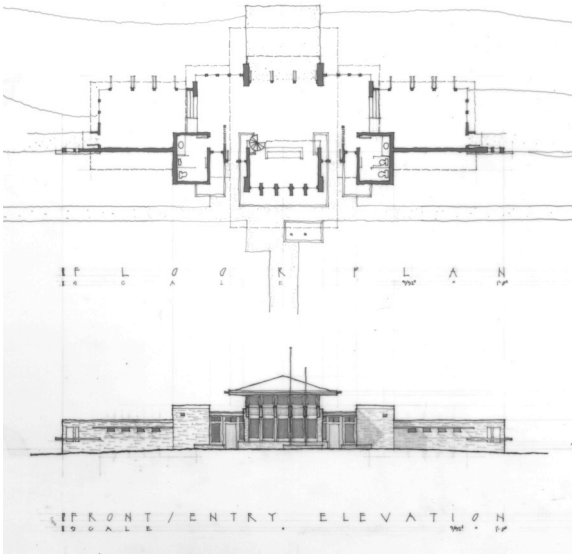

THE NATURE OF ORGANIC

An Inquiry to Direct the Organization of Practice

THESIS SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL OF THE UNIVERSITY OF MINNESOTA

BY

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THESIS OUTLINE

THESIS ABSTRACT

The theoretic issue of this thesis is the formulation of a hypothesis for a definition of organic architecture through the study of past and present architects who "initiated" and carried forth its principles.

The architects studied were those involved in the early modern movement including Louis Sullivan, Frank Lloyd Wright, William Gray Purcell and George Grant Elmslie, Alden B. Dow, Paulo Soleri, and E. Fay Jones. Precedent study "styles" included Prairie School, Arts and Crafts, and Art Nouveau projects that deal with organic ideals. The readings of John Ruskin, Horatio Greenough, Francis Schaeffer; dictionary definitions; and various references from the Bible were also used to develop this thesis. The result of these studies will lead to the development of a personal philosophy of architecture based upon an organic understanding.

The architectural design vehicle used was the design of a track and field training facility in the Ozark foothills of northwest Arkansas. This facility is a remote retreat for 'up and coming' and elite track and field athletes to experience a time of focused training and evaluation by using the physical facilities and equipment available, participating in teaching sessions, and by receiving attention for recovery from injury in a non-distracting rural environment. Precedents that were studied included the U. S. Olympic training complex in Colorado Springs, Colorado, the National Sports Center in Blaine, Minnesota, and numerous facilities experienced by the author in competition. Additional information was acquired through discussions with coaches, facility designers, and fellow athletes.

The site chosen for this project is in the Ozark National Forest at Weddington National Park in northwest Arkansas. The site is fourteen miles west of Fayetteville and is situated on the northeast and east side of Lake Weddington bounded by the lake, a state highway, and hills. It is a wooded site consisting of mature pines and oak trees and sloping to the lake and to the southwest. The site also incorporates an earth dam, waterfall outlet, and water treatment facilities consisting of two square reservoirs. The context is rural farmland and forest with the nearest town fourteen miles in either direction, east or west. The park, which is adjacent to the site, is a common spot for picnics and recreational activities. It offers a beach, picnic and camping grounds, boat rides, and a variety of hiking trails.

THEORETIC INQUIRY

A. WHAT IS ORGANIC ARCHITECTURE?

This section will lay the groundwork for establishing a definition for organic architecture. The following are general definitions. The definitions are broken down into three sections. The first section gives dictionary definitions of words derived from the root word organ. In sections two and three the term organic architecture is broken down into two subgroups, "Parts to the whole" and "Nature", and a brief understanding of each is given.

1. GENERAL DEFINITIONS

a. Dictionary Definitions

The Webster's New Collegiate Dictionary defines organic in the following manner:

Organic:

- Of or pertaining to an organ of a system of organs; specif., pertaining to the internal organs of the body; as, organic changes in emotion.
- a. Having systematic co-ordination; organized; as, they formed an organic whole. b. Pertaining to, or inherent in, a certain organization; constitutional; not secondary or accidental.
- Biol. Pertaining to, or derived from, living organisms; exhibiting characters peculiar to living organisms.
- Chem. Pertaining to or designating the branch of chemistry which treats of the compounds of carbon.
- Law. Designating, or pertaining to, the law or laws by virtue of which a government or organization exists as such.
- Med. Affecting the structure of an organism.
- Philos. Possessed of a complex structure comparable to that of living beings.

Organ is defined in part as:

- A wind instrument, in its complete modern form the largest, most powerful, and most varied in resources of musical instruments, consisting of from one to many sets of pipes, sounded by compressed air, and played by means of one or more keyboards.

- A part or structure in an animal or plant adapted for the performance of some specific function or functions, as the heart, kidney, etc.
- An instrument or medium by which an important action is performed or ends accomplished...

Organism is defined in part as:

- Philos. Any highly complex thing or structure with parts so integrated that their relation to the whole governs their relation to one another.

Organicism is defined as:

- Philos. and Biol. The doctrine that life and living processes are the manifestation of an activity possible only in virtue of the state of autonomous organization of the system, rather than because of its individual components...

It is clear that the phrase that represents organic architecture, "relation of parts to the whole", is represented in these definitions. The analogy of a business or some type of "organ"-ization (club, team, etc.) is appropriate in that there is a common objective that each of the participants are striving to obtain. The basketball team is practicing to execute plays efficiently in order to play to its potential and win games. The business firm is organized in such a way so as to provide the best product at the most economical price. And the group or club may be centered around the study of a certain topic for common enrichment in a chosen subject area. In all these models there is a single goal that is the organizing catalyst and as a result a hierarchy may be established.

b. Parts to the Whole

The generating idea is reflected in the end product (whole) and each step (parts) along the way, each component of the composition, adheres to the framework of the generating idea. Thus, each component is important and also is related to other components. The example of a family will illustrate this principle. Each member of a family is an individual and unique, yet there will be certain physical features that will cause one to say, "they must be related". Location can be an indication of a family. A family is a unit where all members may be in one place. A family is also identified by its common last name. The generating idea is the "common last name" among the individual parts and is the glue of relatedness that the observer can comprehend. This relatedness can provide a base from which a project of integrity can grow.

The question concerning design in this discussion is the choice of medium to use in order to

express this relatedness. According to this definition, organic architecture is not necessarily "of the earth" with respect to materials, shape, or proportion. Bruce Goff defined organic architecture as "that which grows from within outward through the natural use of materials so the form is one with function as directed and ordered by a spirit".[1]

c. Nature – of the earth

Under this definition, organic architecture is an architecture that is derived directly from nature in the following ways.

Materials - using materials from nature without significant alteration. These materials include wood, stone, soil, sand, and water.

