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Resonating orders of landscape and construction

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RESONATING ORDERS OF LANDSCAPE AND CONSTRUCTION

by

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A THESIS SUBMITTED
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MASTER OF ARCHITECTURE

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Resonating Orders of Landscape and Construction
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ABSTRACT:

The concentration of the thesis is a study of how resonating patterns of landscape and construction may link a building with its place, producing a physically semantic architecture. Visual data understood by patterns, as documented by Gestalt psychology, offers an approach to relating buildings and landscapes. The potency of pattern resonance is its internal relationship with the site and the program; communicating on a base level due to the experience of the site as a priori. The internal level of communication, which site patterns represent, communicates on one level which is universal (human perception), not requiring previous knowledge of architectural histories or theories.

An analysis of the key qualitative and quantitative orders or patterns of the site and the surrounding landscape documents the salient patterns which may be interpretive re-used in construction. The isolation of discrete patterns of the landscape and the interpretive reuse in the construction attempts to build an integral order to which people may assign "meaning(s)."

The program of an architectural summer retreat is chosen not as a direct corollary to the idea but as one will act as a test/control for the idea. The architectural summer retreat suggests an-other method of viewing functional artifacts (buildings) and the physical context.
Acknowledgements

I wish to thank the members of my committee each for their individual insights relevant to my investigation.

Bill Sherman for his mental creativity in viewing my ideas and focusing them with readings to aided in my undertaking. I am also grateful for his rigorous commitment to architectural ideas and education demonstrated in his time and energy commitment to the thesis program. Also I would like to acknowledge his unique ability to address multiple contexts: the physical, the intellectual, and the ethical simultaneously.

Peter Waldman, I wish to acknowledge his astute ability at synthesizing seemingly desperate ideas and architectures. Also for his faith in my process, ideas, and character.

Finally, I wish to thank the Rice University School of Architecture which fiscally allowed the attainment of a post-professional degree.
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Introduction

The thesis is divided into six sections each approaching the topic differently in an attempt not only to focus on the idea by discussing it from differing vantage points but to also give multiple reasons / arguments of the value of the idea. The thesis is clearly not a linear approach to a reductive study of building, but a study which attempts to illuminate issues on which architectural judgements may be based. The judgement of an architect is not that of a scientist nor of an artist but the architect acts in the middle between the rational diagram and the artful gesture, truly achieving a synergy of mind and soul. So as you are reading, view the text sections as vectors bisecting each other locus of the idea and explore the potential of an architecture which at its foundations has conceived of the value of its being. The being of an artifact within the contextual reality of the "world as lived".

To outline the sections: the first begins with a view of the study of patterns as a means of ordering and conversely a way of seeing and understanding order. Interest in patterns has occurred in multiple inquiries from finite mathematics to Gestalt psychology. Second, patterns of the context are a rational means of understand the stimuli of experience. Construction as extension of landscape seeks to utilize the found orders of contextual patterns with the patterns of construction. The process section discuss the method of previous studies and my current methods as well as structure to evaluate the results. The intellectual context section suggests that patterns which are semantic linking the patterns of construction and landscape which essentially is in the realm of poetry. The final section is a discussion of the programs intentions and physical examples of similar programs.
Patterns

Means of Understanding Based in Pattern
Categorization automatically leads to reductive understanding because it requires focusing on select salient characteristics of the items being studied. Typically, historians categorize architecture into historical movements, functional use, or region of construction. Historical categorization and architectural discourse on intentions often leads to a reductive understanding of architecture. The writer will first reveal this reductive subversion and then suggest an alternative.

The subversion of categorization is illustrated by Scholars often quoting the Chinese encyclopedia for its categorization of things:

This passage quotes a 'certain Chinese encyclopedia' in which it is written that 'animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies'.

The encyclopedia's list links/categorizes seemingly unrelated sets. Unlike the Chinese Encyclopedia's method of understanding, architects and scholars categorize buildings into sets, grouping buildings by common salient characteristics. This selective means of understanding by reduction focus attention on one "arbitrary" salient characteristic of the group of buildings. However, most scholars, because of their historical orientation, overlook the non-concurrent characteristics in artifacts and buildings:

"The problem disclosed by any sequence of artifacts may be regarded as its mental form, and the linked solutions as its class of being. The entity composed by the problem and its solutions constitutes a form-class. Historically only those solutions related to one another by the bonds of tradition and influence are linked as a sequence."

Regardless of the means of reductive categorization, whether it seems logically

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consistent or seemingly illogical, categorization as a method to study limits the allowable understanding of an artifact. To avoid intellectual reduction what alternative is available?

A sequential way of understanding a room's (a building's, or a collection of buildings') patterns attempts to avoid limiting a room's tangible characteristics by providing multiple readings and understandings. The sequential method views human artifacts and natural conditions, not for their intentionality or historically significant characteristic (form), but for their experientially perceived patterns.

Doug Allen, at the Fall 1990 symposium at Rice University, criticized historical intentionality as a means of understanding.

"Savannah's political intention contradicts the merit assigned to the physical reality. The evaluation of buildings, after a period of time, loses the initial intention and becomes strictly evaluated on the quality of the physical environment and the spatial relationships that the building establishes."

As expressed by Douglas Allen, spatial and physical reality of Savannah is more evident than the value latent intentions which are currently deemed socially unexceptable.

Since patterns allow non-categorical interpretation of buildings, and poetic understanding is non-categorical, perhaps patterns offer a means of composing poetic architecture.

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3 Douglas Allen, Rice University Lecture, Fall 1990
Study of Patterns
Because of the perceptibility of patterns as an intrinsic way of understanding, the writer believes, offer a means to poetics between the physical place and the built environment.

