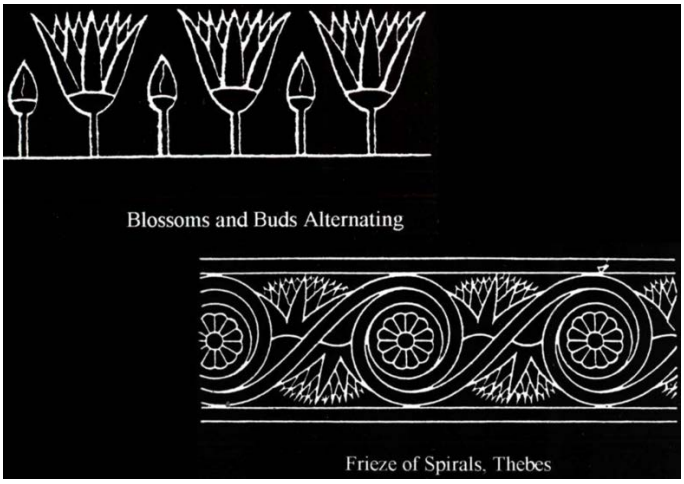


Let me digress and examine other groups of visual activity; let me digress and ask another question that is central to the theory of ornament by examining other groups or types of visual activity that are themselves somewhat isolated and clamoring for attention upon the same utilitarian object. For example, in this particular Renaissance print of the emperor, [left image], you have ornament up here but this is lettering – how about this – this is a portrait. If you go over to this early building by Alexander Jackson Davis, [right image], you have a sculpture standing on top of the building; you have these books rammed into the pediment, and you have these dentelles running along here which indeed are rhythmic, and then you have this and then you have these little pieces going out on either side of the bust. Which is ornament and which is not? After all, each group can be construed as auxiliary to the utilitarian form. This is a vexing problem. Should we include lettering and signs? Are symbols and portraits ornament? Or do they belong to other categories of visual language and how do we analyze that problem? Critics of design, and you'll keep running into this, those of you who pursue ornament, wander somewhat carelessly from one group to another when they reference ornament. We can imagine it all being somewhat ornamental. But the term "ornamental" is an adjective, not a substantive, and as such proposes qualities that may be found in ornament, but are not necessarily ornament *per se*. We can take any other discipline. We can take sculpture. We can say that a Banyan tree is sculptural. Is it sculpture? We can say the underside of a printed circuit is architectural, but is it architecture? I'm asking the same question in relation to ornament and suggesting that there is a distinction that we have to make between the adjectival and the nominative. One answer, I believe, may arise to answer the question, "which is which?" by analyzing certain conditions of dependency versus autonomy belonging to figures in different groups.

Dependency allows a condition that ornament must intimately engage – or I don't even have to use the word "ornament" – that a figure must intimately engage the object being ornamented. This introduces the concrete necessity to interact in order to perform to the point of seeming to be almost inseparable from its object. Consider that portraiture, pictures, phonetic writing, signs and symbols are all predetermined and conventionalized items that can easily be detached from something and still function. Or indeed, by design can be attached to anything by virtue of their portability, like lettering or a price tag or a logo in contemporary usage. Works of fine art, as an example, are usually capable of being moved from place to place for exhibit or temporary installation unfettered by the visibly physical dependency on something else. They are

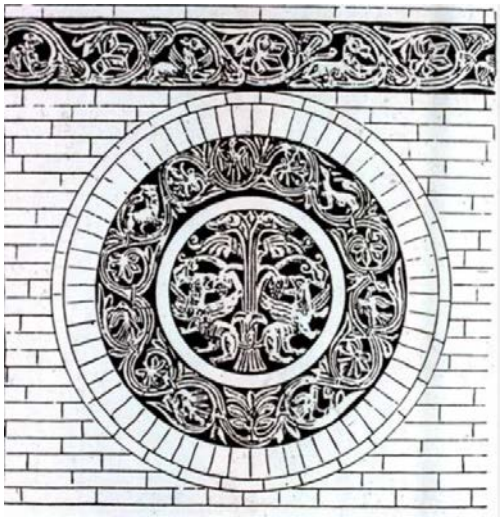
self-sufficient. Yet the Keys, and this would take more sit-down analysis to convince you, perhaps, yet the Keys, with their acrobatic and ambivalent nature, once they are assembled into groups in this case, would become lonely and peculiar doodles wanting a clear function were they separated from their host. They would be aimless. The ancient Greeks used the word "chaos" to mean unlimited; that order was by limiting something. So, if you have a sequence of dots like those phosphenes, it would be considered in the classical or pre-classical Greek sense as a chaotic figure, precisely because it is not limited and congealed into a specific item.

This peculiar feature of the Keys provoked a harder look, especially to discern how they developed as figures over time. It appears that almost immediately, perhaps simultaneously, and we don't know the answer to this; I've tried it with scholars in Chinese, Greek etcetera. There is no clear answer to this question except for the fact that they seem to appear almost simultaneously. It appears immediately, perhaps simultaneously, that these Keys became implicated with plants and animals from the field and forest.



This is Riegle's argument, that if you go back to the beginning of the formation of Egyptian ornament, there was a sequence of bud -blossom – bud -blossom – bud-blossom. There was a cycle. As the ornament developed, they actually wound it into a cyclic situation where the figure was a repetitive – very like the Greek Key but it was called a "scroll" because it comes to a finite ending. It doesn't have what the Greek has which is going inside and then winding itself out again. And then they put the lotus in as a zigzagging figure so this in Riegle's argument was the development of the Egyptian proto-Greek ornament.

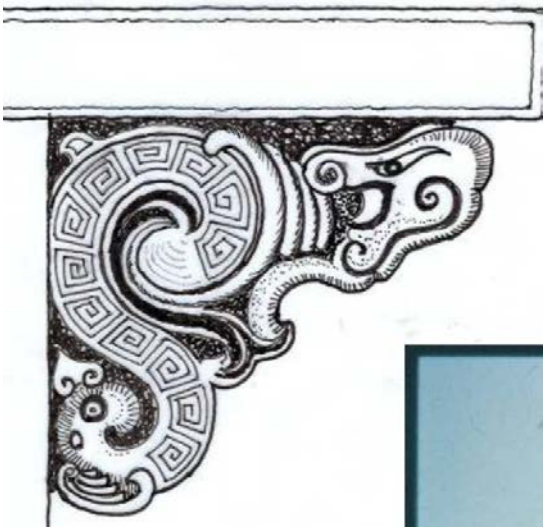
Here is what I mean. As these Greek Keys were being developed, this kind of figuration was simultaneously occurring, where you have a lotus - anthemion, lotus - anthemion, that is now tied together, not at first, but became tied together in the Greek excurses by these little scrolls with these leaves pushing up at the top. The mature version of this, the mature classical version was the lotus - anthemion, lotus - anthemion motif performing in a zigzag with the scroll holding it together that way.



This particular formation which I'm calling the "foliated scroll" actually lived all the way into the twentieth century and is still going. An interesting extreme version is this Coptic ornament. The animal figure is actually quite independent but thrown around by the action. In this 15th century Italian piece there are animals in there but they are metamorphoses: they are sprouting wings. They are not clear animals.