Forms - creating forms that reflect the form of the surrounding landscape and its features. For example:

- Landforms are expressed in the form of the Prairie houses and the houses at Sea Ranch in northern California.
- The structure of a building can be derived from studying trees.
- The geological structure can be imitated and extended into the building such as in Falling Water by Frank Lloyd Wright.

Laws - obeying the laws of physics (do we have a choice?). There are certain parameters that cannot be transgressed in order to construct a built structure. These laws can be studied to gain insight into new solutions to design. There also exists the consistency of time expressed in the cycles of nature. Without our trust in these laws there could be no progress.

Nature is a combination of infinite variety (suggesting no rules) and rigidity (the result of laws). I would propose that nature is primarily made up of rigid elements and it is in their various combinations that variety is attained. This is also reflected in life in the need for absolutes. Without absolutes there is chaos. These absolutes are a direct derivative of the nature of God. William Curtis states the following,

"...[Antoni Gaudi] believed that the material qualities of architecture must be the outer manifestations of a spiritual order. He intuited the presence of this order in structures of nature that he felt to be a direct reflection of the divine mind. The 'laws' of structure, then, were not mere laws of materialist physics, but were evidence of the Creator."[2]

2. AS DESCRIBED BY ARCHITECTS AND HISTORIANS

This section is a brief study of selected architects who claimed that they practiced organic architecture. In presenting each architect, there is a biographical overview, then a discussion of his philosophy and words and finally some cogent personal observations of that architect. The sources of information are from the architect's own writing and form historians writing about each architect.

a. Sullivan, Louis Henry (1856-1924)

Biographical Overview

Louis Sullivan was born in Boston, Massachusetts in 1856. From the time he was five years old until he was fifteen he lived on the family farm with his maternal grandparents. Narciso G. Menocal states in his book, Architecture as Nature, it was during this time that his "...lyrical instincts were allowed to develop properly by uninhibited contact with the land..."[3] as he made "...his surrounding world the object of his imagination"[4]. Menocal also states that "such a pervasive influence was nature in Sullivan's childhood emotions that he came to conceive it as a transcendent totality when he was only fourteen"[5]. Young Sullivan came to appreciate the relatedness of the human body and it's structure with built forms around him. This would prove to be the beginning of the foundation for a biologically based architecture, an organic architecture. "Eventually, Sullivan's intellectual development acted on his innate romanticism, and made him fuse his concepts of the visible world and of self into one single sense of cosmic unity intimately apprehended."[6]

When the family moved to Chicago in 1868, after selling the family farm, Sullivan stayed behind to finish up his schooling (in music education) while he boarded with neighbors. After this he studied architecture at the Massachusetts Institute of Technology for one year before entering into his career. He worked for Frank Furness in Philadelphia for three months but as a result of a declining economic situation he was forced to move to Chicago where he worked for the leading architect of that region, William LeBaron Jenney. In 1874 Sullivan went to Europe to study at the Ecole des Beaux-Arts where he finalized his formal architectural training. He spent time in both Italy and Paris and was particularly impressed with the work and art of Michelangelo. In 1876 he returned to Chicago and eventually set up partnership with Dankmar Adler in 1881 and they practiced together for the next fourteen years until 1895. The latter part of Sullivan's career was occupied primarily with his writings on architecture and democracy.

Philosophy and Works

The foundation of Sullivan's philosophy of life and therefore architecture is summed up in the following statement taken from Architecture as Nature. "Man is a hero who surrenders his individual volition to nature's supreme will and who understands that a sublime joy lies in that submission"[7]. Therefore, "man must form an intimate bond with nature"[8].

Sullivan was strongly influenced by the theory of evolution by Charles Darwin. Darwin's Origin's of Species was undoubtedly receiving great attention at this time as it was first published in the 1859. With the emergence of science and knowledge into the forefront of modern thought (as opposed to a worldview based upon Judeo-Christian principles) evolution became a cornerstone to this philosophical thought. Today it is called a humanistic worldview. Sullivan also stated that true art must be based upon scientific methods. His biologically based architecture became a form of nature worship (he extensively used the book Gray's Botany). These beliefs were also held by the Chicago architects Adler (Sullivan's partner) and John Root and were based on the evolutionary interpretation of architecture by the German, Gottfried Semper. In light of these interpretations "past architectural forms....had been made extinct by new functions of modern life..."[9] These functions of modern life (along with the environment, states Root) are what should produce the form of a building.

"Form ever follows function and this is the law."[10] This is the most notable statement from any of Sullivan's work and perhaps in all of architecture. "Where function does not change form does not change."[11] These phrases point toward the notion that life (and architecture) is recognizable in its expression. "Beauty, [is reflected in] the exquisite spontaneity with which life seeks and takes on its forms in accord perfectly responsive to its needs. Life and form are one....so adequate is the sense of fulfillment."[12] Form and function are not two distinct entities. They are one and inseparable. The form cannot take shape without the function and the function cannot be realized without the form. Sullivan further stated, "Shapes express the inner life, the native quality.... so characteristic, so recognizable, that we say, simply, it is natural...".[13] It is Sullivan's desire that this could be said about the American built environment and in this way create an architecture that is distinctly American. Everything has an identity, therefore an American architecture should reflect and express the nature of its people, their personalities, and their way of life.

Sullivan's actual work embodies the attributes of an organic architecture in the following ways (paraphrased from Architecture as Nature):

1. *By evoking a form - such as the vertical shafts of one of his buildings evoking the form of a tree standing tall or, as Sullivan wrote about from his childhood, the supports of a suspension bridge reflecting the form of the supporting arms of his father.*
2. *By being emblematic - such as stylized stars or the simple cubic tomb. Much of Sullivan's*

work is abstract

3. *By representation - such as the architectural representation of anthropomorphic rhythm of muscular movement seen in the panels of the Wainwright building representing structural stresses.*
4. *By acting as a reminder for that which is natural - such as in the vast array of colors that he incorporates into his ornamental work which remind the viewer of the colors of nature.* [14]

Sullivan stated, "Such symbolism would not only make buildings a counterpart of nature but would also evoke in man the sense of his own dignity as a work of nature."[15]

Personal Observations

- Within the problem lies the solution
- Life and form are one and when this is expressed there is a sense of fulfillment.

b. Wright, Frank Lloyd (1869-1959)

Biographical Overview

Frank Lloyd Wright was born and raised in rural Wisconsin. He spent much of his time at the family farm in Spring Green and it is here that the foundation of a love for nature was developed. His parents also sought to educate him with the Froebel kindergarten toys that developed in him a sense of three-dimensional space. As well as this understanding of three-dimensional space, Wright also acquired a comprehensive knowledge of materials and an intuitive understanding of structure and how buildings work. The history of Frank Lloyd Wright's life is well documented and therefore I will not relay the specifics of the chronology of his practice in architecture. After working for and acquiring a solid architectural and organic understanding of architecture from the office of Louis Sullivan, Wright began his own career that was divided into two major phases. The first was from 1893 through 1910 and and was highlighted by the prairie houses of which the Robie House is the prime example. The second period, from 1935 until his death in 1959, Wright explored a wide variety of architectural ideas. The most notable examples of this period are Falling Water, The Johnson Wax Building, Usonian houses, and the Guggenheim Museum. In between these two periods Wright spent most of his time in Europe where he produced publications of his work and in Japan where he designed the Imperial Hotel. The Orient had always been intriguing to Wright, in part, because of the understanding oriental people have of the place of man in the natural environment.

