Universal aesthetic structures

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Universal Aesthetic Structures

By

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Universal Aesthetic Structures

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This thesis presents structure as a universal visual language able to communicate the human spirit. The essential structure of everything in this world is based on a finite collection of building blocks. Because this fundamental construct is found in all things it becomes a natural universal language. This exhibition presents the notion of the individual as intimate, sacred, and precious. Through the use of structure and other universal visuals, viewers can recognize those qualities in themselves and apply that understanding to others, hereby gaining a new perspective on all humanity.

To explore this idea the thesis paper will analyze the structure of form and its presence in the work of specific artists as well as a variety of artistic and design venues. The materials and process of the work will be presented, along with their respective associations and implications. The idea of surface as it relates to structure will be examined through its presence in a variety of historical and contemporary influences. Pattern is introduced and its relationship to surface and form are considered. The mathematical implications of pattern are also analyzed to allow a better understanding of the importance of pattern as a visual and conceptual construct. The use of a broad spectrum of symbolism in the work is also examined, along with the notion of visual universals. Finally, the work itself is presented and the conceptual program of the exhibit is discussed.
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Introduction

Structure is the tenet of my work. It is found in the physical and/or visual organization of each piece. The form of each piece is its three-dimensional, physical presence, while the structure of the form is its organization. The surface of each piece also exhibits structure in its visual organization of pattern and design. Conceptually the integration of physical structure and pattern is a deliberate reference to the interconnection and structure of all things. No matter how chaotic something appears, the closer one gets, the deeper one looks, organization, and symmetry exist. "Symmetry is the universal principle of nature, the principle permeating the whole universe and revealing its unified picture from atomic nuclei and molecules to the solar system and the metagalaxy." ¹ The basic structure of all things is based on a finite collection of building blocks. The ways these building blocks are put together result in imagery that is not unlike the designs found in my work. It is interesting how the symmetry of geometric pattern is often interpreted as simplistic, contrived, and unnatural when ironically, organic natural forms are actually more complex. Because structured patterns can be found in all things they become a natural universal language. I use structure as it relates to self to communicate a sense of humanity. This exhibition presents the notion of the individual as intimate, sacred, and precious. The use of structure and other universal visuals are intended to allow accessibility to these ideas in order for the viewer to acknowledge these qualities in themselves and then enable them to recognize these qualities to others.

FORM

Within the context of structure and form, architecture, landscape architecture and quilting are prime influences on my work. Specifically the styles of the Romanesque and Gothic periods, the visual order landscape architecture brings to nature and the pattern and shape relationships of quilting. Each of these areas in addition to specific visual artists relies on a unifying standard within the structure of form.

Looking at the Romanesque and Gothic cathedrals, everything about them is perfectly and beautifully orchestrated, according to the attentions to form and balance. Each floorplan is created with the golden mean or golden section, also known as phi. In many of these cathedrals, this device dictates the proportions of the entire building. The scale of the golden section is usually set at the crossing square. From this the nave, transept arms, and apse are multiples of this measurement. The golden mean can also be divided to create smaller spatial arrangements, such as the width of the aisles and the rhythm of the clerestory. This use of one measurement as a building block creates an all encompassing sense of balance. Each part of the composition becomes essential to the whole. “It is only in the geometrical proportion of the golden section that the similarity of form is achieved within the framework of the whole. Thus, the golden section is a symmetry of similarity of the parts and the whole.” This is evidenced in both the three-dimensional forms and spatial arrangements and the two-dimensional planes of architectural renderings and floor plans. The very nature of architecture lies in its physical form. It is that nature which appeals to me; that sense of the physical form

3 Voloshinov, 111.
evoking a tangible presence through its dimensionality. I have a fascination with the 
three-dimensional object and its relationship with its surrounding space. In my mind, 
objects seem to establish a more powerful identity than a two-dimensional plane. 
Therefore, the object becomes a natural vehicle in which to present my ideas.

Three-dimensional forms and architectural order also leads me to landscape 
arquitecture. In landscape architecture, a more precise visual order and structure are 
imposed on the seeming disorder of the natural environment. It is, “the geometry of 
chaos giving birth to order.” From expansive maze gardens to sculpted residential 
lawns, landscape architecture introduces organized form. A breadth of materials work 
together to create a single planned arrangement. The resulting form becomes a unifying 
standard.

The use of a unifying standard is also evident in quilting. While few may relate 
quilting and architecture, there are surprising similarities. The patterns that have emerged 
in the quilt tradition for generations have a structure that is very similar to that of 
Romanesque and Gothic architecture through the use of the golden section. In both 
disciplines, there is that same sense of beautiful symmetry and comforting harmony. 
Architectural floor plans or rosette windows can be seen in some quilting patterns. It is 
the macro arrangements and micro designs formed by these geometric shapes that unite 
these categories. This connection reinforces the concept of patterned structure as a 
universal method of form.

The artists Piet Mondrian and Louise Nevelson both present variations on the 
application of structure. Mondrian is well known for the use of structured compositions 
in his paintings. Because Mondrian’s work exists on the two-dimensional surface, it

4 Voloshinov, 110.
could be argued that his work falls into the surface/pattern category. Yet, it is his uncompromising sensibility of, and dedication to, formal arrangement that binds him solidly to structure. He constructs his compositions with black grids and/or colored geometric shapes, as seen in his piece “Trafalgar Square”. (Figure 1) Here, he employs a black grid on a white ground with accents of color strategically placed within the grid. There is a strong sense of organization and the way the composition runs vertically on the canvas implies that we are seeing only a portion of a much larger configuration. His painting exhibits a completely pre-meditated and controlled environment.