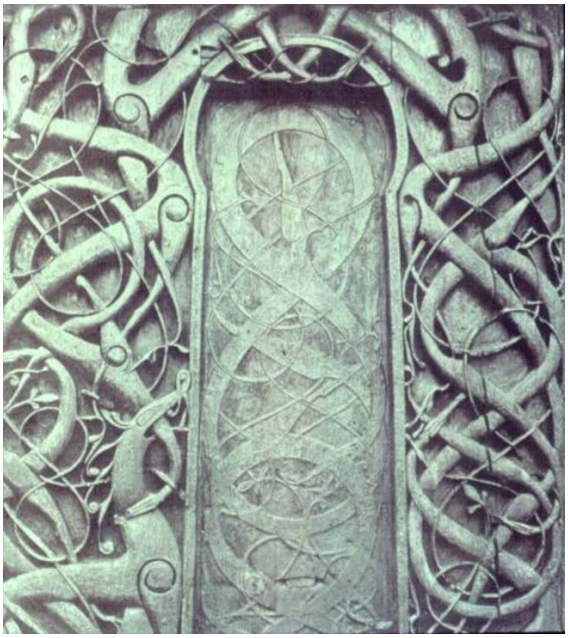
The scrolling appears in French medieval architecture in that period of literalism that Joan Evans and others talk about, Pevsner in the *Leaves of Southwell*. This is actually watercress but it's watercress rolled into this repeated thing. And then this is, of course, a Labrouste ceiling where the scroll is still alive in the nineteenth century.

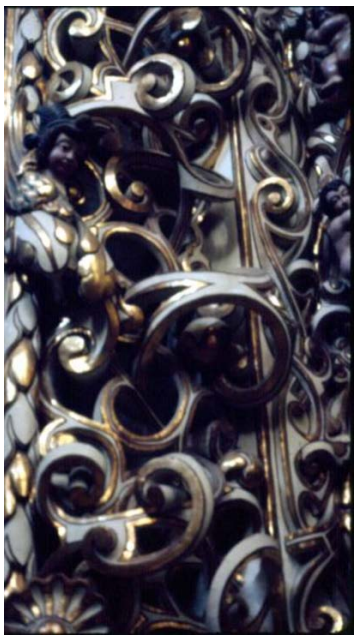
Going to the Chinese, a similar thing took place except instead of using plants, they used the serpent. In this bowl, instead of the leaf, the serpent gets involved. So, the serpent, rather than the leaf, is rolled into the Chinese excurses. As time goes on, - this is fairly late – this is a last Dynasty piece in which the Keys are now turned into cloud shapes; they've softened. In China they'll call a hard Key a thunder Key and a softer Key a cloud. So, they've attached specific readings into these things. But still, what's important in our research is to see that the Keys remain intact, even in the very late stage as the dragon begins to appear.



Here is the dragon subsumed into a Chinese bracket and here is your Key again. So, the Chinese gather a life form into the Key form. At the end, here is your dragon. I took this photograph of a Chinese dragon in Taipei. It's a marvelous creature. It has fish – it has all different kinds of animals tossed into the setting of a Key form on a Confucian Temple.

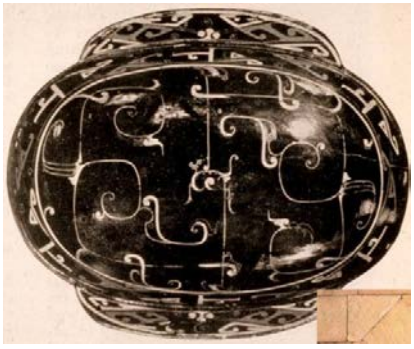
So, my point here is that the Greek Key began to foliate, or to radiate foliation to become a foliated scroll, while the continuous and more curvaceous linework of the Chinese Key combined with the serpent to become the serpentine scroll. The serpent *qua* dragon perdured as a motif in Chinese design to the present, as the lotus *qua* acanthus became the conventionalized leaf foliation that perdured in Western design for thousands of years. What can we make of such convergence with evocations of plants and animals?

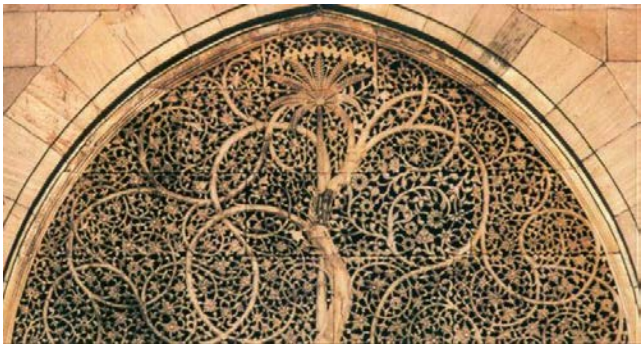




I just put these in as spectacular examples because here I show you two of the most outstanding conditions of ornament. This is Norwegian. [left image] The Norwegians used the serpent as well, the dragon. The Scandinavians did. There was a little bit of this foliation going on. They used the spiral and joints as the Chinese did on their tigers and lions and built this wonderfully entangled entrance to the Urnes Stave church.

This piece on the right is Mexican and it was done in the eighteenth century by native Mexicans who thought they were doing Baroque or early Chirugoresque European stuff. That's what they were asked to do in this small chapel in Puebla. And here they have a three-dimensionalization of this scroll work which is absolutely extraordinary! And here they have people – babies – with little flower forms coming out of them as a metamorphic figure. It is interesting to me that this happened. That the Mexicans saw it that way and did it that way. I would ask you to take a look at that one. It's in Puebla





What can we make of such convergence, with evocations of animals and plants? Note the ambivalence and the metamorphic transformations from one state to another. They are metamorphoses which is something turning into another that usually takes place in the animal or plant figure. Note the internal dependency of those natural apparitions with the geometry into which they are entangled. It evokes a galaxy of entanglements on all scales. In ornament entanglement often is articulated as an interlace.

With the few moments allowable in a single lecture, I must leap and surmise that, while granting that there was an amount of symbolism in the serpent and the lotus, our predecessors were combining the organic geometry of living forms with the more fundamental symmetries registered in the ancient linework. It is curious that the most ancient is the most rigorously geometric. It shows up in all the nineteenth-century encyclopedias and then they become curvaceous and animated as they mature. That the living forms were combined with the more fundamental symmetries in order to achieve an all-pervading world picture. This rich

combination made visible the formations of growth, contraction, mutation, and the cycles that they held as belonging to all of nature. For the ancients, those figures must have fulfilled their vision of a living universe.

It is noteworthy that neither the Chinese serpent, nor the Western foliation, was a portrait of a real animal. Consider the serpent, more as a serpentine form than as a motif, evolved into the dragon which is a figure morphed together from different types of animals. The radiating lotus and the palmette evolved into plant-like fractals such as the acanthus or the protruding oak leaf of Sullivan. We cannot find those shapes in the zoo or the garden.

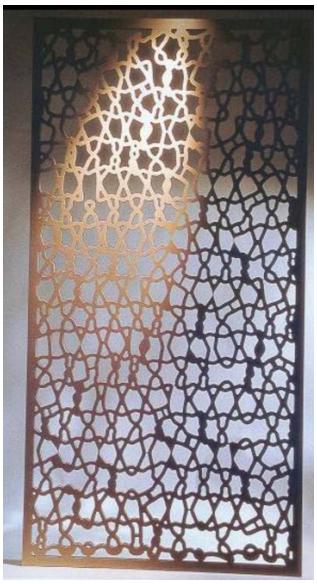
Thus, the rhythmized dots and zigzags evolved into universal Keys of life, that I will call "BioKeys," into attributes of nature. These BioKeys not only manifest the energies of nature, they **are** the quintessence of nature that is presumed to exist everywhere.