A review of patterns commences with an overview of Gestalt psychology. Gestalt psychology shows the role of symmetry and pattern in perception. Symmetry provides order and structure in pattern. According to Gestalt theory, people abstract two types of features from contextual stimuli. The first type of pattern exhibits universal, invariant relations, such as symmetry and orientation. The second type of pattern exhibits distinctive features such as those particular to an aesthetic system of a specific culture.

Because of the erosion of a specific autonomous culture and the development of multiple subcultures, the primary concern of the thesis is a type of patterning which elicits a response from all individuals. As previously suggested, a distinctive feature becomes invariant or universal when based on an *a priori* site transgression.

The discussion of the history of patterns establishes the historical significance of patterns as a means of understanding visual stimuli. The origins of the formal study of patterns began, as cited by Washburn, in 2500 B.C. with the Egyptian use of one and two dimensional patterns (fig.1). Use of patterns, whether decorative or mathematical, occurred in most major cultures.

"Following the Greek construction there is little record of purely mathematical studies for hundreds of years. But the work of Byzantine artisans of Ravenna and Constantinople and their successors in Venice, and the Islamic pattern makers throughout the Mediterranean and east to India, carried on what we must think of as mathematical work." 4

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Tomb ceiling, Egypt.

3.2 Two-color (gray, black) pattern on white background. Painted house decoration, fifteenth century, Cairo. From Christie 1929, fig. 344.

Egyptian Patterns
Figure 1
The study of pattern continues: in the Alhambra's 17 patterns, Durer's book on geometry of 1525, Kepler's studies of 1611, and Owens Jones' *Grammar of Ornament* of 1856. All of these investigations suggest a continual reoccurrence of pattern as a root of aesthetic and mathematical theory.

Two fundamental types of patterns are the centered (one dimensional) and the linear (two dimensional) (fig.2). Remarkably, the two types of patterns are similar to Arnheim's two fundamental formal compositional reoccurrences in architecture, centered and linear.\(^5\) Humans understand themselves through the use of patterns or conversely, humans understand patterns through patterns' relationship with the themselves. Geoffrey Scott, in *The Architecture of Humanism*, eloquently states this principle.

"We have transcribed ourselves into terms of architecture. ... We transcribe architecture into terms of ourselves." \(^6\)

In the 19th and 20th centuries both the development of mathematical sets and fractal geometry originated in pattern theory. Although the sophistication of current mathematical theories exceed the limits of immediate visual understanding relying solely on the rational process of understanding, rooted in pattern theory.

Patterns may be discovered in the relationships of elements on the site. Patterns may be utilized to compose a restatement of the landscape in the building. Restatement in pattern links the building and the landscape, composing a poetic relationship between building and place. On the tectonic level, formal patterns of the site (form, structure, etc) may be restated in the building. However, proportion, material, and assembly patterns subtilely achieve poetic architecture.\(^7\)

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One and Two Dimensional Patterns
Figure 2
"All of these models of an "architectonic" conception of Nature share the fundamental assumption that at some point in history architecture and nature were ideally united as one." 7

But how is the poetic link utilizing patterns accomplished? The combination of patterns (structure, character) of the place may be heightened through a concurrence between patterns of the site and buildings /constructions. An example of concurrence on the landscape is the linear planting of crops which emphasizes horizontal extension (fig.3). A valley is poetically heightened when the concavity of the valley is shaded by vegetation and the verticality is exaggerated by slender upright tree trunks (fig.4). Aalto’s Villa Maria integrates the vertical of the trees surrounding the site and the natural curvilinear forms of the lakes which dot the Finnish landscape (fig.5). The vertical structure of the birch trees and the seductive curves of lake shores are contrasted with the orthogonal nature of the typical city grid and vernacular buildings.

Historically, patterns have been studied from Egyptian times until the present. This continual investigation by its intellectual persistence documents the role of patterns in human thought continually seeking to discover the underlying universality of patterns as a way humans structuring perception. The structure of patterns and the formal structure of architectural composition are similar in their base organization both being understood perceptually in the same way and having the potential to exhibit both universal and distinctive features. The similarity of patterns and buildings structures suggest that a resonance of pattern is one means of visually connecting a two entities. The patterned connection of two entities, pattern resonance, may connect architecture semantically with the landscape. In order to structure a semantic link of landscape and construction the identification of common features of both patterns is necessary.

Aalto's Villa Maria
Figure 5
Perceptually Identifiable Patterns
The salient characteristics of the identifiable site patterns offer the clearest basis on which to construct a patterned link between the site and the building(s).

Christian Norberg-Schulz's scalar criteria provide a means to discuss perceived patterns. Norberg-Schulz divides landscape into three scales: micro, macro, and human. He defines these scales by relief (topography), coloration and texture, and the ground material and vegetation. The relief of the landscape essentially defines closure/extension. Color and texture aid in the emphasis or de-emphasis of the landscape. Finally, vegetation reinforces directionality our sense of space in the landscape. The horizontality or verticality acts to emphasize or augment to the basic relief.8

To facilitate discussion of buildings and landscapes in similar terms the writer would like to adapt Norberg-Schulz's landscape criteria to buildings. Relevant building factors to analyze by Norberg-Schulz's method include: proportions, materials, and assemblies. Proportions define closure and/or extension. Material characteristics include color and texture. Detail assemblies augment buildings as vegetation augments topography.

By adapting common notions to study landscapes and buildings (proportions, materials, and assemblies) we make possible a coalescent evaluation of the natural and built environment.