Louise Nevelson handles the relationship of form to structure in a more physical sense. She constructs three-dimensional works that build on composed units. Looking at “Sky Cathedral” there are divisible units of squares and rectangles compiled together to create a unified piece. (Figure 2) Moreover, within each of the squares and rectangles are more complex shapes. While she refers to architecture through form and title, her work is not quite of that scale. Her work is closer to human scale. This anthropomorphizes the object leading the viewer to consider both themselves and the maker. Nevelson’s work evokes intimacy by presenting a personal interaction. Yet, her elaborate constructions also elicit the awed sensibility of grand architecture. It is this combination of grandeur and intimacy and its corresponding response that I am looking to generate with my own work. Compared to Nevelson, the scale of my work is greatly reduced, but I feel this only furthers the implications of intimacy. While my work is on a smaller scale, rather than grand architecture, I like to consider architecture as its structural heritage.
MATERIALS

When I am questioned about the medium of my work, I always answer that it is mixed media. It is not a very specific answer though it is the most concise. I use a large variety of materials in each piece. Those materials and their combinations have other associations that must be addressed. Invariably the idea of craft is presented amidst discourse of my work. To understand why this concept is a continuous presence one must recognize the classifications of craft. Through my intensive research I have found eight characteristics that create the separation or distinction between craft and art. These characteristics are: the education and social class of the maker, if they are male/female, anonymous/named, the economics and value of the work, the technical process or medium of the work, the intention of the artist, the interpretation of the viewer, the intended location for the object and the question of utility. These factors make up the craft/art divide. So recognizing this, the question becomes, why does my work receive craft associations. Part of the answer lays in the materials I use and their corresponding gender affiliations. The other basis is the process in which I work.

There are some textile materials and techniques used in my mixed media work. Fabric is a socially, historically, and conceptually loaded medium. Women have dominated the field of textile art the world over, since textiles were invented. Looking at gender, it can be said that up until somewhat recent history women were barred completely from the world of fine art. This alone relegated them to the arena of craft. Looking at the products, both the intended location of the object and its utility becomes a question. With minor exceptions, textiles were intended for the domestic sphere, removing them from the professional world applies a craft designation. There was also
the utilitarian concern, the objects in question may or may not have been intended to be used as blankets, clothing or wall hangings for insulation. The factors of education, social class, and economic value of the work may have also played a role in defining this medium as craft. Due to so many of the determining factors textiles became commonly accepted as craft.

The first emergence of the idea of craft as a separate entity was a direct result of the Industrial Revolution. During the Industrial Revolution, factories were able to make items that before were only handcrafted. These items were cheaper and plentiful, which was advantageous for the consumer, but put artisans out of business. Traditional artisans had used skills that had been passed down for countless generations and through their interest in preserving this knowledge, the idea of the craftsman was born. A new division between artists and craftsman began to emerge. The Arts and Crafts Movement in the 1870’s lead by William Morris attempted to bridge this new gap. He felt that the ‘lesser arts’ or ‘decorative arts,’ as they were termed, were just as important as what was classified as fine art.\(^5\) Since these crafts were not accepted into the traditional academic and bourgeois venues of fine art, they created their own venues, and their own movement, which was indispensable for its role in retaining a variety of art forms that would have otherwise been lost. Now the gap is closing, the issue of craft is no longer as controversial a topic as used to be. This is due to a few different reasons. The first reason can be attributed to “A generation of makers who have been taught in art school and brought the crafts into a different relationship with fine art. It has become

increasingly difficult for the critical eye to perceive any difference between that section of the crafts that is influenced by and cast in relation to art, and art itself.^[6]

Another reason this gap is closing is due to the breakdown of the materials barrier. In every aspect of art, media cross over is appearing. Craft can no longer be contained in the sacred categories of clay, fiber, glass, metal, and wood. Similarly, sculpture is no longer limited to stone or painting to oil.^[7] Mixed media is not only breaking down the boundaries between art and craft, it is also collapsing the barriers between the recognized forms of fine art. With these barriers gone it becomes impossible to apply previous systems used to categorize art. Craft is simply being absorbed into the conceptual sphere of the arts. There is no longer a material constriction. This opens new opportunities for artists and artisans. Endless possibilities are open for exploration of mixed media art that allows access to craft technologies and materials. "The crafts, in short, provide opportunities to make works of art."^[8] There is a new freedom to explore and involve the materials in ways never before possible. "In the end, craft is mystic participation in the material, which is the rock bottom of art."^[9]

The materials used in my work also incorporate another conceptual building block. I use a large number of materials, including a varying combination of wood, paint, fabric, glue, sand, wax, ink, metal, and paper. The link between these materials is that they are all common and accessible and allow the viewer access to the piece. Common materials are another level on which the viewer can identify with the work. To make pieces with gold, silver and precious gems may be to invite a completely different

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aesthetic to the work and it would become inaccessible to the average person. With common materials, I can create a very intricate, elaborate, complex and beautiful object.

Consider the human body. We are nothing more than human clay, molded from the most basic elements of the earth. Our bodies are over 90% water. Water is everywhere; there are rivers, lakes, and oceans of it. While we typically do not assign monetary value to water, it is absolutely necessary to sustain life; therefore, we assign it a different type of value. It is not the materials from which we are made that make us extraordinary; it is the ineffable and intangible qualities. This is parallel to the relationship I am attempting to bring together through my chosen materials; to illustrate that something extraordinary can be created from ordinary components.