Philosophy and Works

It is perhaps impossible to give a brief synopsis of the principles of architecture of Frank Lloyd Wright because he was the champion of organic architecture he has written much about the subject. Yet this review will seek to highlight some of his foremost principles. These include the principle of continuity, simplicity and his attitudes toward society.

Wright defines architecture in An Organic Architecture as "that great living creative spirit which from generation to generation, from age to age, proceeds, persists, and creates according to the nature of man and his circumstances as they change".[16] He was strongly influenced by Louis Sullivan's ideas about architecture. Sullivan found inspiration "in nature, in forms growing and shifting and intertwining, displaying the great principle of continuity".[17] It is the principle of continuity that Wright was to base his architecture upon. Continuity is a word that is directly derived from an organic ideal and suggests the movement of one element or idea into another creating a deep and varied composition. The elements of nature display this idea of continuity in that everything is tied together and that there is a give and take in a seemingly random yet ordered composition. This idea of continuity also suggests that some sort of link ties all the elements of a composition together. An imaginary picture of elements connected by a string may be an appropriate model to consider. The string acts as a device that provides continuity leading from one element to another. This continuity provides a unity to a composition and thus an organic composition.

Both Sullivan and Wright also sought for simplicity in design. Sullivan has stated that, "to think is to deal in simples with an eye to the altogether."[18] This simple idea was in part due to the growing eclecticism of the Victorian houses that displayed a cluttered appearance in both interior design and applied ornament. Wright stated in An Autobiography that the houses of the Midwest were the handiwork of the woodworking man and that the house had no respect for the site on which it was located. He continued, "there was a need for a new simplicity, an organic, unified simplicity."[19] In The Natural House Wright stated that "organic simplicity might everywhere be seen producing significant character in the ruthless but harmonious order-nature".[20] And also that there is a need for "a hunger for reality, for sincerity, for a simplicity that would yield a broader deeper comfort."[21]

The synthesis of these principles

> *"enabled him to create an architecture that was, in his word, 'organic'; an architecture that seemed to grow inevitably from the function and the site and was free and continuous enough to unite the inside and the outside and give the whole complex a unity, a unity that seems to grow and is capable of continual change."*[22]

Some of the physical results of this simplicity were the removal of unnecessary walls and ceilings. Wright sought for the elimination of the insignificant, the elimination of the background in favor of an integrated whole. This would allow for a pure reading of the architecture and an opportunity to understand the beauty of the natural use of materials.

Simplicity, the thoughtful use of materials, and the quality of craftsmanship, all qualities of the Arts and Crafts movement, influenced Wright also. William Curtis states in his book Modern Architecture that Wright's development for the prairie houses was

> *"an endless experiment in which each new task allowed the extension and refinement of principles... Wright's domestic ideas were obviously stamped with Arts and Crafts values of the sort which encouraged restrained simplicity, the honest and direct use of materials, the integration of the building with nature, the unification of fixtures and fittings, and the expression of an elevated moral ideal."*[23]

The architecture of Wright also reflected a concern for the society. The United States was becoming an example of a new kind of democratic society and Wright sought to demonstrate this in his architecture. As the word organic implies that each element of a body is significant, he stated that there should be a different style for every person and that every location should produce its own identity. The son of the owner of Falling Water, Edgar J. Kaufmann, said of Wright that he "understood that people were creatures of nature, hence an architecture which conformed to nature would conform to what was basic in people."[24]

In summary, according to The Nature of Frank Lloyd Wright, Wright's architecture was a "delicate balance of convention and nature, of the general and the particular, and of abstraction and representation."[25]

Personal Observations

- Buildings should be an integral part of the landscape.
- Geometry is an important synthesizer in integrating nature with the built environment.
- The form and the function are one.
- A design evolves from its site. It is not a preconceived thing.

c. William Gray Purcell and George Grant Elmslie

Biographical Overview

William Gray Purcell and George Grant Elmslie were partners in Minneapolis from 1909 until 1922. They both received their training in Chicago as part of the Chicago School of architects.

Purcell was raised in Oak Park, Illinois and was strongly influenced by the work of Frank Lloyd Wright. Elmslie worked for Louis Sullivan for twenty years where he was the chief draftsman and did most of the design of the ornament for Sullivan's projects. Purcell joined him for a period of five years and the two begin formulating the friendship that would eventually lead to their partnership. Their architecture was a statement of progressiveness in which their works reflected a view toward a new design based upon a democratic ideal.

Philosophy and Works

The work and philosophy of Purcell and Elmslie is illustrated in three issues of Western Architect published in 1913 and 1915. In these issues the architects were given complete freedom in planning the publication including lettering, border ornament, text, and picture layout. In keeping with the principle that organic ideals stretch into all areas of life and practice Purcell and Elmslie were able to demonstrate this in these publications. Each part of the publication is important and has the ability to contribute to the whole of the image and "meat" of the product. David Gebhard states in the introduction to the Work of Purcell and Elmslie, Architects, "While all the work of Purcell and Elmslie forms an integral whole, whether it be their buildings, their writings or their designs for the printed page, still each exists independently in its own right."[26]

According to Purcell and Elmslie the unity of life is divided into two phases - the static and the dynamic. The static is that which does not change including that which is pervasive, universal, and eternal. These represent the mind and the mind is that which is common among all men. The dynamic is that which is joined with the creative spirit, it changes with every process of nature. The characteristics of the dynamic are also eternal and include the will, the heart, and the soul. These characteristics represent the spirit of man. The will, heart, and soul give man his uniqueness and individuality. Stated another way the static represents universals and the dynamic represents the particulars of life. Therefore, it is the mind that is common amongst man. He has the same basic nature in any part of the world yet it is the spirit of man that distinguishes him from another. The work of his hands will prove this in that given the same problem there will be a diversity of solutions according to the spirit of the individual.