The writer believes the notions of proportions, materials, and assemblies have been continually represented in buildings, whether architects have intentionally used them. Proportional systems became the overwhelming salient characteristic in the design of Wittgenstein's house for his sister in Austria. Wittgenstein utilized a philosophically based linguistic ideology, but the

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overwhelming characteristic to the non-preconditioned observer is the obsession with proportional systems or reoccurrent patterns (fig.6). Architect Frank Gehry has intentionally studied patterns of "materially". Although material studies were not necessarily the primary or singular intention, the primary perceived character is a patterning of materials (fig.7). Architect Alvaro Siza studies augmentive assemblies, the interrelationship of details. His studies of detail relationships provides a prime example of patterns of assemblies (fig.8).

The analysis of landscape utilizing the developed criteria of proportions, materials, and assemblies allows the translation of the salient characteristics and underlying patterns of the landscape into buildings.
Wittgenstein's Sister's House
Figure 6
Frank Gehry House is Santa Monica
Figure 7
Contextual Patterns

Patterns of the Landscape
Prior to the analysis of the landscape the writer would like to clarify some definitions of size in the existing context. J. B. Jackson elaborates on the differences between landscape and bounded plot or site:

"The most basic political element in any landscape is the boundary. ... We would all agree that insofar as every landscape is a composition of spaces it is also a composition or web of boundaries." 9

Landscape consisting of a large size classification or description of geographic areas of the land. An example of landscape would be one of the plains in the Midwest. The site consists of specific property describing limits both legally and physically with the use of bordering elements such as: fences, tree lines, and/or the underlying continental grided road system.

Perceived sensuous difference recognizes sequence and patterns offering a synthesis of site and program. J. B. Jackson in his essay, "Two Ideal Landscapes", discusses two patterns found in the thesis site.

"When we speculate about the nature of the road in a political landscape we should distinguish between the small, isolated centripetal system, subject to constant change, showing for so little on maps and playing so insignificant a role in history of material progress, and the impressive, widespread, permanent centrifugal system of highways which we associate with Rome and other empires." 10

Rome as a model illustrates one landscape: a radiating pattern of roads which connect each town to the capital (fig.9). The use of a grid illustrates the second ideal landscape, equal divisions of the earth's surface into small units in increasing magnitude and intervals which conform to local conditions of typography and soil conditions (fig.10). The landscape paralleling the Northwest Territories Greenville Treaty line of 1808 mediates Jackson's two ideal models. This hybrid landscape of

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10 Ibid., 22.
Rome - Radiating Roads
Figure 9
Grided Landscape
Figure 10
Jackson's archetypes simultaneously contains both the hierarchical grid and the point to point road system. Forty acres, a base unit of the American landscape grid, comprises the thesis site (fig.11).

The overwhelming political intention which manifests itself in the landscape is the continental grid. Stephen W. Hurtt's article, *The American Continental Grid: Form and Meaning*, discusses the history, politics, and philosophy of America's continental grid.

"America sociopolitical values, however, emphasize liberty and its expression in freedom of movement and assembly, equality of opportunity, change over stasis, infinite and open systems over finite and closed systems, and the individual over the society. If a parallel is made between these societal values and compositional principles in America, then the grid looks very good indeed; it is an open, infinite system emphasizing the equality of it subdivisions and unimpeded movement along it streets"\(^{11}\)

The article emphasizes the political and philosophical dimension of the continental grid and only tangentially relates the intentions to the perceived manifestation.

"Where trees define the edges of agricultural fields, a parallax effect is created as one moves along a rural road. The near layers of trees move by those more distant in a stately and serene fashion, appealing subtly to a classical sense of order."\(^{12}\)

The grid contains many perceptible manifestations. The observer or the academician assigns various meanings to the blatant separation of "natural" read against the relentless "man-made" grid. The academician argues the philosophical underpinning of the intention. Regardless of the preferred intellectual meaning, the grid exists as a common feature of the landscape in all but 13 of the 48 continental states.

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\(^{11}\) Steven W. Hurtt, "The American Continental Grid: Form and Meaning," Theshold: Vol 2 (Autumn 1983) 34

\(^{12}\) Ibid., 37.
"In the open rural landscape, groups of farm buildings and silos cluster together usually on a slight rise. Voluminous and usually white, these temples of agriculture on their acropoli center the surrounding landscape. On a larger scale the denser aggregate of the town similarly operates as a center for the comparatively open agricultural landscape. In the town itself, the town square, so common in America, acts as a final stabilizing center and counterpoint to the unbounded street grid and field of blocks."\(^{13}\)

"Over the past 150 years or so, this pervasive grid has earned the antipathy of aesthetic minded urbanists, an antipathy rarely challenged in our current literature. At best the grid is accepted as an a priori, but unfortunate, condition of American life. It inception is commonly regarded as an unimaginative imposition on the landscape, promoted solely for the ease and practicality it affords land surveying. In sum the grid has come to be regarded as the paradigm of all that is insensitive to both landscape and locale. In both its urban and its rural manifestations, the grid is faulted for being destructive of spatial closure, redundant, relentless, overpowering, anonymous, and even repressive. But the grid has not always been considered negatively."\(^{14}\)

Other intended features of the landscape include the consistent development of "centers". Arnheim in his article, "The Symbolism of Centric and Linear Composition", discusses reoccurring formal relationships of centrotial buildings.

"In a recent book, The Power of the Center, I have tried to show mainly that the theory holds for painting and sculpture. The present essay applies it more explicitly to architecture. ... Centric systems come about in the physical world and also in psychological experience when a field of forces is left free to organize around an internal center. Planetary systems and the atomic model offer examples, and so do blossoms, snowflakes, or in the arts, circular ornaments such as Gothic rose windows."\(^{15}\) (fig 12).