Taking into account the conceptual implications of my materials, specifically the fiber aspects, provokes yet another concern. The issues regarding gender may not be as prevalent as they were in the 70's and 80's, however, it still of importance. With the inclusion of both materials and traditions founded in 'women's work,' and content that borders on sentimentality, the issue of gender must be addressed.

Using fabric materials and techniques taps the broad spectrum of the textile culture. There is something about the tactile quality, sense of design, and methodical dedication of the textile tradition that is completely fascinating. "The tedious, dedicated and repetitive tasks that compose women's work have produced art profound in aesthetic and intellectual content."^10 It is a deeply rich tradition, one whose influence enhances my work.

My concepts analyze levels of self, relationships, and emotions. These are matters considered more the concerns of the private or domestic sphere, however, all

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^10 Krumm, 7.
humanity contends with these issues, not just women. I would describe myself as feminine in the sense of being secure in my identity as a woman. My work is not feminine simply because I am a woman. Just as a mother can produce either a boy or girl an artist can produce either masculine or feminine work. The gender in both cases is not determined by the creator but by other outside influences. I feel my work transcends the plane of gender to the plane of humanity. How to illustrate the essence of humanity is a question that has been explored from the beginning of man’s time on earth, and has been met with a multitude of different solutions. It could be argued that it is the collection of these results, rather than a single explanation, that is the true answer. I feel the best way to comprehend something is to understand its parts. Through knowing ourselves, we can begin understanding others, as it is the self that reveals humanity. It is necessary to focus on humanities similarities in order to set aside differences. The best way to do this is to look beneath the surface and see the beautiful all encompassing structures that permeate all things and has become the premise of my visual language.
PROCESS

When I was a small child, I used to draw and color constantly, but I became frustrated, it was not enough. I would go to my parents and tell them I wanted to make something. They would ask me what I wanted to make but I didn’t know. I just had an overwhelmingly strong impulse to build something. My parents’ solution to my quandary was to buy me an activity book. It was a wonderful gesture of support. Yet, none of the activities allowed me to color or draw as well as construct. I could not understand why I was not allowed to do both. That impulse eventually became a voice and that voice ultimately told me I was an artist; not a painter, not a sculptor, but an artist. I had an innate need to build, yet that need did not eclipse my interest in surface; they were equal. At my undergraduate university, I took an equal amount of painting and sculpture classes until I was forced to choose. I chose painting simply because the painting professor was more accepting of me painting on my objects than the sculptor professor. That is how I came to be classified as a ‘painter’ though it is not how I perceive myself. At times, I still feel that same frustration that I did when I was six, the difference now is I have decided that I can and will do both as an artist.

Keeping this in mind the process is an increasingly important aspect in the creation of my work. “The result to be obtained is preconceived or thought out before being arrived at. This foreknowledge is absolutely indispensable to craft.”11 However, is this philosophy restricted to craft? The three-dimensional aspects of my artistic identity demand some preplanning. Working with media like marble, steel or wood requires

some idea of what direction is going to be taken before beginning. Whereas other types of artists like ceramicists and painters, have a more malleable medium that allows for more spontaneity. Artistic spontaneity is simply against my nature and truthfully impossible within the complex structural pieces I create.

Ideas for my work are developed to their fullest extension before construction begins. Everything is determined in the design phase; from the precise scale and dimensions to color choice and placement. All problems are presented and resolve by the time I am done planning. Each project is a challenge I set for myself; pushing me in new or different directions, forcing me to learn technologies and processes in order to fulfill my vision. There is always the question of a successful result from the journey.

The next step in my process after formulating the idea is building the armature. I can visualize where I need to end up but I have to create a course of action in order to arrive at my preset idea. This is the challenge, this is the battle, and I savor its frustrations and successes. I always learn something invaluable from the process.

Once the building phase is completed, I move on to the surface. This too has been planned, and is simply a matter of application. This part of the process is usually the most time consuming. It is fulfilling because I know what is to come next. This leaves me free to engage with the materials, and I feel my mind reach a place of peace.

Acts of obsession and repetition are referential to the notions of ritual. Most people cannot understand the patience when they look at my work and see how meticulous it is. I use tiny brushes spending hours on small sections. The only people who could truly understand this type of activity are ones who have participated in it; the monks, nuns, and scribes of the illuminated manuscripts; the women across the centuries

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who have labored stitch by stitch in tapestries, fine clothing and elaborate quilts.

Through the hypnotic, healing and meticulous process, one can focus on the individual sense of self. "And like the hypnotic element of watching the waves roll up on the shore, there’s the rhythm involved in the making."^^ It is this sense of personal self that is achieved through a wholly engaged process that also brings craft into a new relationship with art.