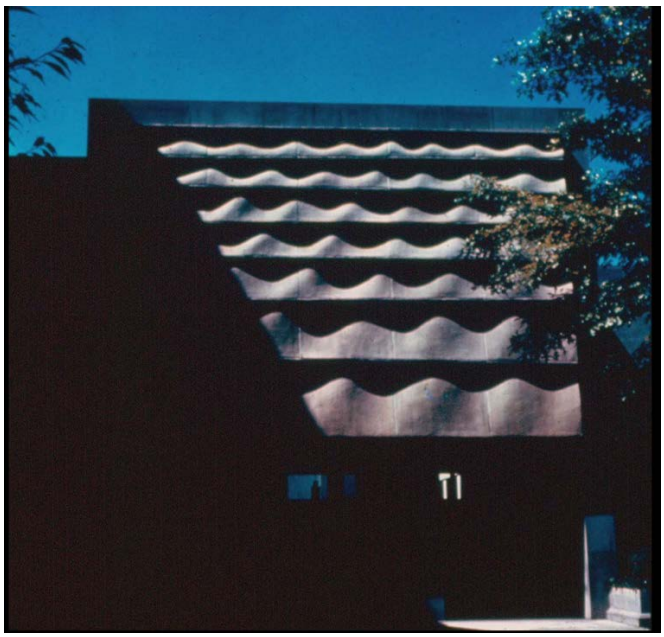
If I can tweak our habitual way of thinking a little, I would argue that if you pay close attention to them, they appear to be nature swimming in the mind's eye. Such turbulence contrasts with the things being ornamented, which are limited, temporary, and formalized into conventionalized identities and specific man-made shapes and artifacts. What I'm saying here, is that yes, you have all of this Kosmos, these BioKeys, but they're locked into the stability of the artifact, so that while they are in motion, the artifact contains them.

We can discern here an opposition between the natural and the man-made, an interlaced opposition. How, we might ask, did the ancients envision the world a long time ago when the Keys originated? Certainly, the Keys were formulated prior to the emergence of the concept of abstraction as we know it. I don't think you can use the word "abstract" here, a concept in the history of Western art and architecture which was most radically exercised in the last century. Compelling arguments in anthropology and hermeneutic studies in philosophy, have pointed to animism and concrete body-thinking as agents of reality in the designs of antiquity. During the formation of classical Western culture, as revealed by the musings of the 7th and 5th centuries pre-Socratic philosophers, there were strands of belief in an animated Kosmos and universe.

If you read the pre-Socratic philosophers, you can get an explanation for this. If you read Thales, or Anaximander. For example, I'll talk about Anaximander, writing in the 6th century BC, noted as a geographer and astronomer, viewed the Kosmos, and I told you that "ornament" in the Greek, which doesn't have the word, was conflated into the word "Kosmos," the category found its way into the word "Kosmos." Anaximander, the geographer and astronomer, viewed the

Kosmos as a bottomless hole, subject to winds of apeiron, a condition of all-pervading motion that scattered oppositions into one.





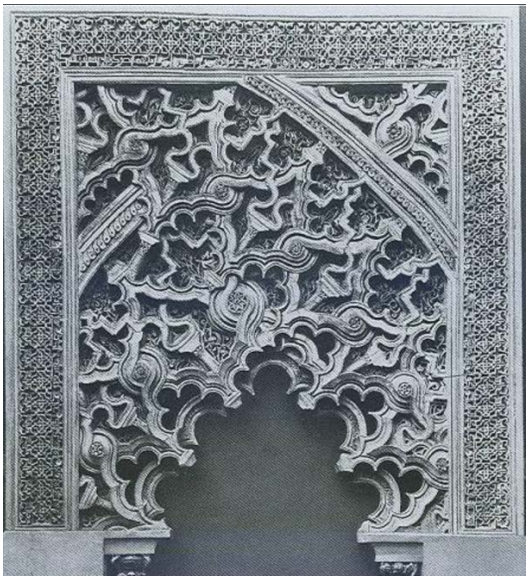
The first person who used the word “apeiron” in this discussion is Bernard Cash whom I have to give some credit for introducing the idea. But then I went and read Anaximander to see what he was doing with it, and he was basically saying, “well, you know, there is this notion that it’s everywhere and these opposites float around inside of it and they try to get together but apeiron drives them apart, keeps them moving. And the perpetual motion of these things disallowed one to triumph over the other as the power of apeiron was ageless and indestructible.”

This was a pre-scientific thesis that remained beholden to a driving force. It was a subsequent effort to conceive the means of ordering such unlimited chaos that inspired Plato to declare the wisdom of categorizing things under discreet rational forms that could organize our thinking like the cubes and icosahedrons that organize our spatial thinking in geometry.
Take into account that those ancient musings still remain on the table today. We haven’t eliminated that, which is very interesting. We really don’t know what is driving our system.

In any case, all of that aside, what does Kosmos, and what does apeiron and its marshaling of ambivalence have to do with my suggestion that a condition of dependency is the ground upon which we might single out the ornament group from the others that possess more autonomous types of figures, such as signs, symbols, lettering and portraiture?

Here is a building with clear writing, autonomous figurations, these dentelles, these brackets, which, by the way, John Summerson, in a great article in 1975, said is not ornament but in fact, despite its rhythm, is an architectural detail belonging directly to the trajectory of architecture. The ornament is more in what I am discussing.

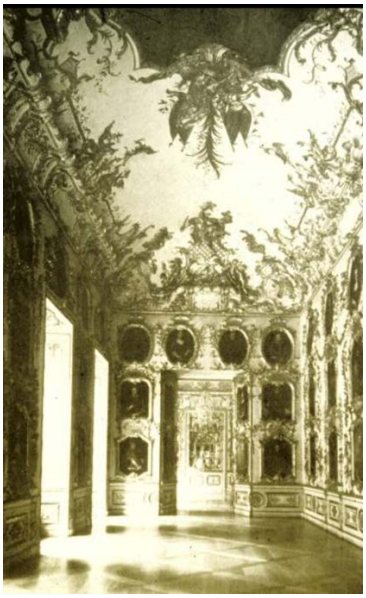
So how does my suggestion that a condition of dependency is the ground upon which we might single out the ornament group from the others that possess more autonomous types of figuration such as signs, symbols, lettering and portraiture? The answer, I believe, is that only within the distinct province of ornament is the visual figuration predicated upon a nascent, active, and intentional unwillingness to be contained or to congeal into an independent stable formation. That active unwillingness fuels a virtual choice machine, a machine that willfully articulates and privileges a procedure of endless choice-making, of repetition, changefulness and transformation over shape resolution.