"The work reflects the soul of man." This phrase is used in the argument against borrowed styles that were prevalent in that day. A quote from Western Architect states, "The dynamics of our architecture should be our own, not neoclassical, not a borrowed style."[27] Purcell and Elmslie were perhaps the most "enthusiastic propagandists" for an American architecture. The United States was a nation of new minds and fresh approaches and therefore it was inappropriate for their architecture to be one of a country not their own. A new, distinctly American architecture had to be developed. It is through recognizing the static and dynamic of human nature that

this could be achieved. Styles and precedents should not be the sole source of design ideas for buildings, but rather, the characteristics of the owner, the inhabitants, the site, the contributors (including the engineer and the artist), and the architect should all be studied. In this way the solution will be wholly unique and true to the program established.

Artwork (architecture) may be defined in terms that correspond with life itself; therefore it can also be divided into two phases - the static and dynamic. In architecture, need defines the static and product defines the dynamic. Buildings all have one thing in common and that is structure. The laws of physics do not change. Therefore the structural forms are static and the play upon those structural forms is that which is dynamic. The basic goal of architecture, a utilitarian one of providing shelter, is concerned with structure. It is how the structure is manipulated, embellished, and enhanced that gives individuality, identity, and meaning to buildings.

To bring this into a more complete organic synthesis there must be coordination between the statics and dynamics of the person and his architecture, a coordination of the structure and embellishment. "When coordination is complete, the work of his hands is complete, vital, organic, [and] intensely human."[28] All aspects of man's characteristics are reflected in architecture. It is the goal of Purcell and Elmslie to bring into the design arena all the factors and to identify the static and dynamic contribution of each and form a balance among these in order to arrive at a solution that is in every aspect organic.

The prime example of Purcell and Elmslie's work is the Lake Place House in Minneapolis designed in 1913 for Edna Purcell, William Gray's wife. The house is a statement about continuity and the integration of nature and dwelling. Mark Hammons, writing a review of the house in the May/June, 1988 issue of Architecture Minnesota, says this about the house.

> *"The form and plan of Lake Place, its materials and the shape into which they are wrought, are embodiments of consciousness. Being aware of how these physical elements mirror the workings of the human soul is essential to the organic architectural philosophy of which the house is an expression."* [29]

He further states,

> *"In the organic way of understanding, we know a thing by what it does. 'Nouns are the ashes of verbs,' Purcell was fond of saying. Lake place is a 'thing-in-motion,' an architecture that makes our experience of the house an encounter with the ideals of the progressive era as well as the personalities of Purcell, his family, and George Elmslie. Entering the house is to come within the influence of the form that expresses this philosophy. To the progressive*

architects this process was the fundamental power of nature, the way everything worked (hence the organic metaphor)." [30]

This house is truly a balance of the statics and dynamics of architecture. The first look at the house reveals its faithfulness to the static qualities of structure in the way that it relates to the ground firmly and in the readily perceptible understanding of how that structure works, i.e. post and lintel. This is enhanced and reinforced, in a dynamic sense, by the ornament that is integral and derived from the structure and programmatic influences.

The following are two quotes from the Western Architect that will help to define the worldview of Purcell and Elmslie.

"Humanity is ... coming into the age, into its final aspect, wherein the most complete expression of man in his environment, with the aid of the mighty machine, is to be worked out in the arts and industries of the world."[31]

"The freer the citizen, the broader and simpler the spiritual outlook; the broader and simpler our conduct of business; the greater and nobler our art will be."[32]

Personal Observations

- There are physical laws that must be obeyed yet they can be an opportunity for design.
- The primary design source should be derived from the dynamic qualities of a specific site, client, culture, etc. This will create a distinct architecture.

d. Dow, Alden B. (1904-1983)

Biographical Overview

Alden B. Dow was born in 1904 in Midland, Michigan. He studied engineering at the University of Michigan and later pursued and obtained an architectural degree from Columbia University in 1931. He studied under Frank Lloyd Wright at Taliesin in Wisconsin for the summer of 1933. The tour guide pamphlet for the works of Dow in Midland states that it was at Taliesin that he learned of Wright's "...passion for the relationship of nature to structure and buildings to people and their environment." After his return to Midland, Dow embarked on his fifty-year career designing many homes, churches, school buildings, and other commercial buildings. He had the unique and enviable position of being the son of the founder of the Dow Chemical Company, Herbert Dow. The Dow Chemical Company began as a family business and therefore there were many "well-to-do" relatives with housing needs. The company provided a

substantial financial base for the economy of Midland and provided the support for many of the amenities that are there today such as schools, centers for the arts, and other facilities, many of which were designed by Dow. The tour pamphlet states that the city of Midland is a "unique architectural island and the only city in the United States - possibly the world - that has been so profoundly affected by a single architect."

Philosophy and Works

The primary source of information about Alden Dow is from the book of works that he published in 1970 entitled Reflections. The book is divided into three sections: The Thought-pattern of Composed Order, Accomplishments, and Way of life. These sections delineate his philosophy of practice that is very organic. Herbert Dow, Alden's father, was quite interested in plant life. It was common for the Dow household to continually have an arrangement of some sort on the dining room table. The flowers that his parents tended and the various arrangements that his mother designed influenced Alden Dow. These floral arrangements became inscribed upon Dow's mind and prompted him to consider the possibilities for design and beauty that could be achieved through a variety of compositions. "The individual flower, though beautiful in its own right, was enhanced by its position with the other flowers."[33] This, in part, led to Dow's realization that order need not be rigid and dogmatic.

Out of this experience, and probably others, Alden Dow conceived of the design principle of Composed Order. Composed Order is the arrangement of qualities into their most effective form. This principle, states Dow, constitutes a philosophy of ideation applicable to all human efforts. In life as well as in design there must be laws. Without them there is anarchy. These laws must be used, not as an encumbrance, a list of do's and don'ts, but as a guide to facilitate the enhancement of an idea, to build upon an established and accepted foundation.

The Basic composing concepts (laws) of Composed Order are as follows[34]:

1. *The primacy of individualism - Each and every individual is unique and therefore generates unique and individual creative solutions. There is value in considering the input of all involved on the design team. As a result, each individual must know his responsibilities and fulfill them to their highest potential. The individuals include everyone involved, from the electrician to the janitor, and from the architect to the owner.*
2. *The evaluation of ideas - Just as it is true that each individual has worth and his ideas are worth considering it is also true that not all ideas are good ones, worthy of being implemented into the composition. "The test for ideas is its degree of harmony with all other factors in the synthesis and on its pleasing relationship with the environment into which it is placed."[35]*

According to Dow, there are three tests that must be given in order to evaluate an idea. They are:

A. *Does the idea have "growability"? Does it spark the generation of other ideas? Can it feed upon itself and grow?*
B. *Does the idea produce human quality? Architecture is man's creation to satisfy his needs for shelter and also, as Eero Saarinan has stated, "...to enhance man's life on earth and to fulfill his belief in the nobility of his existence..."*[36]
C. *Is the idea honest, compatible, and full of promise? Some may argue that this will produce a stagnant architecture. I would propose that in adherence to principles such as these there is an expansion of freedom to create in an orderly and functionally satisfying manner.*