The technological revolution parallels the industrial revolution in many ways. Each of these mechanized steps leads society further away from the individual and the needs of self. It only pools us into a mass identity, at the price of individualism. "Craft means repersonalization of work in a world of depersonalized work."^^ Artistic or craft processes provide an accessibility to the reflective aspects within art. Craft presents a product that has been fashioned by an individual, not a mechanized generated item so many times removed it seems alien and sterile. With the growing population and increased amounts of mass-produced objects, it becomes vital to be allowed something singular, original, and brings us back to the essence of individuality. "Handmade art has an aura that other art does not."^^ "Genuine craft always represents unalienated labor—the labor of love—which is why it has gained new appeal in our technological society."^^

Repersonalization through art is gained not only by the act of creating art but also by the effect of its presence. What William Morris was really trying to do was make people realize how important it is to incorporate beauty into daily life. Morris felt there

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 ^^14 Kuspit, 19.  
 ^^15 Perreault, 79.  
 ^^16 Kuspit, 15.  

was a “...danger that the present course of civilization will destroy the beauty of life...”\textsuperscript{17}

This fear may not be unfounded but rather the basis for the renewed interest in art and craft. It may be this need that has resulted in the breakdown of the media barriers in art allowing a greater accessibility. In effect, this was done to ensure the continued presence of beauty and intimacy. Beauty is a valid form of expression and the notion of art searching out beauty is a classic one. It is indispensable to our very nature, it fulfills needs we may not even recognize or acknowledge. “In its real sense, beauty is the illumination of the soul.”\textsuperscript{18}

\textsuperscript{17} Morris, William. \textit{Hopes and Fears for Art}. (New York: University Press, 1908), 74.
SURFACE

Once the physical form has been established the surface must be considered. It is important to approach the surface design with the same intensity as constructing the form. This is not about decorating an object but embellishing the surface to enforce the concept presented by the form. The surface is constructed with the serious intent of organizing all aspects of the composition and clarifying the idea.

The integration of surface with form can be seen in a variety of venues. Gothic and Romanesque architecture exhibit this marriage of form and surface, as illustrated through engaged columns, stained glass windows, relief frieze patterns, fluted columns, blind arcades, maze configurations on the floors and webbing on the vaulted ceilings, all of which are still working within the set parameters of the golden section. All of these treatments only enhance a sense of refined balance. This combination of form and façade is also seen in quilting. Once the face of a geometric tiled quilt is complete there is often another visual layer composed of embroidered stitches that both embellish the surface and physically hold it together. Rather than simply sewing round the edges, it is typically applied in a very ornate manner spreading another layer across the entire surface in a pattern all its own. These conventions are examples of how surface structure reinforces the configuration and adds another layer of visual information. The very different constructions of form and surface operate interdependently. Their successful and effective integration is vital to my work.

While form entails consideration of the three-dimensional physical manifestation of the basic object, surface includes worlds of different materials, colors, shapes and textures. Building up a rich visual and contextual surface is very challenging. Mondrian
dealt with this in a small way with color. Referring back to “Trafalgar Square,” there is a black structural grid, with color bringing attention to the surface. (Figure 1) The way Mondrian applied color near the edges creates a successful visual tension with the larger black and white area in the middle. Miriam Schapiro also creates an interesting blend of form and surface in her piece “Kimono”. (Figure 3) Here the overall form has a strong cultural significance and the surface manipulation of her materials only further enhances that concept. The surface treatment accentuates selected parts of the object and creates a wonderfully rich facade. The multitude of colors, the pleasing compilation of fabrics and the contrasting patterns each work to enrich both surface and form to inform the structure. In Faith Ringgold’s “Tar Beach,” several characteristics are converging. (Figure 4) There is the quilting tradition exhibited in the format, with the actual quilted border combined with the idea of the story quilt. The storytelling or narrative tradition is presented by the text, which illustrates the story quilt notion. Finally, the painting tradition is presented with the scene in the center of the piece. All three traditions come together to create a very cohesive piece rich in content, history, and visual stimulation. “Tar Beach” also uses small aspects from each tradition in a very intimate way. This is not a piece one can analytically dissect and then dismiss. The viewer is invited into a world, a story, to have a personal experience. This interest in viewer interaction is a very minimalist concept. While my work is hardly minimal in appearance, I am very much interested in the interaction between the viewer and the work, so much that a viewer becomes necessary to complete the work.

Someone has merely to enter the room in which a literalist [minimalist] work has been placed to become that beholder, that audience of one—almost as though the work in question has been waiting for him. And
inasmuch as literalist work depends on the beholder, is incomplete without him, it has been waiting for him.19

The reason audience participation is important is the work is constructed to embody and express individuality and the beauty of the human spirit. For the viewer to recognize these implications, a connection, a communication must occur. The pieces often comment on or illustrate different aspects of the human experience, not in the sense of culture or society but of the individual. That is why geometric form and pattern act as such a strong and ideal universal language because they are not limited to any one culture. Therefore, this work should be seen as sacred, for life is sacred and intimate. There is no further intimacy than that of self.

In order to communicate intimacy, my pieces are complete objects, existing independently from one another. They have a personal identity. The surface is treated in an elaborated way so as to suggest that each piece is sacred and precious. The quiet, contemplative surroundings, devoid of harsh flooding fluorescent gives the viewer a sense of revelation intended to invoke veneration and contemplation.

Medieval art is also enormously influential to my work. Many facets of this period interest me. First, there are the inspirational Romanesque and Gothic cathedrals. The beauty of structural order is illustrated so well through these buildings. Another facet of this period is the connection between eastern and western cultures, due to royal marriages between Byzantine and Ottonian or Germanic monarchies. The Byzantine brides brought with them eastern culture which became integrated into the west as open trade and discourse united the empires. The results are evidenced by eastern sensibilities

on the surface of western pictorial strategies. The eastern sensibilities included an interest in surface, geometric design, filling the space and a sense of the object as holy or precious. The western interest in dimensional forms, spatial depth, a focal point, and use of precious materials. This artistic construct is the essence of medieval art and, respectively, the cornerstone of mine.