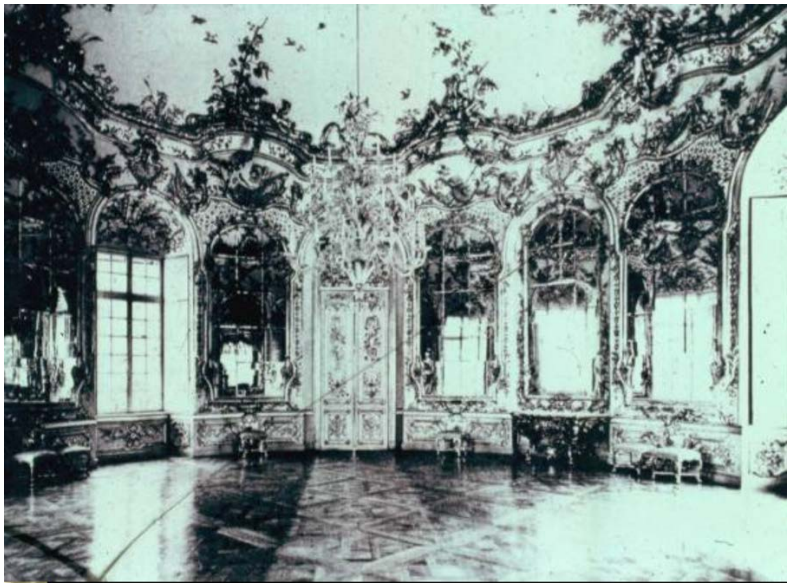


Such an activity, *per se*, may reveal the most essential feature **within** the figuration of ornament which is to present an intelligent indeterminacy, while simultaneously hoarding all the symmetry operations known to govern Euclidian matter. That's a very interesting phenomena because we found that these symmetry operations that ornament hoarded were, in fact, highly intelligent. They were carefully worked out. They were not easily arrived at. It took thousands of years to get them organized. Yet, with all of that, they remained in a state of unwillingness to congeal by their very nature.

Indeed, ornament's rich portfolio of symmetry operations is capable of visually manifesting all the playful variety of forces believed to exist, both outside and inside the thing being ornamented. In this way, the stuff of ornament presumes to exist everywhere at any time and in any vector of the world. Its ubiquitous, capricious, and unconstrained potentials; its living Kosmos, is illuminated, or we might say, respected, only by its encounter with the overwhelming formal authority of the particular host upon which it must depend. That is the specific, limited and constrained thing, like a statement or a place of an entrance.

Here I'm simply suggesting that in this page on the left, the ornament is approaching the certainty of the writing and it is prevented from advancing and vice versa. On Sullivan's entrance to the great Carson, Pirie, Scott building, the ornament wants to escape, but is prevented by the columns on either side and by the arches on the bottom. In the edges of that encounter, ornament succeeds in illuminating its host by colliding with discreet and determinate visible forms, and in turn, the host magnifies the ornament by resisting its mercurial antics. Both ornament and its host become more brilliant, unconstrained.





The elements of ornament are even capable of breaking boundaries or scattering, as they sometimes do, for example, in the late rococo.

Or these close examinations of Sullivan's work, where this kind of escape artistry of the ornament is found over and over again.

It is noteworthy, that ornament in great public architecture has been the norm for all of recorded history. Evidently it has been traditionally regarded as a natural article of visual language and expression. If we arbitrarily pick a date, a date late in the advent of human urban culture, say 4,000 BC, and I pick up here on what Oliver was saying in his introduction, then ornament's rhetoric has been an important agenda in the articulation of urban space for at least six thousand years. The prohibition or obfuscation of ornament in the recent academy of modernist design is most clearly registered by its removal from the curriculum. This is an important point. There are those who say, "well, we didn't remove it," then I say, "well, why did you take it out of the curriculum?" "Why is there no literature on the shelf?" That's the proof that I could use in court, if I had to, and may yet, but I don't think I have to, with people like Oliver coming on line.

Its removal from the curriculum has been enforced only since the end of World War II, during which time its mention was often mocked. Measured this way, the 20th century abandonment of ornament in the academy involves less than one/one-hundredth of the chronological history of architecture if we consider its urban phase. And I must emphasize that it was a true banishment. You can't say that its presence was in its absence. It was not there, for the reasons I've said, although there were definitely subcurrents going on.

In the centuries after the French Revolution, architecture has produced magnificent and publicly treasured examples of ornament regardless of political, financial, or cultural differences between regions and nations. Ornament in modernity has no more to do with politics than bread, water, stone, or sunlight. I have suggested in my capsule history of ornament that its rhythmic roots can be traced to the beginning of human time. Therefore, I believe it is safe for me to surmise, that ornament is a natural and sustainable part of human thought and language that has been continually understood and only recently repressed.

If you talk to musicians about this, most musicians will say that the question of ornament barely has to be asked because all musicians more or less knew what it was although, again in the middle of the late twentieth century, there were theoretical attempts to pull it from compositional teaching, the same as in architecture.

I was simply saying that it is a natural and sustainable part of human thought and language that has been continually understood. It is a particular species of thought, a species among species of visual thinking and rhetoric.

Let me digress for a moment and consider the twentieth-century ordinance – the purity of space without ornament.

Claims could be made, in our contemplation of space, Gaston Bachelard talks about this, in the contemplation of pure space, you could achieve the phenomenon of intimate immensity. He suggests how we can be reminded of the world at large as a consequence of a sense of being within an ordering of space, a recollection that might itself generate an image of enlargement. Some unornamented twentieth-century architecture has indeed articulated immensity, if we can

combine the word “immensity” with “Kosmos,” which I don’t think we can do, but I’m saying it anyhow, by the brilliant fine-tuning of the spatial edges, openings, scapes, and interiors. Such tuning can choreograph a corporeal sense of grandeur and passages of light and can do so within the medium of pure variegated white space sculpted by an arrangement of plain walls. The medium of pure space in concert with light is truly remarkable in its management of the sublime, fueled by the fact that it is essentially a condition of emptiness.

The intricacy of ornament, on the other hand, has always proclaimed or recalled immensity in an entirely different way. It does so by delivering an act of figuration that registers an essential fullness, indeed, a concentration of stuff. It can perform in comparatively dark settings as easily as ones flooded with light.

This is one of my favorite comparisons. I’ll admit there is a certain extremism in this. I was able to photograph these two churches because in Mexico they built them all the same. They were built in the 18th century and they had domes and tops and bottoms. This one, like the Capillo piece I showed you earlier; was designed by native Mexicans. They built it, south of Cholula. It’s called Tonantzintla. It too can generate an image of enlargement. That’s my point.

Pure spatial form *per se* is, by definition, immaterial. It happens in architecture only because it is defined, or molded, by material surface. Ornament performing as the stuff of

everything is found within the material surface and yet is no less capable of contributing to the spectacle of immensity by presuming that a turbulent and compacted cosmos pervades everything and **is** everything. These two means of expressing immensity, one beholden to presenting a pure unfettered space of emptiness, and the other filling emptiness with coherent notions of everything, can be opposed if taken to the extremes. Ornament resists ubiquitous whiteness and the cast white light that seems to sanitize the physical world. I grant that both mean to architecturally transport us beyond the limitations of contained volume. Although ornament does so within the anatomy of its own fabric.

I thought I would have time to show you these close-ups, but I don't.

As I declared early on, ornament is not independent. It must be part of a larger whole. It can be a part of a part of a part. I could have chosen any number of examples, but I chose the Grand Palais by Girault, 1901, in Paris, just to say that here is your ornament, in through here, but when you get away from that you have conventional structure. Here I am saying that much of what you see here, the top, is conventional: web trusses, canopy, white walls, normal, conventional fences. The ornament appears only in tiny moments of transition, or in their stairs,

Ornament must belong to a complex system of composition as an agent of transformation. This the main staircase. It flourishes in topographies usually found in liminal portions of its objects, such as edges in pottery, picture frames, joints, windows, grooves and entryways.