American town landscapes, regardless of the period of development, invariably display one of two formal relationships, centered or linear. The centered city, town, or homestead results from intersections of transportation arteries. Eighteenth century towns in the mid-west embody this formal relationship of intersection.

\(^{13}\) Ibid., 38.


Arnheim  Centered and Linear Composition
Figure 12
typically a waterway and a road. The linear town typical developed along a mode of transportation such as a waterway, road, or railroad line. The fundamental functional determiner of the formal pattern is the dominance of one mode of transportation in the linear organization versus multiple functional equivalent modes of transportation. Although if planned either mode of organization may be employed. When one experiences buildings and cities the fit between the organization and the site seem imperative to achieve a perception of an identifiable place. Cincinnati clearly is a centered city where Houston was planned as and equalitarian grid and developed with multiple centers and strips.
Patterns of the Site:
In this section the discussion of the found patterns of the thesis site and the surrounding context. The site consists of forty acres in central Ohio approximately 50 miles North-East of Columbus. (see figure 11) The site is in Morrow County, Franklin township, Range 21, the north east quarter of Section 2. The Morrow County seat, Mount Gilead, Ohio is located at the crossroads of State Route 42 which was previously named Cincinnati - Cleveland road and a small water tributary. Route 42 diagonally bisects the state and connects the two largest cities of the 19th century and over half of the 20th century. In the 1960's, Interstate 71 which connects Cleveland, Columbus, and Cincinnati supersedes Route 42. Route 42 as it approaches the County Seat of Mount Gilead, straightens its diagonal course through the state and aligns with cardinal North. A Civil War obelisk forming a small rotary at the intersection of Route 42 and Route 95 marks the center of town (fig.13). The surrounding landscape contains both the grid imposed by the ordinance of 1787 and a point to point system (fig.14). The site of forty acres contains three fundamental stages or types of forest development and land use as discussed by J.B. Jackson:

"In Latin these were called, respectively, ager, saltus, and silva: "horrida silva," according to Tacitus. In English they were village and arable (or landscape in the strict sense of the word), grazing or common or wasteland (including woodland), and the wilderness."

In addition to the types of land use the site contains three water sources: a small pond on the North-East corner of the site (fig.15), a creek, flowing north to south, which transcribes the site approximately in half, and a spring which flows into the creek approximately 200' North of the southern property line.

The site has many identifiable patterns ranging from forestation to water systems. The site and its patterns are analyzed and presented in appendices three and four.

\[16\] Jackson, op. cit., 45.
Ohio Landscape Grid/Point to Point
Figure 14
Pond on Site
Figure 15
Construction as Extension of Landscape Patterns
Patterns may not only be found in the context (place) but actually in the building (construction). It is the linkage between patterns of place and patterns of objects which continues the discussion of patterns.

Poetics via Patterns:

Some works which have been consistently identified by scholars as poetic have regrettably the reasons for their poetic quality has never been thoroughly documented. The recurrent uses of patterns which structure the linkage between place and building is evident in the work of Louis Kahn. Kahn's work is a patterning of character and structure which unite place and architecture.

Place in Kahn's work is not specific but rather generally related to broad notions of context. The patterns as discussed in "Notes From Volume Zero", are argued to be related to the inherent patterns of culture and nature.

"The pure geometries of God's Words, such as the Lithocobus geometricus exhibited in Thompson's book, and the Chladni figures of Bartholomew's book, are often found fluently enunciated in Kahn's designs, for example in the overall cubic form of the Exeter Library and the nine square ceiling design overlaid by the "x" of two diagonal beams of its central light court/clerestory pure geometries possesses a self-evident and universal validity of its own, however, as Huff explained, these natural hieroglyphics, God's geometries, contribute to the authority of such forms in his work."\(^\text{17}\)

The patterns are derived from sound movements and multi-cultural reoccurring icons (fig.16). The patterns structure a coherent means of understanding, in the Gestalt sense. In Kahn's British Center for the Arts, patterns of construction are evident in the repetitive bay system, the skylight form-work, the infill panels both interior and exterior, and the form work marking on the concrete. First, the concrete bays establish an universal invariant system on/against which distinctive features may be "read" (the difference noticed). The skylight pyramid forms

Sound Movements and Construction Patterns
Figure 16
mediate the large open "court" spaces. The skylights may refer to the classical pyramid thru trained historic association or may refer to the truncated pyramid forms in the City Hall on Church Street within the context. The spatial quality of modulating a large open space with structural mediation (members) occurs in both the churches on New Haven's green.

The interior and exterior infill panels, although different in fenestration "composition", fit into a series or set of relationships (fig 17). In addition to the set of patterned relationships of openings to solids, the interior panels are constructed of white oak. The interior panels establish a "frame" to which the open\closed patterned variation is contained. In addition, the component parts which are added to the interior panels such as lights and electrical outlets are patterned in a limited number of clear relationships.

The concrete forms used to construct the circular stairwell add construction patterns to the building. The concrete walls are also marked at form tie locations with a zinc plug pattern. Kahn's interest in patterning of construction is one of the salient characteristics of his work. The forms and patterns of construction used in the British Center for the Arts semantically relate to the physical and ideal context. The author contends this is similar to relating the physical place with construction and therefore Kahn's portfolio of built work offers a exemplar of relating construction to place.
Kahn's British Center for the Arts
Figure 17
Process
Methodology
The method of analysis for the study of the patterns of the landscape will be twofold. First, the writer will attempt to explain the formal or quantitative patterns of the site through an investigation of maps and the plans of the context. Second, photographs will qualify the context. The specific photographic images will depict a specific identifiable characteristic which will be "named". Both analyses will commence with a site visit during the summer. This method simultaneously addresses the formal patterns of construction and the qualitative poetic character. The method may seem ill-defined; however, the process remains non-linear, avoiding the limits of a rational process.