3. *The importance of creative leadership - All human efforts require leadership, a balance of positive input and individual achievement. It is impossible for one person to fulfill all that he sets out to do, in life or in design. It is therefore necessary for him to both be a leader and to submit to leadership in order to get the required help to complete the task before him. "The leader must see beyond today to give birth to a 'growable' idea."*[37] *This is the creative aspect. With the contribution of others, the idea will continue to develop and grow as one idea will generate another. The organic nature of composed order leadership encourages changes that improve its effectiveness yielding the most effective form.*
4. *The test of "pleasantly relating" - "Composed order recognizes that there may be many good answers put together in a variety of ways and that truly great results come from organic or 'growable' ideas onto which smaller ideas can develop."*[38] *In order for these ideas to "adhere" to each other they must "pleasantly relate" to each other. As mentioned above, the quality of an idea is directly proportional to the degree of harmony in its surrounding composition. The vehicle for this harmony, the way in which it is perceived, is seen among the people, materials, and ideas contributing to the design. To the extent that there is harmony, a common view of the final goal by the parts (the presence of laws or rules), there is a pleasant relatedness.*
5. *The necessity of personal concern - This refers to the importance of a commitment to the project, even a love for it. This begins with the leadership and is filtered down through all those involved in the project. This involves discipline and a view toward the goal of composing within the established rules and that in doing so a framework will be established enabling one to produce a quality work. Dow states, "This concern or love for the objective of the Composed Order project cannot help but result in constructive work."*[39]

Personal Observations

- Composed Order - A place for everything of worth in proper arrangement.

e. Jones, E. Fay (1921-)

Biographical Overview

Fay Jones was born in Pine Bluff, in 1921, raised in El Dorado, and is currently practicing in Fayetteville, all cities in Arkansas. He received an architectural degree from the University of Arkansas in 1950 and also earned a master's degree from Rice in 1951. He worked with Bruce Goff in Oklahoma and then had a brief apprenticeship with Frank Lloyd Wright in 1953 before returning to Arkansas to teach and practice. He has been a professor in the Department of Architecture at the University of Arkansas since. In 1989, he won the prestigious A.I.A. Gold Medal. It is his love for the unspoiled state of Arkansas ("The Natural State") and the effect of this life long association with the state that is so clearly demonstrated in his architecture. The author is a native of the state from the same location as Jones and understands the influence that this atmosphere can have on a person. In an interview with Jones, the author found him to be very cordial and willing to help in giving ideas and giving direction to sources that would be useful in this study.

Philosophy and Works

Fay Jones is not a philosopher. This is to say that there are no written books on the philosophy of his works. Articles from various magazines are the sources for the following brief overview of his practice. Articles can sometimes be superficial, but these portions have been carefully selected to get a sense of the design philosophy of Jones and his work.

The March 1990 issue of Architecture, honoring Fay Jones for his Gold Medal, opens the article with this paragraph:

> *"Fay Jones is an architect most other professionals would like to be: a man of principle exercising intellect and intuition through his art to produce an identifiably American architecture. The man behind the buildings is one of the most admired in the profession--humble, warm, and energetic."*[40]

There is an obvious influence from Frank Lloyd Wright, but Jones also received inspiration

from fellow Arkansan, Edward Durrel Stone, who taught Jones "the big picture", a view to the world. Bruce Goff encouraged Jones to explore his intuition. Finally, history has been a source for design ideas and principles as Jones has sought to extract the underlying forms and theories of precedents that he has studied.

The article from Architecture also states, "His vision focuses on an individualistic architecture that evolves from nature. Large and small design decisions are interrelated in the pattern of the work as a whole."[41] The November/December, 1989 issue of Inland Architect has perhaps the most insightful interview with Jones. This portion of the article gives a definition of organic architecture.

> *"[Organic architecture] involves a process by which you're carefully establishing a close grained relationship between all of the physical elements, sensory effects, practical impact, and emotional nuances of a design. You want to be able to feel the relationship. in all of its manifestations. It is not a matter of these details sticking out, as if to say they are 'related' to some whole. You want each element to have integrity, quality, utility, and interest, but you must take care that it really is an emergent thing, not a distracting thing, and that it confides a deeper, more subtle kind of reference."*[42]

Other excerpts from this article state that "...every element and effect manifests some underlying, unifying theme."[43] They also state that "in all matters of composition and construction 'the whole is to the part as the part is to the whole'."[44] In the February 18, 1989 Arkansas Gazette, it is said of Jones design philosophy

> *"...his buildings arise not out of an idea about how they should look, but from following the principles he believes are important in design. Those principles include an understanding of the client's lifestyle, attention to the relationship of the building with the site, using materials 'according to their nature' and maintaining the relationship of the whole with the part."*[45]

Jones states concerning being original in ones design work that "If you just solve the problems, it causes you to do something a little different."[46]

In partial response to critics who claim that Jones is imitating the work of Frank Lloyd Wright one article from the January 1990 issue of Kitchen and Bath Concepts states,

> *"Jones brings his own interpretation to his residences, which are beautifully crafted with exquisite detailing and often emphasize the vertical dimension more than the horizontal. His houses generally are lighter in feeling--more lyrical andlivable--than Wright's."*[47]

The work of Fay Jones has been described as having "emotive spatial drama with sensitive siting, solicitous scale, superb detailing and reverential handling of materials"[48]. The most published work is the Thorncrown Chapel in Eureka Springs, AR. The bulk of his work however, has been residential.

The primary influence from Jones' work upon the author is the attention to detail and how the integrity of the entire project should be reflected in each part of the project.

Personal Observations

- The whole is to the part as the part is to the whole.
- Each element of an architectural composition must have integrity yet not call too much attention to it.
- Synthesis of physical, sensory, practical, and emotive elements creates architecture of integrity.

f. Soleri, Paulo (1919-)

Biographical Overview

Paulo Soleri was born in Turin, Italy in 1919. He studied at Turin Polytechnic where he received his doctorate in architecture in 1947. At that time he went to study with Frank Lloyd Wright at Taliesin West for the period of one and one half years. Both Soleri and Wright were very strong willed and this proved to produce an incompatible relationship. One aspect of this conflicting relationship is that Soleri's attitude about architecture is a macroscopic one. He seeks for solutions to today's problems through a new and radical design for the city, one that is integrated, compact, and self-sufficient. He claims that Wright's attitude was one of a more microscopic nature, dealing only with individual pieces. As a result of this and personality differences, Soleri left Taliesin and returned to his home country of Italy where he designed some ceramics factories. It is through this association with the ceramics industry that Soleri became interested in the use of ceramics as a material for art (later to be used extensively in his wind chime and bell production). In 1955 Soleri moved back to Paradise Valley, Arizona, and after a year set up the Cosanti Foundation which was organized as an umbrella organization to carry out various activities and projects related to art and architecture, very similar to the model of Taliesin. The primary work produced by Soleri is his on-going project of Arcosanti. He also continues to produce wind chimes and bells out of ceramics to help support his work.