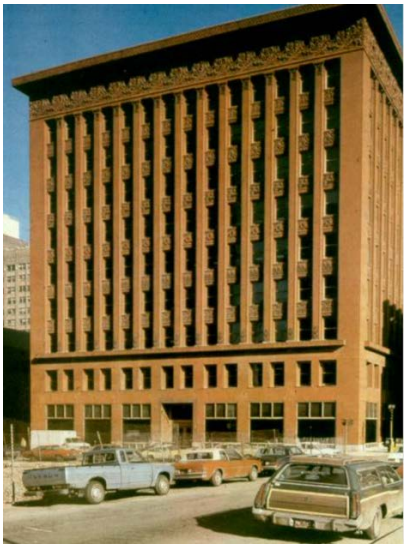
This is a Chinese window. The Chinese mastered the phenomenon of looking at vistas through ornament. And this goes back to their ‘Key’ systems. So that your vision of nature is

mediated by these edges and they actually change your vision of what's outside. It gains strength in interstitial space, in zones of transition where it can be figuration upon multiple grounds. It can capture, surround, and contain bits and pieces of things and information such as icons, specific faces, vistas, local plants and animals, words and letters in illuminated manuscripts and numbers, etc. etc., as it manifests a play of connections between otherwise disparate pieces.

The practical necessity, and here I get to the word, "necessity" is evident in basic economics. Ornament is a portion of a decorative field that performs at its best when the portion being ornamented is much larger and the utilitarian identity of that larger portion remains legible. Such elements, when carefully proportioned, can fuel ornament. In architecture a building suitable for ornament can afford to be quite ordinary and comfortably resolved like a well-organized auditorium, lobby, or an elevation subject to rigorous building codes of setbacks and height, with practical openings for light and air. The commanding forms of ornamented buildings do not have to gyrate or be extraordinary objects of modern artistry. The basic utilitarian forms to be ornamented can be governed by economics of cost, program, sustainability and the imperatives of urban design. Bereft of ornament, they can even be boring.

Ornament, by its internally thick and rhythmic constitution, flourishes on objects and buildings that have direct, simple, and conventional identities.

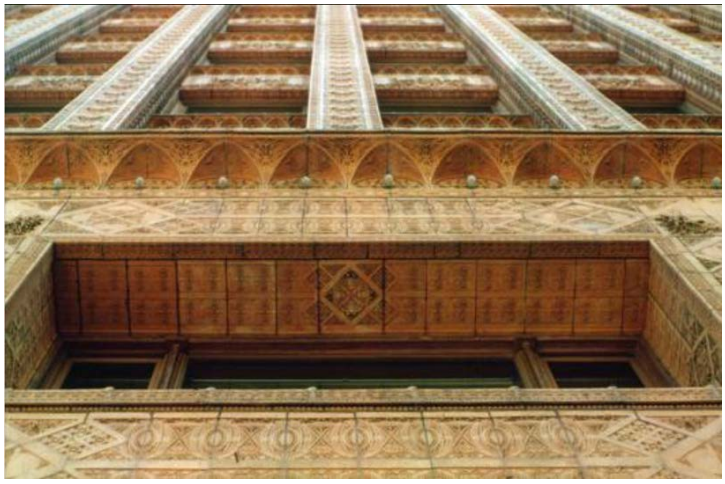
Let's visit Sullivan in this respect. A small bank in Grinnell - this was a budget project toward the end of his life; it was a low-budget project in which a few subordinate elements were ornamented and the building remained a simple box, so the ornament was concentrated along the edges and around the clock. His large urban projects provided lessons in distributing ornament that can be seen.



The Wainwright building in St. Louis, considered by Vincent Scully to be the proto skyscraper in America, reaches a crescendo by ornamenting the attic, an idea rooted in the classical triad of base, shaft, pediment. But today's modern public pays scant attention to details that far up, except in magazines.

This is one of the great foliated scrolls and this was a twentieth-century accomplishment.

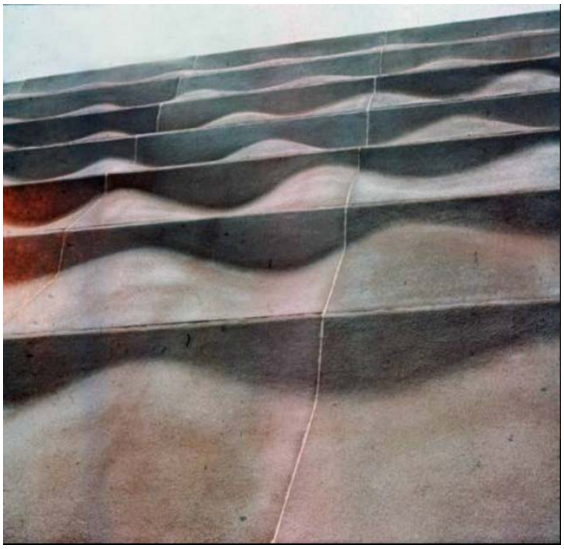
In the Guaranty building in Buffalo, which came after that one, Sullivan effectively ornamented the entire surface of the building by wrapping it in a skin of consistently ornamented elements. It is magnificent, well-built, but it is uneconomical.

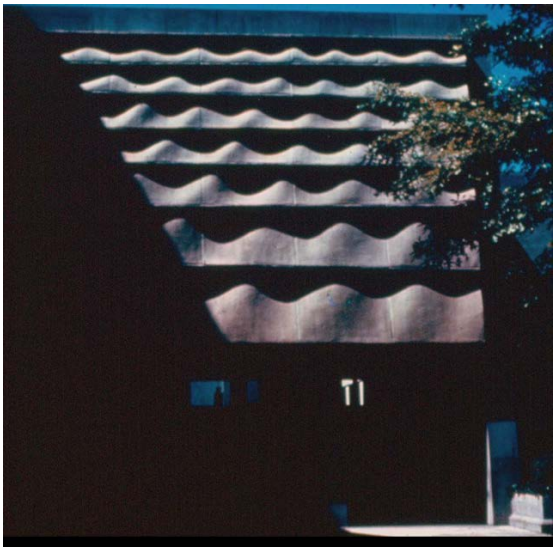


The Carson, Pirie Department store, with its offices above, got it right. The most powerful and turbulent ornament occurs at the corner entrance at street level. The base is ornamented to the mezzanine course.

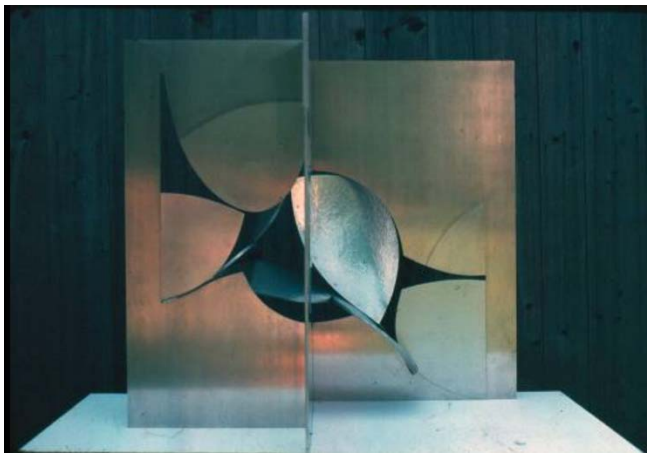
The window frames or reveals in the upper portion of the building are ornamented so that one can look through a portal of figuration from the interior. On the topmost level, recently restored; you can't find this one in books; they're just finishing this; they're putting it back on. I just got this photograph a couple of months ago—the topmost level, which I said earlier, is probably not going to be seen by most people. It belongs to its privileged occupants.