The review of previous methods of studying nature proves informative. Various paradigms in architecture investigated methods of analysis. The Bauhaus' Klee and Kandinsky each had unique methods of analysis.

Klee, in his drawing course, sought to reveal the inherent hidden power of forms of both geometry and the free forms of nature. Klee's emphasis on minimal economy of means studied form in an effort to produce a genesis of form, not an imitation.

"If we now work with an understanding of nature, her law; we create like nature."\(^{18}\)

Klee set up a rational ground-work on which "genius" and "intuition" could create like nature/god.

Kandinsky's drawing course was essentially a three part analysis of the dynamics of forces in form. The exercise set up a still life and drew the still, eliminating parts in order to understand the relationships. In the second stage, the forces were discovered in the compositions and were represented by a hierarchy of

\(^{18}\) Howard Dearstyne, *Inside the Bauhaus* (New York: Rizzoli, 1986), 139.
linear forms which suggested their magnitude. The third stage was a drawing of the objects, viewing them as energy-tension and complexes of lines depicting the composition into the greatest simplification of total and individual forces.

After reviewing the two Bauhaus methods of analysis, the proposed method seeks not to invent, a genesis act, but to distill patterns. Kandinsky's method, of heightened expression of forces does offer an example of abstraction of nature into expressionistic formal relationships. The methods of analysis, as stated previously, draw upon both a rational documentation of formal patterns and experiential based perceived characteristics of the site.

In appendix 3 the "named" experiential qualities are documented, they include: filtration, threshold, revelation, edge demarcation, cardinal directionality, Orthogonal intervention, flux, and natural anomaly.

In appendix 4 the quantitative analyses of formal patterns are documented, they include: water courses, forestation, topography, fauna, natural factors, grid analysis, and topographic pattern isolation.
Means of Evaluation:
The analysis of three sensuous experiences which may be described architecturally are patterns of proportion relationships, material relationships, and connective relationships. The success or evaluation of the sequential patterns, the writer suggests, is based on three criteria: the fit between the landscape and the construction, the range or richness of the sequences, and the clarity or perceptibility of the sequence. The method of evaluation along with the analytic methodology allows for a rigorous method of abstraction in addition to augmentation of the clarity, range, and fit of sequences within the landscape context.
Intellectual Context

Poetics as Semantic Patterns
The question of the merit of resonating patterns of landscape and construction will be evaluated. The thesis idea of resonating patterns of landscape and construction links semantically construction with the site. Poetics in buildings are defined as a semantical relationships between the building and the context.

Poetics are based in semantical relationships. Two cognitive models of discussing buildings exist: syntax and semantics. Syntax is the interrelationships of parts (building). Semantics is the relationship of the whole to the greater context. Semantics as cited by Perez-Gomez is in by nature in the poetic realm.

Poetic understanding transcends rational knowledge by tapping non-rational (emotional) response to the perceived environment. *Lebenswelt*, as used by Perez-Gomez and defined by Husserl, is the reality to which poetics respond. *Lebenswelt*, the world as lived, suggests that poetics in architecture may be found not in the internal coherence, the relationship between the parts (syntax), but the relationship between the whole and the world as contextual reality (semantics). Therefore, poetics in buildings are based in the semantic relation between building and the contextual realities. What comprises poetics in the medium of building? Are poetics simply a replication of Lebenswelt (context)? These questions, the writer believes, may be solved in the study of patterns as a precognitive understanding of physical reality and through the analysis of poetic architecture.

Poetics, because of its non-rational nature, is an understanding which precedes rational categorization as cited by Perez-Gomez:

"One result of the crisis has been an unprecedented inversion of priorities: Truth--demonstrable through the laws of science--constitutes the fundamental basis upon which human decisions are made over and above "reality", which is always ambiguous and accessible only through the realm of "poetics".19

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If understanding is potentially embodied in architecture, then perhaps this understanding is most effective when it is poetic. What built relationships instill poetic understanding? Is understanding universal (independent of culture)? Rational architects of the 20th century developed a coherent internal syntax suggesting that understanding existed through entirely rational means. However, as documented in Barnes and Bloorer's article, the "Rational Bridgehead" is not universal from one culture to the next culture. If cultures do not have identical means of understanding, then architecture developed through internal relationships does not necessarily communicate in a similar fashion to all people. If the physical context, the world as lived, is perceived and understood, then an architecture developed to resonate with the existing physical context should be understood by people familiar with that context.

Poetic architecture, due to its semantic character, is rooted in the immediate physical context and therefore varies according to location. Poetic architecture defined as contextual thus conforms to the semantical definition supplied by Perez-Gomez.

Semantics, by definition, is essentially relative. Ruskin expresses a relative view based in semantics. Ruskin's relative view links a nation's architecture to its mannerisms and emotions, suggesting an architecture rooted in context.

"We shall consider the architecture of nations as it is influenced by their feelings and manners, as it is connected with the scenery in which it is found, and with the skies under which it was erected; ... and shall be more interested in buildings raised by feeling, than in those corrected by rule." 21

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The context has a physical and mental dimension. Emotion and manners comprise the human mental context. The physical context consists of the combination of the existing natural landscape and the man-made constructions. The Thesis is primarily concerned with the physical context rather than the other contexts such as historic or cultural contexts not evidenced in physical reality. The character of the built physical context, metaphorically termed "language", is contained in the construction system and expressed through the process of both natural and man-made construction.