Philosophy and Works

Paulo Soleri has developed the most extensive worldview of any of the architects studied in this thesis. His thoughts and convictions have been defined for us (albeit, in language difficult to understand) in the book Fragments published in 1981. Soleri had three primary influences that contributed to his attitudes towards architecture, society, and life. These influences were three people: Friedrich Nietzsche, Pierre Teilhard de Chardin, and Frank Lloyd Wright. Nietzsche taught Soleri to strive for perfection in whatever he undertook. Soleri adopted the credo that the goal in life was the standard of perfection and the glory of the human mind and that man was destined for a higher purpose (and should not be satisfied with mediocrity). From de Chardin, Soleri learned the concept of the Omega Seed (to be explained later). The Omega point (seed) "steers" all evolution and indirectly justifies all our strivings. From Wright, Soleri developed his own philosophy of organic architecture. He learned that built forms should belong to and be a part of the natural environment. Soleri, along with Wright held the belief that the "hope for the future lies in a properly designed environment"[49]. As stated in the book, Soleri frequently synthesized influences from others to such a degree that their origins are hardly distinguishable. In this light, Soleri is thought of as a visionary architect and philosopher with original ideas.

Soleri's philosophy on architecture and life has its origins in an evolutionary, humanistic worldview. The following is a synopsis of his views of an "eschatological hypothesis" taken from the book Fragments. This hypothesis proposes:

1. *The recognition of the critical position of humanity and the precariousness of the human condition in a scenario of cosmic indifference.*
2. *The conviction that life, of which we are an integral part, is the most powerful phenomenon within reality.*
3. *The belief that the universe through the complexity thrust of evolution is searching at this point for its own genetic structure, the Omega Seed.*
4. *The belief that in the quest for the Omega Seed's own genetic identity not only will the "unchangeable" laws of the universe be shattered but also, and more importantly, the whole context of the cosmos will be consumed (mass-energy, space-time) as the medium necessary for the creation of that which is not.*
5. *The belief that those ascending steps are the exponential convergence of events tying the development of consciousness, knowledge, and love to the ability of life to integrate information with performance, communication with resilience, mentation with wisdom, and emotion with grace in the process of matter becoming spirit and involving ever larger sections of the physical universe.*
6. *Therefore, the paradigm of incremental complexity and miniaturization is at the core of*

the evolutionary thrust.

7. *Through resurrection come reincarnation and acknowledgement of the equity pervading the whole genesis (evolution), because when each particle of the process is able to acknowledge and recognize all others singularly and collectively, no corner of the universe is any longer ignored or sacrificed.*[50]

In general, this states that everything; truth, goodness, beauty, and grace are in the process of becoming---until they reach the Omega Seed, all-knowing, all-understanding man, complete. At this point, time as we know it will cease. To illustrate one of these aspects, consider truth, in view of his philosophy.

"Truth does not exist." According to Soleri it is continually being created.

"It will only exist at the end of time, when human knowledge is complete and we arrive at total knowledge of everything, at the state of total illumination when knowledge and grace are fused together. When we are omniscient our knowledge will signify both enlightenment and grace." [51]

Another quote states that, "truth consists of the correspondence of our descriptions of reality with reality itself as we know it."[52]

In summary, it is the philosophy of Soleri that all life is an evolutionary process including the biological, mental, creative, and moral aspects. The end of time will come when each of these simultaneously arrives at perfection and completeness---the Omega Seed.

The work on the city" of Arcosanti is the primary effort and example of the work of Paulo Soleri. It is an "arcology"---the marriage of architecture and the ecology. It is appropriate to insert the Cosanti Foundation Program from the book The Development by Paulo Soleri of the Design for the Cosanti Foundation, Arizona, U.S.A. published by the University of North Carolina. It will give the mission statement and purpose of the foundation.

COSANTI FOUNDATION PROGRAM

OUTLINE

The foundation will be a planned environment to be established in Arizona, New Mexico or California. On an untouched land site and with enough space to secure freedom and growth, the foundation will build a complex of workshops, research facilities and living quarters. This nucleus will eventually develop into a village, which will function as a center for the arts and other cultural endeavors. The foundation will seek the help and sponsorship of institutes of

learning--and of anyone else concerned with man and the earth on which he lives.

OBJECTIVES

The quest for an environment in harmony with man.

Architecture as environment will be the primary concern of the foundation.

Construction and research will be the means to this end.

This will be pursued by students, apprentices, scholars, teachers, instructors, retired professors; and members of the performing arts, artists and craftsmen.

1. *Elective courses available to students of colleges and universities will be given by resident instructors. This training will be complementary to academic learning.*
2. *Apprentices will work in the foundation with the students and will be under the same guidance. Their training will be alternative to academic learning.*
3. *The retired professors, teachers, scholars and others will live and work in an environment showing concern for culture and will lend their experience and guidance to the younger members of the foundation.*

Students and apprentices may learn through the curriculum of the many ways by which man and nature are reciprocally indebted.

The foundation will furnish all workshops, living quarters and cultural facilities.

The foundation will make available the teaching staff, the instructors, scholars, etc. This staff will be paid:

1. *By the productivity of instructors and apprentices*
2. *By the income from the foundation facilities*
3. *By institutes of learning having students at the foundation.*
4. *By grants from industrial and non-profit foundations.*[53]

The Cosanti Foundation is still active in the development of the "living city" of Arcosanti. In a summary written in the January, 1990 issue of Insight Arcosanti is described as follows:

"Twenty years ago, a protege of Frank Lloyd Wright started to lay the foundation under his dream city: a futuristic desert metropolis that blended architecture and ecology in an efficient use of energy and space. An unpalatable project to many, Arcosanti has become an experiment mostly undeveloped, and some say that Paulo Soleri, the man who dared to build it, will long remain unsung."[54]

Today, approximately eighty people come and go from the site that has been described as having "evolved from a city built with a single, all encompassing structure to assemblies that

could grow incrementally."[55] These people contribute to the project through help in the on-going construction and, as a result, learn the principles that are embodied in the work. Work and life are one at Arcosanti which reinforces an organic lifestyle - all aspects of life relate, nothing is autonomous.