So, this is the end of my theoretical text. I would like to show you some selected examples from my own studio over the years. I hope they will demonstrate, at least my effort to combine theory with practice. Most of the work was realized in team work between building designers, ornament designers, and clients. I will move rapidly to allow time for discussion.





This was in 1964. This was my first effort at this motion on the surface.

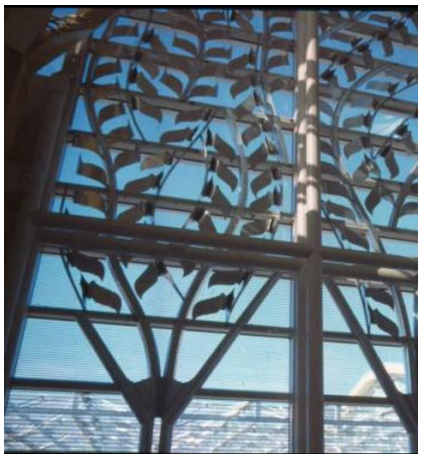


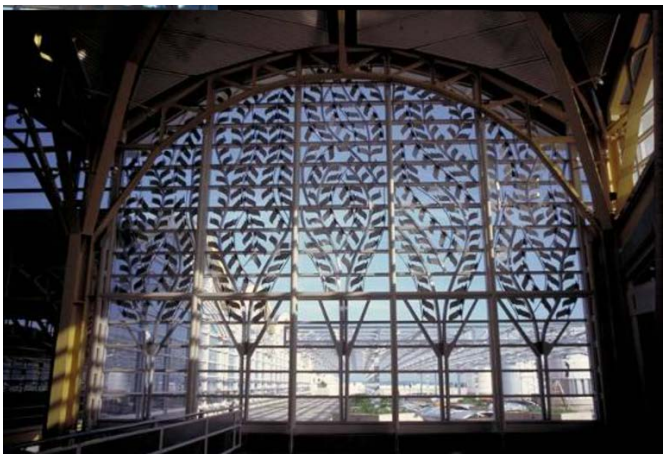
Another series, and I wasn't really conscious of ornament at this time, was the effort to put what I was calling "sculpture" inside of these planes. I thought it established a kind of dyad that worked better than either of them being autonomous.

I got a project and put that idea into a lobby in the ‘70s. I’m happy to say that the building was virtually torn down and rebuilt but they saved this so I had the honor of being resurrected. They thought they couldn’t get rid of it! And that happened about three years ago.

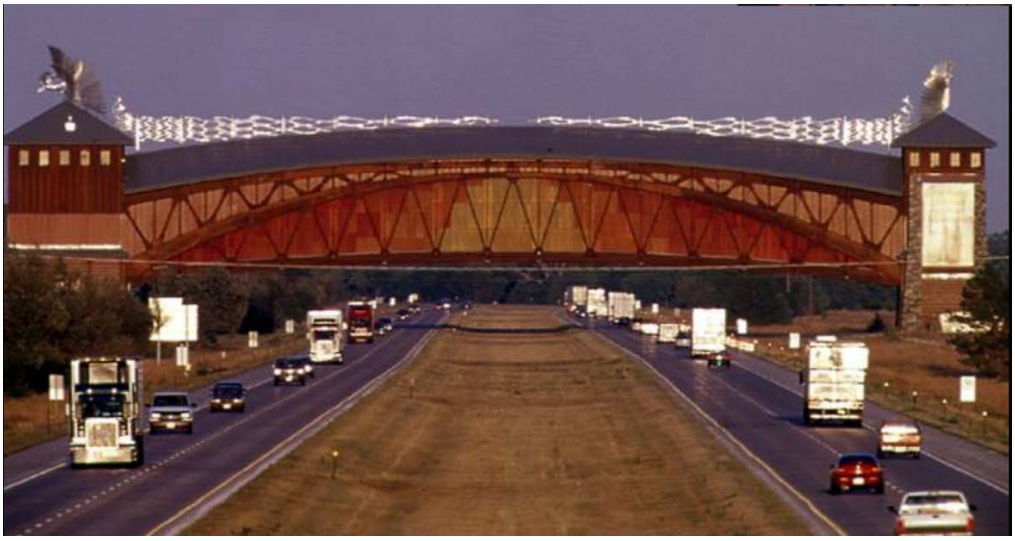
Then I did this bizarre project in the New Orleans World Exhibition. I tried to use a stable object with leaves flying around. That turned into an ice cream stand as the funds for continuing the World Exhibition were declining and they needed to get more revenue.

This was my largest job which was the top of the Chicago library which involved all of this, following the notion of the foliated scroll, this railing. There is one thing I'd like you to note about this. Clearly, in some respects, it could be called a "beaux arts project" but I promise you that Beaux Arts was not able to stand that stuff on glass. These things are mounted on a curtain wall, as you can see.





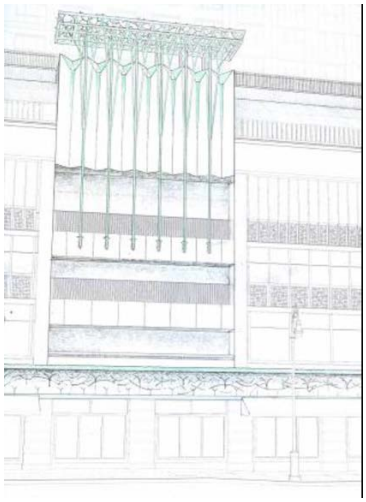
This is a job I did (I do have dates for these if it matters) in the airport in Washington which reminded me a little bit of what I saw in Paddington Station which I absolutely loved, coming in the day before yesterday – that screen they have at the end, using ornament on a curtain wall, in a thoroughly modern technology of building. Some of this was done, by the way, by C & C and some of it by hand.



This was a project I got in 1997 where an architect in Denver had designed this building in sort of a western stockade style to go over Interstate 80. This is 325 feet from here to here, in Carney, Nebraska, which is halfway between the Atlantic and the Pacific. And this road was the Oregon trail and this was the most trafficked road in the western hemispheres. It was during the opening of the West and it still is with the amount of traffic going through at 75 miles an hour. A local patron wanted to put two huge cowboys on either side of the building, welcoming people to the West. We managed to get rid of the cowboys and I put this thing running – because if this is the connection between the east and the west coast of the USA, why not make a connection? But what I really wanted to do is design this stuff and since they wanted an icon, we made a horse jumping out of it.

The business of icons is kind of interesting. When you get a large commission to do ornament, because we now practice as ornamenters and we get called all the time, they generally want us to produce iconography and I point out that that is not a good idea. Let us do the ornament. This is a staircase; I designed the house and put the staircase in it. This is the notion of concentrating ornament in one element like Sullivan did.

Likewise, this is a gate we did recently for a new building at Yale - this was a new chemistry building. Again, starting with iconography. These are peptides that spell YALE CHEM in peptide language and this one is an Ising lattice, designed by a Nobel laureate, a Norwegian professor at Yale who transcribed the transition of solid states, say water to steam, ice to water, in a formula. And we got the formula, we read it, and we visualized it to make it a centerpiece. So, this is full of rationales for the committee.