During the 20th century architects were concerned with ethical building. As a rational result of the concern architects such as Mies Van de Rohe and other "modernists" intellectually removed the immediate context in search of a "universal" rational system of building. The modernists' architecture no longer rooted itself in a semantic based poetics of a place or a nation but rather "ethics" and "rational" thought guided construction logic. As universal as rational construction seems, "construction culture" is not the same in all regions or cultures.

Louis Kahn in the British Center for the Arts evidenced the non-universality of construction logic. The British Center for the Arts in New Haven, Connecticut, the writer contends, used local steel from the U.S. Steel plant and sophisticated concrete which required the locally available skilled tradesman (Italian immigrants) linking the act of construction to the place and people (fig.18). The ethics and ideas about materials and building were internal to the act of construction at the specific location. The ethical nature of construction might be renamed moral construction. Morals are personal convictions (relative). Ethics are commonly held beliefs (approaching universal).
British Center for the Arts
Figure 18
Poetic architecture suggests a response to the context, designing and constructing in a method commensurate to the act of construction itself. The base act of building may respond to wide philosophical views regarding truth, meaning, and ethics, within the construct of building. However, the internally conceived idea about the act of building is superior to an illustration in syntactical terms of an external idea about linguistics or philosophy. The notion of where an idea is generated internally or external, local relative ideas or universal ones brings up the question of the "locus" of the idea or its starting point. The locus of an idea seems to require a fit with the medium of expression. What ideas should be expressed in a building? Perhaps more importantly, what may be expressed? Should the locus of an idea be internal or external? An internal idea is far less self-conscious and intrinsically more interesting. Architectural ideas generated external to one’s personal idiosyncrasies, the writer contends, is viewed as correct to the observer and does not have the potential of dismissal on the grounds of whimsy or personal indulgence.

Should architecture be understood primarily through experience or via an intellectual process? Intellectual processes analyze the built data in a rational way, transcribing the data into learned categories which have learned meaning. The intellectual process of understanding assumes a base level of knowledge and a skilled process of association of the visual environment with perceived categorical meanings. If architecture were designed to resonate with the landscape through the use of patterns the response would be one of empathy, cognitively allowing users to assign their individual meaning(s).

Poetic architecture is non-categorical, allowing for multiple understandings. Examples of poetic architects, such as Herzog and De Meuron, Louis Kahn, Tado Ando, and Peter Millard are far easier to depict than to describe in categories. This
lack of categorization by critics, theoreticians, and the writer seems to be itself, a precondition of poetics. Herzog & De Meuron seem to express a universal rational system (as known in western culture) simultaneously with a specific site/place poetry (fig.19). In contrast to Herzog and De Meuron, the example cited by Perez Gomez of a poetic architect is John Hejduk. Most of Hejduk’s recent work is expressing cultural memories grounded in cognition rather than the physical site (fig.20). Typically, Hejduk’s projects are sited in a weighted historic context such as Berlin. In order to understand the architectural poetics of Hejduk’s work one must have a prior knowledge of history. This intellectual view seems to have limited potency in our current social dilemma of functional illiteracy and poor education. The lack of historical knowledge makes the process of communication as a means to understanding, labeled currently as "meaning", difficult for a large segment of the population. In addition to knowledge gaps, there exists the stratification of population into groups (demographics), which documents the inability of intellectual process to produce universal understanding.

A poetic architecture based in place seems to communicate based on the requirement of the user to traverse the landscape prior to experiencing the building. Crossing the site becomes an a priori condition on which understanding may be structured.

"The immediate perception of the reality of quality of place is disregarded as a subjective interpretation of traditional urbanism." 22

What method or strategy accomplishes poetry of place? The construction and place may be poetically linked through a variety of means. Contrasting the building with the surrounding is one typical approach. Roman aqueducts which defy terrain, exemplify the contrasting of mans built infrastructure with nature.

22 Perez-Gomez, op. cit., 7.
Herzog and De Meuron Warehouse Building
Figure 19
The contrasting approach seems to emphasize both the condition of the surroundings and the new construction. However, if the contrasting approach is taken as an architectural status quo (socially and academically affirmed) it would reduce architecture to egocentric pieces and result in visual chaos. The status quo model of evaluation suggests that all theories, ideals, or ideas may be tested in relationship to their assumed acceptance and manifestation; not as isolated anomalies but as general practices of which the effects, responses, and communication (user understanding) are evaluated collectively given the existing physical reality. The evaluation of any idea as universally employed may seem implausible in our pluralistic society; however, the use of pluralism to justify ideas seems to defy the basis of theory to "better" the discipline.

"Architectural intentionality was transcendental, necessarily symbolic. Its mode of operation was therefore metaphor, not mathematical equations."23

Although patterns seem potentially mathematical in their use, an architect's judgement of which patterns to manifest and what combination of patterns transcends equations and metaphorically links landscape and construction. The use of patterns offers an inherent visual order, perception based, making patterns an ideal metaphorical means of linking of building and place.

23 Ibid.,
Patterns a Means to Non-self-conscious Architecture
Patterns offer a way of forming a semantic link between landscape and construction, in addition they also offer a means of composing non-self-conscious architecture. The process of distilling patterns reaches internally into the relevant issues of the specific site. The introspective analysis of the landscape and the site consciously desires to understand the issues which characterize the site. The process of analysis seeks an intrinsic design methodology in order to develop an architecture fitting to the site. The process, accepts the existing physically manifested conditions, develops an architecture integral to the site rather than an application of an external idea (the designer's) which is related to architecture or academics in general. An architecture derived from the landscape seeks to develop an intrinsic constructional system with the structural and the aesthetic system bonding the building(s) to the site. The sequential understanding of the pattern of both the landscape and the construction consist fundamentally of perceivable relationships which resonate consistently through the landscape and building. The resonance composes an understanding which is based in the "world as lived" resulting in a non-self-conscious architecture.
Speculation / Test

Program
The link of landscape and construction is an ideology which will provide an example of an architecture based in place. Therefore, the program of an architectural summer retreat seeks to compose an exemplary physical environment which addresses the realities of construction and context.