Another interesting factor of the Medieval period is the Celtic influence. I have a very strong affinity to the Celts because I feel there is great truth in their ideas and a honest purity in their art which celebrates life. The Celts or Hiberno peoples resided in the insular areas of what we now consider the British Isles containing Ireland, England, and Scotland. Although now considered part of western culture, their art illustrates many of the so called eastern sensibilities such as the interest of surface, filling the space and the object as holy or precious. In order to understand the parallel between the Celtic and eastern cultures, it is necessary to analyze the role art had in their culture. The Celts were migratory peoples and their ornamentation was small and portable and could be seen in basketry, textiles, elaborate tattoos, and most importantly metal objects. Typically, they ornamented common functional items such as weaponry, belt buckles, jewelry, purse lids, and utensils. This was not a culture of large sculpture, painting or grand architectural campaigns. Mostly metal is extant from this time-period, which is why Celtic art is often referred to as the metalwork style. The Celts were a simple people not only lacking technological development but also the desire for it. The culture co-existed with nature, as shown through their lifestyle and spiritual traditions. Their spiritual beliefs as manifested through their art, exhibits beautiful complexity proving advanced intellect. Each piece was integral to the function of life and reinforced their cultural simplicity. I
believe this culture exhibits wisdom and artistry as shown through their philosophies and artifacts. The Celts, maintained a spiritual connection to the land and the individual. This tradition illustrates how, “Aesthetic objects, whether for daily or special use, celebrated the harmony rather than the separation, between art and life.”

Referring back to the Celtic artistic style it is easy to see the influence on my work. The actual ornamentation one would find in the Celtic style would be interlace, knotwork, spirals, zoomorphic imagery, champleue, cloisonné, and millefluer. Interlace is a line that would scroll in and out of itself creating an incredibly intricate pattern. Knotwork is the same concept in a more confined space. It was often used to fill awkward spaces, such as corners. Knots were also symbolic. The most common example is the triquetra or triangular knot, which was used to represent the Trinity. Spirals were also used to great extent. The circle was very symbolic to the Celtic people, referring to life and seasonal change. The spiral designs are complex configurations. There is usually a design in the center and then a grouping of multiple spirals radiate in elaborate formations. The triskele or three-legged spiral was the most common, again referring to the Trinity. Champleue, cloisonné, and millefluer are techniques used in metalwork but their visual appearance is also referred to in illuminated manuscripts. Champleue is created when metal is pushed below the surface or incised. Cloisonné is a ring of metal above the surface usually applied in the interlacing style. The areas between the raised metal designs are then filled with colored enamel or precious gems. Millefluer is the process of adhering several rods of colored enamel together, then cutting the bundle. Each slice has a checkerboard appearance. In objects such as illuminated

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manuscripts, artisans would combine all these elements to create an elaborated surface. Art historians have classified this as *horror vacui*, or the fear of emptiness, as every spare inch of the surface is considered. Visually there was an interest in a completely decorated flat space. The Celtic style was not attempting to achieve naturalism or a sense of pictorial space and depth. It was not for lack of knowledge as they did have access to Classical artwork that emphasized a more three-dimensional quality, rather a cultural aesthetic preferring an embellished presentation.

It is the combination of these various elements that compose the Hiberno-Saxon style that we see exemplified in the *Chi-Rho* page of the “Book of Kells”. (Figure 5) The “Book of Kells” is the most illustrative example of the Hiberno-Saxon style and often considered the richest of its kind. This interest in surface, pattern, rich color, scale, meticulous labor, and an overwhelming sense of symbolic content creates a significant effect on my art. These constructs are in fact the foundation qualities of my surface construction.
PATTERN

Another major component of my foundation is pattern, the implications being more profound than one might first imagine. “Walter Gropius and his successors dismissed pattern out of hand, equating surface decoration with moral debasement. They concluded that pattern, being neither functional nor structural, was at best superfluous, at worst subversive. Pattern is still characterized as trivial by many.” These contentions reveal only ignorance of the entire spectrum of knowledge encompassed by pattern. One should be aware that pattern is a serious object of study in other fields like anthropology, psychology, science and math. It does not just belong to the realm of visual art. In the interest of how pattern operates within my work my exploration will deal primarily with the mathematical implications of pattern. “The art of ornament contains in implicit form the oldest piece of higher mathematics known to us.”

“The term ‘pattern’ necessarily implies a design composed of one or more devices, multiplied and arranged in orderly sequence. A single device, however complicated or complete in itself it may be, is not a pattern, but a unit with which the designer, working according to some definite plan of action, may compose a pattern.”

This plan of action would include implementing symmetry. Symmetry is the arrangement of repetitious units on opposite sides of a boundary such as a line or around a fixed-point axis. There are four possible movements of the design unit called motion classes, these movements are used to create and define symmetry. They are mirror

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reflection, rotation, translation and glide reflection symmetry. \(^{25}\) Mirror reflection symmetry is determined by a line, called the line of reflection, through which the original object is reflected. It is not the reproduction of the same unit but rather its mirror image. (Figure 6) Rotation symmetry is determined by a rotation of the object around a fixed-point axis. The amount of rotation can be expressed as a fraction of a full turn or by the degrees of rotation in a counterclockwise direction. (Figure 7) Translation symmetry is a displacement or shift by a certain distance along a determined line, thus repeating the exact unit as it appears, instead of a mirror reflection of it. (Figure 8) Glide Reflection symmetry is a combination of the properties of both translation and reflection symmetries. It is a translation or shift followed by a reflection in a line parallel to the direction of translation. While this sounds complex, human footprints best illustrate and provide a perfect example of this symmetry. (Figure 9) Only through the use of these four motion classes can a true pattern be created.