And this is our latest project. We broke ground last week. You see these trees up here? They're going to be there, but actually what is up there is a 32-story tower in downtown New Haven. New Haven desperately needs more rentable space, because, like many towns, in any city in America, if you lose your residents, you lose the city. So, the city bought a destroyed block on their main street and put it out for developers or architects to come up with the money and the way to build this for which they would give them the land. The person who got this figured out that he had to put this tower sixty feet behind this edge, and he found out in reading the small print that he had to park 500 cars. He couldn't go down because New Haven is a waterfront town and there is a water shelf down here full of hazardous materials. The cost of putting that up and diking it was way beyond the budget. He had to go up. Then the town said, "well you can't put a parking garage on Chapel Street, it's our Chapel Street. So, then he called me up and he said, "what would you do?" What we did was we designed this and it was accepted. This hasn't been designed, these are all place holders, but we wrapped the base of the building the same way Sullivan did with a continuous frieze that is masonry from here to here, then it turns into metal as it goes around the corner. These are stair towers. And we built these foliated trellises that go up in the air. In fact, juniper is going to come pouring over the edges and down the side of these

trusts so this whole area will be an elevated garden and then the trees behind it. It's fun because we got control of 575 feet of New Haven. That's the end of my talk. Are there any questions?

Q "You described the bottom of this image as being ornament. What do you call the rest?"

KB "I would call this 'lettering'; I would call this 'autonomous sculpture'; I would call this 'architectural detailing that is conventional to architectural detailing'."

Q "You don't need any of that stuff that's there to show it is a bank."

KB "No, you don't need it at all. That's why I was mentioning that ornament should not be necessarily analyzed from the standpoint of iconography or symbolism. One of the strategies we used in our investigations – it's an ongoing one – is we asked the question, and it's an oblique question, 'what can we find on traditional buildings, that has in fact been removed and declared something else overtly?' For example, sculpture. Karsten Harries' book - have you seen that remarkable book on the Rococo church? – He is one of the great theoreticians on ornament. I disagree with him on this. He said that the Rococo could be ripped off the building. If it's ripped off the building, what happened to it? And he argued that it became modern art, it became modern sculpture; it was the prototype of organic modern sculpture. So, we examined anything that could be taken off a building, that could exist in an autonomous life, and took it off the list.

That was our method. It was a pruning. Therefore, any symbol that was fundamentally autonomous - and this gets into a lot of Buddhist architecture, it's kind of interesting - doesn't qualify as ornament. Not so much the Chinese. The Chinese stuff remains ornament no matter how you cut it. Although it's funny, since the Chinese don't have a word for ornament. And I've lectured in China and they've really struggled with this one. They kind of understand it. They don't know quite what I am talking about, but they go ahead and do it anyhow because I think it's mixed into their language – into their picture language - their visual language. The Chinese do have a visual alphabet. And they will give you little names of what I'm talking about and their names are the right names, but they don't call them ornament. So, basically, we took off anything that could be taken off and asked ourselves, 'what could be left behind that was dependent on a stationary object for its existence, such as, for example, the foliation on these festoons?' If they were pulled off, they would be chaotic. They are held by those rings. If the emblem were taken off, it would survive. Some would grant that a pilaster is an element of architecture."

"Are there any other questions? Did I succeed in any way in suggesting that ornament was necessary?"

Q [Inaudible]

KB "Well, starting with the first question, what's happening to us, since we're the only studio on the East Coast that calls itself 'ornamenters', when people hire us they have to put our name on their letterhead along with the structural engineers, the lighting engineers, the environmental specialists, the LEED crowd, all of it … 'Ornamenters: the Bloomer Studio'. So, that's been accepted now, on the East Coast. My experience with the group that I'm working with is that they will hire us to do that. That could not have happened ten years ago. They would have thought that we were wacky. And furthermore, to the extent that we do it, they could not imagine it as a discipline, as something that involved knowledge *per se*, because ornament was thought of in these other generalities, as these removable items, which, by the way, is the reason why we have to go after the removable items. Otherwise, they'll hire a graphic designer or a lettering expert. They'll take it away from you, whether you're an ornamenter or an architect. Look at the stuff that's already been taken away from architects, if you look at large projects and look at the number of subdisciplines that the architect almost has to include, structural engineering being one of the most glaring. So, what's happening in our studio is that we are past that point. That is a break in the weather, where I come from, which is the New England - New York part of the

States. And that's spreading. I have students now that are coming to me wanting to be apprenticed and they're MArchs. They are not coming from the art schools. The art schools are more interested in self-expression and when they face the fact that it's not part of what we do, they'll take a summer job and they're out of there. The architects, who have already been trained, that are working for the city and a client, and the environment, don't see that as an issue."

Q [Inaudible]

KB "Now, going to your next question which is much more difficult to answer, I tried to answer that a little bit when I showed the comparison between the two churches in Mexico. I talked about the unornamented versus the ornamented. I was suggesting that the spatial issue was just as active in the ornamented as it was in the unornamented; that we shouldn't be thinking of space in a sanitized way. It's not white. Space is essentially emptiness. That's what the word means. You can talk your head off about space and space is an important topic. But you've got to pin down what you are talking about. Are you talking about room, function? What are you talking about? You brought up the idea about feeling.

As I said, this is a radical example. By the way, that church was in great disrepair before the First World War, and a German explorer walked in there and he saw it and he saw to it that it was fully restored. He got money from international sources. I've been there several times. When I go to Mexico, I always go there. It is not as 'horrendous' as it appears to be. What you do in a place like this is you go inward, a little bit like you do in the Islamic. The way to read Islamic ornament is to go into the microcosm. That's what it is really about. It sort of jumps between the microcosm and the stars. So, you have to ask, where do you want to go with your feelings? The more I look at ornament, the more I'm anxious to take those mental journeys. I have enormous respect for Islamic work in that respect because it takes you into the microcosm."

“This does as well. This is a close-up. Here is your scrollwork. It’s all over the place. It’s full of these hooks. I call it the ‘hook and the step’ motif. These native Mexicans! By the way, Malotki’s work was native Americans, if you call the United States ‘America’. It’s all America. And this is native Mexican. They thought that they were doing what they were supposed to do and they put the scrolls in, which they already knew about. But then they filled every possible interstice with a head. For the most part, this is a world of heads. This small church is called ‘Tonantzintla’ which is the word, in Nahuatl, the native Mexican language, for ‘little woman’. You go in there and you can see how it’s defying the European concept of heaven and earth. They singularize the world into a womb, into the mother which North American natives do too because the sacred world is below or inside the mother. It’s not up outside, that’s very European, things up into the air, like ballet dancing. In traditional America, the sort of places you want to go to are either down into the ground, or into the mother and this is the mother. I was able to generate my response without that knowledge I just divulged. I didn’t know what this was about but I had friends in Mexico that helped me, people who know Nahuatl.

I would feel differently about the Grand Palais. When I see this building, I go to the points of transition. Those are the places where I get my greatest feelings; it’s going into the interstitial space. Ornament is all about that; it’s all about the dynamic of metamorphose. So, if you’re looking for, or responding to, as gardeners and many naturalists do, a world that is constantly having a birth-death cycle, a cycle of growth and mutation, you’ll find that and all the feelings that attend that in ornament, and you won’t find it in sanitized white space.”

Q “Pretty profound - what to do?”