In some terms this thesis is an antithetical view to current architectural discourse. Regression to the base conditions of perceivable built order, which sequential patterns of landscape and construction fulfill, attempts to clarify the current philosophical / linguistic overtones of the current architectural trends. The desire is to "reform" architecture by presenting an alternative to current architectural discourse which the writer finds removed from physical and perceptual reality relying on intellect construction with no testing of ideas within the "world". The alternative accepts all current buildings and attempts to build upon the known physical reality, not suggesting a universal truth with no relationship to the context. The architectural summer retreat is selected to offer an "other" to the current intellectually indulgent architecture. The program offers a reform in three areas: location, experience, and criticism/evaluation.

The irony of architectural school locating in urban areas when the majority of all new construction is in suburban and rural areas seems to ignore the reality of today's socio-economic environment.

The retreat will offer hands-on experience with a continual building program, similar to Greek temple sites, in which the students will participate in the design and construction. The intention of the program is to re-fuse design and technical issues of building. The decentralization of knowledge which began with the split of the Ecole de Beaux Arts and the Polytechnique in 18th century has rippled through
architectural education and practice removing the traditional responsibilities of structural and constructional considerations leaving only the aesthetic and functional layout.

"The Ecole des Beaux Arts could not simply "restore" what had been lost at the Ecole Polytechnique. To think in such terms is simplistic, but is the fundamental dilemma of contemporary architectural education. The real split between design and building cannot be repaired by beautiful rendering and a superficial reintegration of architecture and the fine arts."\textsuperscript{24}

As a result of the erosion of knowledge of building, architectural schools no longer discuss the actual idealization (design), manifestation (construction), or use of a building; rather, the idea's theoretical meaning with no regard for its perceived and experienced physical reality. It is one goal of the architectural summer retreat program to re-fuse the traditional responsibilities of structure and construction with aesthetics and function.

The current lack of ability to evaluate architecture but rather to criticize the manifestation of the designer's intentions leads to an internalized discourse not grounded in the desires or experiences of the owners or users but rather is involved in a self-conscious view on meaning and the designers personal intentions.

"It is not merely a science of the rule and compass, it does not consist only in the observation of just rule, or of fair proportion: it is, or ought to be, a science of feeling more than of rule, a ministry to the mind, more than to the eye."\textsuperscript{25}

It is far easier to discuss what a rational diagram means than what a building is when experienced. Thus, the manifestation of an idea should not only be discussed intellectually but also will be perceived experientially through the active program of student construction of the physical realities of the buildings.

\textsuperscript{24} Perez-Gomez, cit. op.,

\textsuperscript{25} Ruskin, cit. op., 1.
The suggestion of an approach to study the program consists of discussions of the experiential qualities of two educational institutions: Peter Millard’s and Robert Page’s Skowhegen Art School and Saarinen’s Cranbrook Academy. The approach will evaluate the formal and poetic qualities of the sets buildings and their sites.

The Skowhegen Art School, a summer retreat for New York Artists, held a limited competition for programmatic additions to their existing campus in central Maine. The winning entry was the team of Robert Page and Peter Millard. The Page/Millard entry documents the semantic approach, linking the new construction with the existing campus’ site. Three exemplary semantic relationships are the materials, site integration, and extrapolation of existing patterns.

The materials and construction of the new buildings reuse the materials of the existing buildings in slightly different manners. The character of the existing buildings is one of additive construction. The new library and administration reinforces the additive and formal groupings of the existing site (fig.21). The new buildings use an additive bay pattern of the existing construction.

The existing site patterns of a linear datum of the East-West road is reinforced by the addition of the library and the administration buildings, firmly occupying the experienced center of the campus. The library/administration because of its orientation become foci when moving along the road (fig.22).

The library/administration ties the new construction with the existing construction by extrapolating the existing experienced relationships. The other new buildings link themselves experientially through the use of two visual extensions. The two extensions are the allay which runs North-East and the power line cut running South-East. The use of visual extensions allow connection with the existing campus while maintaining the autonomy of the new construction. The power line cut and the tree-lined allay both intersect at the "centered" library/administration
Perspective View Looking East at Library
Peter Millard and Robert Page  Skowhegen Art School
Figure 22
and the gallery utilizing the natural center of the campus and the centrifugal
extensions to link the new construction to the existing. Geometrically, the group of
studios at the South-East corner of the site maintain consistent relationships with
the power-line and each other, similar to the existing buildings organized about the
datum of the road and each other.

The Page/Millard design was commissioned over four other entries by an all
school member jury for its semantic reinforcement of the attributes of the existing
site. The construction is on-going in an additive manner constantly evolving the
semantic relationships with the existing conditions. Similarly to the Millard and
Page scheme the initial response of Saarinen is based in semantic relations with the
context.

Formally, Saarinen uses landscape to influence basic organization of
Cranbrook. Topography, axial and spatial recurrence, incomplete symmetry, and
tectonic recurrence unite the underlying patterns of nature with the patterns of the
program. Saarinen utilizes the topography for lakes as well as communal buildings
(buildings of importance) placing them on higher elevations. The writer's
contention is the formal patterns enhance the features of the landscape. The use of
axes which intersect "formal" spaces connect discrete spaces visually through visual
extension. The formal axixes play with perspective, foreshortening or exaggerating
distance, replicating the natural occurrence of visual axixes emphasizing their visual
quality. The symmetrical balance of an incomplete symmetry allow the buildings in
the viewer's mind, to have multiple "correct" vantage points. With movement the
understanding is consistently redefined, never allowing one view to become
dominant. Although Cranbrook is traditional in architectural vocabulary, the usage
of traditional tectonic elements such as arcades and towers, departs from traditional
means, becoming a site based idiosyncrasy. The site's mood, or experiential
character, reinforces not only the school's pedagogical stance but also the site's anat emotion.