At the heart of the project is Soleri's opinion that the American dream (everyone with his own house and car) is an illusion. The March, 1991 issue of Progressive Architecture quotes Soleri as saying, "we cannot keep building tiny limbs scattered all over the planet without connections"[56]. He suggests looking at biology as an example. Soleri states that, "biology....is rich in interwoven, cooperative subsystems"[57] and he "insist[s] on a paradigm of complexity and miniaturization, because that is what every living thing is made of"[58]. It is this theme of natural growth that is clearly seen and purposely carried out in the development of the site.

Arcosanti has yet to blossom as an influence in the world on architecture and urban design. This has been attributed to a program that is indifferent to the problems of real life and also to the personality of Soleri who is an initiator. He has also been described as an introvert who is not trusting and is sometimes autocratic. Yet with these negative aspects, the Arcosanti project is one worthy to be studied for the ideals that it stands for and the seemingly insurmountable problems it attempts to address.

Personal Observations

- The concept of complexity and miniaturization is expressed in nature.
- Every object is made up of smaller objects. Each of these objects has the potential to be influential and integrated into the design.
- Architecture should reflect a macro view of our place on this earth and in life. It should show respect for the ecology.

3. AS REPRESENTED BY ARCHITECTURAL CRITICS

a. Ruskin, John (1819-1900)

Marvin Tracthenberg describes John Ruskin as "a moralizing medievalist and a historist"[59]. He was an architectural critic of the nineteenth century who "praised what he liked...without regard to reasoned consistency. Yet the verbal brilliance and energy of his 'pulpit style was of such poetic force and vision that its effect was incalculable"[60]. The major writings of Ruskin were The Seven Lamps of Architecture and The Stones of Venice.

Within the section entitled the "Lamp of Truth" in the book The Seven Lamps of Architecture Ruskin argues for an architecture that is honest, meaning, an architecture that respects the use

of materials and the quality of labor. He stated, "We may not be able to command good, or beautiful, or inventive architecture; but we can command an honest architecture"[61]. The opposite of an honest architecture is one that is deceitful and Ruskin breaks down architectural deceitfulness into three categories. They are: the suggestion of a structure that is inappropriate to the application, the painting of elements to represent a material that it is not, and the use of machine made ornament.

Ruskin was one of the first proponents for an architecture based upon craft and the use of natural materials in an honest manner. He opposed the modern age and the influx of the industrial age with its machine made components. According to Trachtenberg, Ruskin "sang the praises of ancient buildings, erected by craftsmen who loved their work"[62]. "His doctrine was that good architecture could result only from the efforts of good men working in the context of a healthy society."[63]. And finally "the glory of a building is its reflection of the craft of its builders"[64].

Personal Observations

- Honest architecture is an appropriate use of materials and structure.
- Order and connectivity are to be valued more highly than impression.

b. Greenough, Horatio

The source of study about Horatio Greenough is from the book by Lewis Mumford, Roots of Contemporary American Architecture, which is a series of essays about the status of American architecture. The essay written by Greenough is entitled "Form and Function". The beginning of the article contains an argument against the use of the European models for an American architecture. He claims that Americans, "have no childhood". The populace is made up of people carrying with them a variety of customs and traditions from their country of origin. Therefore we have been "content to receive our notions of architecture...from Europe"[65]. Yet, Greenough argues, "One of the surest symptoms of decline [in a society] was the adoption of admired forms and models for purposes not contemplated in their invention."[66]. This means that the architecture of a society should be indigenous and derived from the circumstances surrounding it

Greenough's hypothesis is that nature should provide the model by which our architecture is generated. He argues that the basic principle of nature is one of adaptation implying that there is never more in nature than what is needed to perform. He continues by stating that the reason that we admire nature is not because of the vast variety represented but because of its beauty. This beauty "is neither the presence nor the absence of this or that part, or shape, or color, that

wins our eye in natural objects; it is the consistency and harmony of the parts juxtaposed, the subordination of details to masses, and of masses to the whole"[67].

Greenough stated that beauty is the promise of function, action is the presence of function, and character is the record of function. These are the phases through which "organized intention passes to completeness"[68]. This completeness is only attainable within the framework of organization and organization is a reflection of the nature of God. Greenough stated:

> *"There is not one truth in religion, another in mathematics, and a third in physics and [another] in art; but that there is one truth, even as one God, and that organization is His utterance. Now, organization obeys His law. It obeys His law by an approximation to the essential, and then there is what we term life; or it obeys His law by falling short of the essential, and then there is disorganization. I have not seen the inorganic attached to the organized but as a symptom of imperfect plan, or of impeded function, or of extinct action."* [69]

As a result of there being one truth, namely God, it follows that there is the presence of absolutes. "There is no conceivable function which does not obey an absolute law."[70] This provides a framework in which the designer can carry out his task in a reasonable and organized manner. Greenough further stated,

> *"The aim of the artist, therefore, should be first to seek the essential; when the essential hath been found, then, if ever, will be the time to commence embellishment. I will venture to predict that completeness will instantly throw off all that is not itself, and will thus command: 'Thou shalt have no other Gods beside me.' In a word, completeness is the absolute utterance of the Godhead..."*[71]

The beginning of the search for the essential is by seeking a many-sided response to the multiform demands of life. This will yield a unique and individual design solution that is appropriate for the locale.

Personal Observations

- Nature is an appropriate model to gain design inspiration.
- A complete work is one that is organized and essential.
- God is the source of the laws of organization revealed in nature.

4. AS UNDERSTOOD FROM A CHRISTIAN PERSPECTIVE

In this section the author seeks to integrate his own faith in God into a definition of organic architecture. It is the opinion of the author that God is most glorified when we are most satisfied in Him. Therefore, it is the author's desire to root his philosophy of architecture in the attributes of God and in an understanding of what He has made, creation, and how He has made it.

a. Schaeffer, Francis A. (1912-1984)

Biographical Overview

Francis Schaeffer was born in Germantown, Pennsylvania. He was the son of caretaker and laborer of German ancestry. He was influenced a great deal by the surrounding countryside as he spent many Saturdays hiking. At the age of seventeen, while teaching a Russian count to read English with the use of a Bible, Schaeffer became a Christian. On September 3, 1930 he wrote in his diary which "all truth is from the Bible"[72]. This would later become the foundation for his ministry.

Schaeffer began his studies in engineering yet was not satisfied with this direction in life. In 1931 he enrolled in Hampden-Sydney College in Virginia to get a ministerial degree. He graduated in 1935 magna cum laude and went on to graduate school at Westminster Theological Seminary in Philadelphia.

It was early in his pastoral ministry that Schaeffer began his apologetic efforts which placed great emphasis on the sovereignty of God, the significance of absolute truth, the inerrancy of the Bible and the fact that God's truth, as revealed in the Bible, should be the foundation of all activities of life. In 1948 Schaeffer established in Europe a new prototype for ministry. L'Abri was a gathering place for anyone to come and ask questions concerning philosophical issues of life. It was located in Switzerland. The preaching and lectures that Schaeffer gave became the foundation for many books and films that he has written and hosted.