There are actually only three forms of pattern. \(^{26}\) First, there is the one-dimensional pattern that is also referred to as a linear, band, or frieze pattern. This type moves on a linear path and is often found wrapping around pots and along the upper walls of architecture. This type of pattern allows all four motions classes. While not all are necessary, a minimum of only one is required to construct this type of pattern; all four can be applied within this format. Next, there is two-dimensional pattern, which is also referred to as allover or wallpaper pattern. This type stretches out in all directions and is used to cover large surfaces. This category also allows the use of all four motions classes. Finally, there is infinite symmetry, which is also referred to as rosette or radial

\(^{25}\) Washburn, 44.
\(^{26}\) Washburn, 52.
symmetry. This type of pattern radiates from a single-point axis. It does limit the motion classes by only allowing mirror reflection and rotation. Translation and glide reflection are both based on a linear progression along an axis of reflection, thus unable to function around a point. When referring to the reflection and rotation of radial symmetry pattern the specific terms used are cyclic rotation and dihedral reflections. They are typically translated numerically. For example, C5 indicates a radial shape with five extended parts, like a star, and tells us it can be rotated five times and retain its same form. Another example is D4, indicating a four-sided object, like a perfect square. This has the capability of being divided in half along four different axis noting that each half is a mirror reflection of the other. One axis falls vertically down the center, another runs horizontally and two more, one connecting each set of corners, therefore illustrating the capability of four dihedral reflections. To put these ideas together we can refer to a diagram of my piece, “Anam.” This example exhibits D8 and C8 as a one color, radial pattern in black and white. (Figure 10) It can be rotated eight turns and still retain its same form. It can also be divided in half along eight axis and still exhibit a mirror reflection. However, once I have added color this is no longer true. The color constrains the movements of the pattern to D1 and C2, allowing only one turn and no reflections to retain the same pattern and color sequence. (Figure 11)

After establishing the three forms of pattern, the next question is how many variations there are within those categories. This is when color becomes a factor, simply because it adds another layer of information to be considered. In the one-dimensional form of pattern there are only seven possibilities using one color, like black on a white ground. That does not mean there are only seven frieze patterns in the world. This

27 Washburn, 57.
limitation refers more to how the units are put together, visual variations while limited to the formula, are still an option. "Symmetry does not describe the parts, but how they are combined and arranged to make a pattern.\textsuperscript{28} It has been proven that all frieze patterns derived of one color can be placed within seven different types. Adding another color like black and white on a gray ground forms a two color pattern and this creates new boundaries. Using two colors there are now 17 possibilities within the constructs of the one-dimensional pattern. It is interesting to note that there is no data beyond two colors. One simply does not usually find more than two colors in a frieze pattern so those possibilities have not yet been explored. Looking now at the two-dimensional pattern there are 17 possible combinations in one color. There are 23 with 2 colors, 46 with 3 colors, and 96 with 4 colors. This is the extent allover pattern has been explored, a maximum of four colors. Other possibilities may still be undiscovered. Infinite symmetry lives up to its name and no limits have been provided for this type of pattern.\textsuperscript{29}

It is also interesting to observe how this area of study evolved. This type of study in math originated in geometry, it later developed into a branch called fractal geometry. This subdivision of geometry is the basis of the field of crystallography, which is where these types of relationships are analyzed. Looking to history the Greeks were the first recorded to study geometry. However, the development and use of fractal geometry became more a part of the eastern world, as evidenced by the work of the Byzantine, east India, and Islamic cultures. While these cultures did not actively pursue the mathematical ramifications in the academic sense, their artwork suggests deep geometric content and exploration. Leonardo da Vinci dabbled in the relationships between the two

\textsuperscript{28} Washburn, 55.
\textsuperscript{29} Washburn, 63-78.
fields but did not really explore it fully. The next recorded study on this field was
Albrecht Durer’s book on geometry for artisans in 1525. One hundred years later
Johannes Kepler studied polyhedra and wrote a book on the structure of the snowflake.
Kepler is hailed as the forerunner of the birth and study of crystallography in the 19th
century. Within the field of crystallography, the ideas of pattern began to be analyzed
and investigated. It was not until the 1920’s that information was compiled and made
available. Study has ensued since. It was 1987 before the presence of all 17 one-color
two-dimensional patterns were documented. Meanwhile artists, artisans and designers
compiled collections of patterns together by culture and style, unaware of the wealth of
information in front of them.

It is interesting that although both crystallographers and designers were
describing repeated patterns, neither seemed to take cognizance of the
others’ work. The crystallographers derived the geometry of crystal
structure as a mathematical exercise, but the designers had a practical need
to organize the myriad patterns from home and afar in some systematic
descriptive fashion. Although designers saw the rhythm and repetition
inherent in the patterns, they never discovered that patterns could be more
systematically, precisely and objectively described by their symmetries.