"The feeling of the rigid grid or scheme has no place within the community; instead there is one of embrasure and fluidity."26

Lastly, Saarinen's use of transitional landscape elements provides a tertiary element, bridging between the complex's angular buildings and the free-form character of the natural landscape through the use of parterres and lakes.

The program in the appendices 1 & 2 outline both qualitatively and quantitatively requirements to aid in the realization of patterns on both formal and poetic levels.

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Bibliography


**PROGRAM REQUIREMENTS: QUANTITATIVE**

Architectural Summer Retreat for 27 students, 4 Faculty, 2 Cooks, 1 caretaker, and one custodian.

<table>
<thead>
<tr>
<th>Library</th>
<th>1,500 sq.ft.</th>
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<tbody>
<tr>
<td>Review / Gallery</td>
<td>6,000 sq.ft.</td>
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**Classrooms:**

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<th>Type</th>
<th>Size</th>
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<tbody>
<tr>
<td>Large (1)</td>
<td>750 sq.ft.</td>
<td>750 sq.ft.</td>
</tr>
<tr>
<td>Small (2)</td>
<td>375 sq.ft.</td>
<td>750 sq.ft.</td>
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**Studios:**

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<th>Description</th>
<th>100 sq.ft per student</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>100 sq.ft per student</td>
<td></td>
<td>2,500 sq.ft.</td>
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**Living areas:**

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<tr>
<th>Description</th>
<th>Size</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dormitories (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 rooms at 125 sq.ft.</td>
<td>1,125 sq.ft.</td>
<td>3,375 sq.ft.</td>
</tr>
<tr>
<td>Commons at 350 sq.ft.</td>
<td>300 sq.ft.</td>
<td>900 sq.ft</td>
</tr>
<tr>
<td>Faculty quarters (5)</td>
<td>600 sq.ft.</td>
<td>3,000 sq.ft.</td>
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</table>

**Service:**

<table>
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<tr>
<th>Service Description</th>
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<th>Total</th>
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<tbody>
<tr>
<td>Mechanical: water, electricity, sanitary, etc.</td>
<td>2,500 sq.ft.</td>
<td>2,500 sq.ft.</td>
</tr>
<tr>
<td>Kitchen</td>
<td>750 sq.ft.</td>
<td>750 sq.ft.</td>
</tr>
<tr>
<td>Dining</td>
<td>1,500 sq.ft.</td>
<td>1,500 sq.ft.</td>
</tr>
</tbody>
</table>

**Total**

|          | 32,475 sq.ft. |
Appendix 2

PROGRAM REQUIREMENTS: QUALITATIVE

Library
Softly lit with spatial choice, small enclosed study spaces, exterior spaces, voluminous light spaces. Elevated both spatial and aesthetical

Review / Gallery
Neutral space with soft North light and maximum display space.

Classrooms:
A choice of focus both internal and external. Room are identifiable in their quality of light and material.

Studios:
Individual autonomy choice of light and control of thermal and illumination environments.

Living areas:

Dormitories (3)
Individual rooms equally sited with shared commons

Commons
Act as spatial and social unifier.

Faculty quarters (5)
Linked visually with studio. Autonomous in emotion while identifiable with other faculty quarters.

Director’s quarters
Extraverted spatially not in a hierarchical position.

Caretaker’s quarters
Strong, dominate, acts as threshold.

Service:

Mechanical:
Efficient, utilitarian, and cleanable.

Kitchen
Efficient identifiable functionally.

Dining
Eastern, Western, and Southern light.
Appendix 3  Patterns of Experiential Qualities
Filtration
Threshold
Revelation
Edge Demarcation
Cardinal Directionality
Orthogonal Intervention
Appendix 4  Quantitative Formal Patterns
Land division of the State of Ohio based on the Greenville Treaty of 1788.
MORROW COUNTY, OHIO

Before 1848

A recent highway map, with the townships divided to show the jurisdiction of Morrow's "parent counties":
RICHLAND = northeast
KNOX  = southeast
DELAWARE = southwest
MARION = northwest
Grid Analysis  Morrow County
Point to point "vector" analysis  Morrow County
Grid Analysis Franklin Township

Point to point "vector" analysis Franklin Township
Water Courses  Franklin Township

Franklin Township Road and Land Divisions Map

FRANKLIN TWP.
Water: Flooding, Swales, and Spring
Forestation: Edges, Clearings, and Walnut Orchard
Topography: Valleys and Ravines
Fauna: Grape Vines, Ferns, and Groves
Appendix 5

Visual Documents Drawings and Models
Appendix 6

Postscript

The thesis reviewers included my committee of Professors Sherman, Waldman, and Parsons. The guest reviewers were Michael Rotundi of SciArch and Michael Benedikt of the University of Texas at Austin. The reviews I believe feel uneasy due to the clear disparity in the attitude of the work, one which I would describe as emotional, sensuous, and poetic versus the linear rational method of presentation.

Overall I feel the project due the reviewers desire to give merit to the thesis on the quality of the artifact. The experience of the project was compelling and I believe that the subtle relationship between construction and landscape provides a semantic link between man-made constructs and the physical place. Finally the thesis enabled me to develop of my architectural judgements.