KB “I’ll give you my answer, it’s the same answer that was given to me by a theorist of music, a theorist of jazz, a great scholar at Yale named Willie Ruff, a jazz musician from Alabama. He said, ‘you go to the beginning’. I think that you have to get away from chronological provincialism. You cannot stay contemporary and understand ornament. You can get to the contemporary, but you have to go back to the beginning. I find this over and over again. I even left the Renaissance out, and I couldn’t get as far as I wanted to go, that’s why I’ve gone all the way back, in fact I have an article at home on Neanderthal ornament. The Neanderthals, according to some latest findings, had body ornament that was very beautiful. So, I think to understand ornament, you have to go back to the beginning and track yourself through its history. That’s not easy. That’s what we’ve been doing in our seminar, but we didn’t know how to do it, what to pin ourselves down to. The first thing we had to pin ourselves down to was the dyad. Then later on we got onto issues such as the apparent fact that the stuff that was emerging seemed to be these choice machines that didn’t want to congeal. You have to have those questions in your pocket and then start looking. And, above all, you have to get out from under the provincialism of modernism. Modernism is extremely important, obviously, and I love a lot of architecture built under the name modernism, but it is nevertheless a style and a provincial style. It occurred in a very clear period of time. There is no reason why you, or anybody in this room, should confine yourselves to that period. Ornament, if you read any of the great encyclopedias of ornament, and this helped us, for example, Owen Jones, or Racinet, or Riegel, the nineteenth century was a period of immense theorizing about ornament and that’s when the ornament encyclopedias appeared: Dolmetsch in Germany, Racinet and Owen Jones in London, Semper and so on, you’ll find that all of them went back to the beginning. All of them went back to the earliest work, the sort of phosphenes that Malotki was talking about and then they came back to where we are. What’s interesting to me is that the people who studied ornament, for the most part, were not time-provincial. They didn’t limit themselves to the problem of modernism. I could give you the Hall of Fame of people who have written about ornament and you’ll see that they all went back to the beginning. And I think the reason for that is that ornament, as I claimed in the talk, is a natural language, and they knew, as I now know, that ornament, for being a natural language, was always understood until it was repressed. You didn’t have to write a treatise on ornament at one time. It was part of visual rhetoric. You get ornament and it acts in relationship to something else. It’s a conversation. And if you know how

that conversation works, because it's part of your life, then you'll see it every time it comes in front of your eyes. But you don't know how it works, if you're told not to look at it. For example, when I was a student at MIT, (this will date me, I studied architecture in the late fifties), I remember the first time I heard of the Carson Pierie Scott building by Sullivan. The professor put a picture of the Carson Pierie Scott building on the wall and then he cranked it in such a way that the bottom two floors came off the screen. He said, 'you ought to look at this building, but don't look at the bottom, I'll take it off for you so as not to contaminate you'. And I didn't realize that all those reveals in that white surface he was trying to show us were in fact ornamented! I didn't realize it until I went to Chicago and saw the Monadnock building. The Monadnock building, which I think all of you know, is that great building that swoops up like this. It's a twenty-story building that's made of wall-bearing stone, brick. So, it has to be sixty feet wide on the first floor, then it tapers in. I went there, I looked at it, then I got inside and went up and looked out a window and I saw that all the reveals in the window were ornamented. Why didn't they tell us that? If you're in the building, that's what you are looking through, just like the Chinese screens. And then we went to the Carson Pirie Scott and found the same thing. I don't know whether I've answered your question, except that I would suggest that you look. There is Oliver, have him take you to all sorts of exciting places.

"Oliver said at the beginning that a very important problem in ornament, and my students have said exactly the same thing, the problem of labor, is traditionally a severe problem. We are actually a manual shop. We have been a manual shop since 1964, although about twenty years ago, we started using CNC for a lot of the work. We're using water jet, we're using sensate-driven benders for large projects, etcetera, but we're not relying 100% on CNC, we're hybridizing hand with CNC-cut art. So, they do that and we do this. But it's absolutely true that the labor factor was a forbidding one and the immediate response was that because of the labor factor, you can't afford ornament, or the labor doesn't exist. Even if it existed, they would tell us you can't afford it. But that's not true. What Oliver is pointing out is that with the tools we have now you can start working on shapes and things that ten or fifteen years ago we couldn't have gone near. I think the production of ornament digitally is going to develop enormously over your period of time. There is one more thing about the labor problem. It was used as a political thing: the exploitation of the worker. It's ridiculous. Most of the workers that we've run across would love to do ornament. They couldn't do it at a massive scale, but they'd rather do that than lay

brick all day, putting up drywall all day or run wires all day. It gives them a life. That's Ruskin's argument."

Q "I was interested in the idea of the phosphenes."

KB "Malotki is a linguist. He's also a photographer. And he fell in love with the part of the United States that was occupied by the Navajos, the Utes, the Hopis, which is sort of the Arizona-New Mexico area. There are lots of hills there. And he discovered these incredible cave things. He started photographing them. Some of them go back eight thousand years. He went to his art historian friends who told him that he had to find out what they meant; if he could find a turtle, or something they could tie into, some knowledge of the mythology of the Utes. He couldn't figure out what these other things meant. He said, 'they are not symbols. They are something else'. And I give him a lot for that because I don't think he went to the right sources. If he had come to something as simple as Owen Jones and read the beginning pages, he would have seen what he was talking about because Owen Jones was aware of them, so was Semper. Semper used to go out to the South Pacific and look at all sorts of things, early ornament. But for some reason Malotki hasn't done that. Nobody has informed him that that's where he should go. But what is amazing is that, on his own, he figured out that these were not symbolic; they didn't belong to picture language. He noticed that they were aesthetic, somehow. And then he came up with the idea that they had something to do with thinking. And he thought that it was a form of thinking and I agree. Any of you who have sat down and doodled know that you're thinking when you put dots down. So Malotki got to the point where he was thinking that he was looking at a type of natural language. And I think he is important because of his credentials in linguistics and symbolism. He used the word, 'phosphene'. I think he invented it."

Q "When you push your hands into your eyeballs, you do see zigzags and dot patterns; is there something a bit biological about that?"

KB "Yes, I see where you're going. We're going there too. There is an institute in Canada at McGill, that has been very good at examining mental patterns in audial perception and they're starting to work in the visual realm with neuroscientific tools and I think that is where we're going to get answers beyond the ones we have now, to see whether this natural language is in fact accompanied by natural proclivities and what part of the brain are they working which is where all this stuff is going. In brain scanning they now go from one sector to another sector of the brain. This is a very important new development in neuroscience. It is an avenue to pin down

some of the stuff I am talking about. The first blush of that was the Gestalt School in Germany in 1910 with Max Wertheimer where they were doing black box experiments and stuff like that. It got a certain distance and then stopped. It was too black box. Are you familiar with Wertheimer's work in the Berlin school of gestalt psychology? For example, you would get three dots and you would see a triangle. And they thought that was interesting. How do you get three dots and see a triangle?"

Q "The dots might be at the corners of an imaginary triangle?"

KB "Exactly. The mind closes them. There is a wonderful little book by Richard Gregory on experiments in visual perception where he got two lines and then a gap; two lines and then a gap; two lines and then a gap; two lines and then a gap. So, you get one two three four … eight lines but you see them as three because you see them as groups of two. What's interesting is that in between the two there was a brighter light. That was the amazing thing. And I tested this with my students. And then he came up with the notion of the figure-ground – that the ground slips behind the figure. That's all studied and written about."