The only artists who have proven an awareness of the inherent qualities of pattern were
Leonardo, Durer, and M.C. Escher. It is ironic that the entire pattern and design
movement was strictly about surface decoration. There was an entire artistic movement
on this idea without the knowledge of its mathematical implications. They did not look
beyond the surface. “In spite of a general acknowledgement of the principle of symmetry
as the most important scientific universal, its aesthetic function and its universal role in

30 Washburn, 4.
31 Washburn, 4.
32 Washburn, 7.
art have not been studied sufficiently." M.C. Escher was instrumental to the exploration of this field. His closest colleagues were mathematicians and scientists. He was the one that really made this connection recognizable to the world. He experienced frustration in the fact that there had been no definitive connection before his work. "If it counts as art, why has no artist—as far as I have been able to discover—ever occupied himself deeply with it? Why am I the only one captivated by it? I have never read anything about the subject by any artist, art critic or art historian; no encyclopedia or art history mentions it, no fellow artist or predecessor has ever been seriously involved in it." I share in his incredulity, and I have shared all this history and background to that end.

My central intent is to explore the human experience. "Pattern making is a key element in the spectrum of human creativity." I interpret this to mean that structure is a fundamental universal. "There is structure underlying all human behavior, this structure can be discovered by orderly analysis, this structure has meaning." I believe it is through this use of patterned structure that I can express the nature of humanity. Many people feel my work is influenced by eastern art and it is, but it is also strongly influenced by their cultural ideologies. Eastern cultures use pattern to symbolically explain life, to present religious and spiritual ideas and to evoke contemplation. They use it to illustrate the structure in all things.

33 Voloshinov, 109-10.
35 Jackson, 29.
36 Washburn, 32.
SYMBOLISM

Everyone assimilates information differently, which is the greatest challenge to the notion of universality. My method for the application of universal symbolism is to integrate as much information as possible to allow for a variety of access points into the work. Because I am trying to communicate a sense of humanity, it becomes necessary to rely on accepted universals. To comprehend how that is achieved one must have a clear understanding of the symbol as a social construct. “A symbol is something that through its nature or appearance reflects or represents another thing more profound than itself.” I employ this construct through the use of color, numerology, and pictographic symbols I have created. The intention being that at least one of these devices will appeal to the viewer, invite them in, and inspire them to explore further.

Meanings of color are determined by their presence in nature. While each color may not enjoy unanimous definitions across cultural lines the generalities typically hold true. Red is found in both blood and fire and thus used to portray the emotions of passion and anger. Green represents life and growth as seen in nature through vegetation, crops and trees. Purple, due to its rarity, is interpreted as royal and noble. Blue is as calm and peaceful as the sky and the ocean. Blue is also seen as divine. “It is the infinite—the void from which all life develops.” Gold is sacred and precious, in nature this is exhibited from the gold light of the sun to the ore in the earth. The nature of white is purity and perfection because it is seen to be all and nothing simultaneously, being both the absence and embodiment of color. To be brown is to be of the earth, humble and

38 Bruce-Mitford, 107.
straightforward. Each color has a rich history of meaning and association. I use this comprehensive palette and draw on multiple symbolic properties of each color.

Numerology is also interestingly universal. "Viewed symbolically, numbers represent more than quantities; they also have qualities." Several cultures have the same associative meanings for numbers though they may have different means of arriving to that conclusion. Numbers as well as colors derive their meaning from their presence in nature. The number two represents opposing dualities such as light/dark, life/death, man/woman, heaven/hell, love/hate, etc. It presents discord and conflict as well as balance and marriage. Interestingly enough, this is another duality. Three is sacred to almost all religions. It signifies connections of birth/life/death, mind/body/soul, man/woman/child, and in Christianity, Father/Son/Holy Ghost. Four is a number of balance. It is a stable foundation of reason and order. This is illustrated through the seasons, directionals, and elements. Six is associated with creation. This is primarily due to the Christian world, as it was created in six days. In other cultures, six is often associated with health. Eight is identified as the perfect number. Mathematically it is the first cubic number (2x2x2). Multiples of this number mark major aspects of the Chinese life from the age one reaches maturity to the time one gains and/or loses the power of procreation. The Buddhist wheel of life has eight spokes for the eight-fold path of enlightenment. Numerology is a conceptual device actively employed in my work. It is considered when laying out the form and helps to determine the scale of the form. It dictates the number of colors, textures, and patterns in each piece. The presence of

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39 Bruce-Mitford, 106-7.  
40 Bruce-Mitford, 102.  
41 Bruce-Mitford, 102-3.
Numerology enriches the work through providing order and unity as well as another layer of conceptual information.

Another symbolic system in my work is one of my own design. Conceptually, it is based on the universal idea of the pictographic symbol. I have created a collection of formalized line drawings I am categorizing as a system of symbols. While it is not comprehensive, it does cover basic human experiences. In the tradition of the symbol, crossover and appropriation are customary. Cultures would often arrive at a similar basic design that may have different meanings, or would 'borrow' designs from a nearby culture and assign their own associations. Some designs and meanings are so specific they are only found in one culture. While other forms are universal symbols with the same associative meaning. These, like other types of universalities, are derived from nature. For instance, a circle with lines shooting out from the center or stacked wavy lines with corresponding motion represent the sun and water. While they are pictographic in the sense that they are simplified drawings of the sun and water, the images still fall within the constructs of a symbol. The symbols I have created work within this human tradition of symbol making. Some are so basic they are established images, such as interlocking circles. Others have been appropriated and reassigned, like the spiral. Most of the symbols are of my design with assigned associative meaning. These symbols are another layer of information. All of the various types of symbolism are used as building blocks within the construct of each piece, each adding another visual and conceptual layer.
THESIS EXHIBITION

The presentation of the thesis exhibit was determined by its conceptual program. (Figure 12) The basic conceptual idea presents the beauty, structure, and development of the individual. The series "Voices" leading down each wall indicates outside influences to be recognized and/or attained. They are essential elements in the construction of an individual. Each work is presented in the form of an offering. They are illuminated to emphasize the important revelations they contain. This progression finalizes in the piece, Anam, which refers to the embodiment of the soul. This complicated and beautiful structure represents those qualities in each human being.

"Voices" are six small pieces coming out from the wall at a 45-degree angle as you enter the gallery space. Three of them are on each side, progressing towards the large piece at the end of the enclosure. They are just that, voices or aspects from our lives that influence us. I have specifically chosen things that are most influential to me. Yet, these six concepts are very basic human cornerstones to which anyone can relate. They are based on the symbols; family, strength, life, divinity, love, and faith. The importance of the number six has personal implications. In my life, there are six people within my inner circle. In addition, the number six is often associated with the idea of creation, which also works well within my conceptual program. The presence of three "Voices" on each wall refers to the religious content of that enumeration. The panels are square; to emphasize the stability provided from each frame of reference as implied by the number four. This arrangement is deliberately chosen. Every object is a part contributing to the whole; the series is intended to work together, as one voice. Each piece has three layers. The symbol in gold, the raised form in browns, and the colors of
the panel. Each layer supports and builds upon the concept presented by the symbol. For example, in “Family” the symbol is clearly delineated in gold across the entire face of the panel. (Figure 13) The raised form is a house floor plan indicating a domestic home. The colors are green on the front of the panel and a brown pattern on the back. These colors refer to the idea of growth springing from a fertile ground. Another example is “Strength”. (Figure 14) As with each panel within this series, the symbol is clearly defined in gold. The raised form here is that of a maze, this indicates the struggle, it takes to achieve such an attribute. The red on the back indicates a passion and desire to succeed in the struggle while the purple refers to royalty, rarity, and nobility of this quality. Every physical decision is significant to its content. This construct holds true for all the “Voices.”

As you progress down the narrow space past the six “Voices,” you are presented with an eight-sided piece centered on the end wall. This piece is entitled “Anam” and it is the focal point of the exhibit. (Figure 15) Conceptually, it is the heart of the notion of self. Through this object, I have attempted to illustrate the human spirit. Anam is the Gaelic word for spirit or soul. It allows me to pay tribute to the Celtic culture whose stylistic influences are invaluable to my work and whose philosophies are the basis of my own spirituality. My interpretation of the human spirit is this eight-sided piece. It had to be an octagon, as eight is the perfect number and this perfection is a gift granted to each individual. It is composed of a complicated structure, which once again refers to the importance of structure and pattern in all things. The complexity of the construction also reflects that quality in each personality. Within this multi-faceted object are the symbols

of self and life. The singular identity (self) and spark of existence (life) and are vital to the essence of the individual spirit and are a constant variable within each of us. The symbol of self is illustrated by the painted imagery of the turtle shell as seen by the concentric pentagonal and triangular shapes. This symbol is also delineated by pattern A. (Figure 16) The symbol of life is the eight-pointed star, which is delineated by pattern B. (Figure 17) It is also highlighted through the texture and sheen within the eight points.

There are three linear or one-dimensional patterns. Pattern A illustrates a weaving design through the complex interchange of both silver and gold lines. This pattern is used to delineate the symbol self. The visual interconnection refers to the intricacies of the individual. Pattern B delineates the symbol of life. It is composed of a gold diamond shaped chain-linked design to illustrate life’s unifying structure. Pattern C does not delineate a symbol but rather brings the other two symbols together. (Figure 18) This is done with a silver pattern that looks like a running stitch. This alludes to the vital yet delicate interconnection between the two symbols. Pattern D and E are radial patterns. Pattern D is a four-sided Celtic knot which is aptly chosen to hold the intersections together. (Figure 19) Pattern E is a Celtic cross configuration, which alludes to the unifying spiritual content as it is positioned as the keystone that holds the entire structure together. (Figure 20)

I learned so much about myself working on this project. Both the artwork and the paper allowed me a chance to crystallize ideas I have been dealing with for years. I have come to a level of understanding and clarity, the very one I am attempting to evoke. If just a fraction of this understanding is gained by the viewer/reader, if I have inspired a second thought to any of these ideas, then I have achieved my goal. This body of work is
intended for everyone. I am inviting you to have a personal experience with my work. To allow the materials, references, and visual forms evoke contemplation of the beauty of the human spirit. To identify that the keystone of this body of work is the knowledge that it is important to look beneath the surface, to see the structure within, recognize its beauty, and appreciate its presence in everyone.
Figure 1. Piet Mondrian
"Trafalgar Square"

Figure 2. Louise Nevelson
"Sky Cathedral"

Figure 3. Miriam Schapiro
"Kimono"
Figure 4. Faith Ringgold
"Tar Beach"

Figure 5. "The Book of Kells"
Figure 6. Mirror Reflection

Figure 7. Rotation Symmetry

Figure 8. Translation

Figure 9. Glide reflection
Figure 10. "Anam" Black and White Diagram

Figure 11. "Anam" Color Diagram
Figure 12. Thesis Show, Overview

Figure 13. "Family"

Figure 14. "Strength"
Figure 15. “Anam”
Figure 16. Pattern A

Figure 17. Pattern B

Figure 18. Pattern C

Figure 19. Pattern D

Figure 20. Pattern E
Bibliography