Philosophy and Works

The influence that Francis Schaeffer has had on the author has been through the books that he has written concerning the development of the logical thought process.

The underlying thesis of most of Francis Schaeffer's writing is the need for a worldview based on a reasonable, just, loving, absolute God. He writes in a convincing manner supporting his claims with a logic consistent with God's mind as revealed in the Bible, his own experience with many people, and examples from today's society.

Modern thought had its beginnings during the Renaissance. It is based on a philosophy that

involves an autonomous man and autonomous freedom. Autonomous freedom is a freedom in which the individual is the center of the universe. Science and art begin to take the place of God as the basis for research and study. There are some by-products to this thinking that are destructive. As a result of this perceived autonomous nature of man, he tends to study various disciplines as separate, unrelated subjects. He studies math as math, music as music, philosophy as philosophy, etc. even to the point that a natural theology is pursued independently of any purported revelation of God such as the Bible. Yet, Schaeffer states, " These are all things of man, and the things of man are not unrelated parallel lines"[73]. There are natural associations between disciplines and to study these under a tent of relatedness will enhance the understanding of each individual one. Autonomous man has placed himself within the machinery, within naturalistic science. As a result man proclaims that he is his own final authority. Yet this yields a situation where there is no freedom or no avenue for spiritual fulfillment as everything is based upon the natural. Without God there is always an attempt to fulfill the spiritual with a "leap" into the "upstairs", the spiritual realm. When man becomes autonomous (including his art and science) there is no spiritual satisfaction. Schaeffer describes this as "nature eating up grace"[74]. To carry this further, with autonomous man there is no foundation for law and order since there are no absolutes. As a result there exists what is called situational ethics, solutions only based upon the current situation. This has yielded a society in that tolerance is the goal of human interaction. To explain further, tolerance is sought when encountering the views and beliefs of others in order that harmony may exist. This philosophy is not reflected in nature, or in God's design for man and how he should live. Nature operates under a set of unchangeable principles and as one observes the actions and attitudes of man it becomes clear that he responds to a world of law and order and not to chance, tolerance, and ultimately chaos.

The Reformation presented a counterpoint to this philosophy of autonomous man. Lead by John Calvin the Reformers adhered to the premise that only God is autonomous. In scripture everything goes back to God and it should be the same in the activities of life also. Science and art, they stated, must be viewed in this way: first, God gave knowledge to man -- knowledge concerning Himself and also concerning the universe and history; and, second, God and man are not a part of the machinery and could affect the working of the machine through the principle of cause and effect.[75] It is assumed here that the underlying premise in formulating a philosophy of life is that there must be a satisfaction of both the physical and spiritual aspects of man. Schaeffer states this in response to that assumption.

"Through the Scriptures we have knowledge of God and knowledge of man and nature. This knowledge, though not exhaustive, is true and unified, including both the 'upstairs' [the

spiritual] and the 'downstairs' [the physical]." [76]

With this understanding there is possible a true freedom within this revealed knowledge, a freedom in which there can be fulfillment of both the spiritual and natural aspects of man. This yields a contentment that opens the door for the highest form of creativity.

In his book Art and the Bible Schaeffer addresses the relationship of art with respect to a Christian worldview. He begins by laying a foundation concerning the salvation of man. God has saved the whole man, body, soul, and all areas. Therefore the whole man is to be under the lordship of Christ. Art should not be worshiped. It is not an end in itself. It is a vehicle to convey us to the reality of something else, God. An example of this is the Tabernacle of the Israelites. Schaeffer states, " All of the art, architecture, statuary, bas-relief, poetry, and music, worked together to form a unity."[77] And this was all for the purpose of glorifying God.

The following is a list of the characteristics of a Christian art:

1. *The artwork as an artwork - Just the act of creating is a reflection of God the creator.*
2. *Art forms add strength to a worldview - it is difficult for a worldview not to be expressed in a body of work of an artist. Therefore the artwork should be used as a vehicle to enhance a view.*
3. *Normal definitions, normal syntax - This means that there should be enough common ground of understanding between the artist and the observer in order to avoid alienation.*
4. *Art and the sacred - Because it is art does not mean that it is sacred or true.*
5. *Four standards of judgment - Art can be evaluated by the following criteria:*
   A. *Technical excellence*
   B. *Validity - honest to oneself*
   C. *Intellectual content - worldview*
   D. *Integration of content and vehicle*
6. *Art can be used for any type of message - "pure fantasy to detailed history."*
7. *Changing styles - Styles of art form change and there is nothing wrong with this.*
8. *Modern art forms and the Christian message - There is no such thing as a godly style.*
9. *The Christian worldview - Art that reflects a Christian world view will have two themes: one, a reflection of the fall of man because of sin and, two, a reflection of the hope of man because of Christ.*
10. *The subject matter of Christian art - Christian art does not always have to be religious art.*
11. *An individual artwork and the body of an artist's work - It is in the body of an artist's work that a correct evaluation can be rendered about his work.*[78]

For the Christian, his art should be a reflection of a changed life as a result of knowing God. The Christian life should produce truth and beauty.

Personal Observations

- The whole man is under the lordship of Christ.
- A reasonable God created the world; therefore I can pursue the truth of the world by reason.
- God is autonomous and sovereign.
- The four standards of evaluating art. A work of art can be partly good and partly bad. A great work of art satisfies all criteria.
- Our life is the most important work of art.

b. Biblical References

In this section quotations from the Bible will be discussed in their relation to organic architecture. Design inspirations can come from a variety of origins and chief among these for the Christian is the Bible. The first two references are concerned with the topic of spiritual gifts and their use in the church, the body of Christ. The importance of each member of the body of Christ is the thesis of these references. This is in parallel to the principle that in organic architecture each and every source of design input has the potential of contributing to the whole of the project. All Biblical references are in the New American Standard version.

Romans 12: 1-11

1 *I urge you therefore, brethren, by the mercies of God, to present your bodies a living and holy sacrifice, acceptable to God, which is your spiritual service of worship.*
2 *And do not be conformed to this world, but be transformed by the renewing of your mind, that you may prove what the will of God is, that which is good and acceptable and perfect.*
3 *For through the grace given to me I say to every man among you not to think more highly of himself than he ought to think; but to think so as to have sound judgment, as God has allotted to each a measure of faith.*
4 *For just as we have many members in one body and all the members do not have the function,*
5 *so we, who are many, are one body in Christ, and individually members one of another.*
6 *And since we have gifts that differ according to the grace given to us, let each exercise them accordingly: if prophecy, according to the proportion of his faith;*

7 *if service, in his serving; or he who teaches, in his teaching;*
8 *or he who exhorts, in his exhortation; he who gives, with liberality; he who leads, with diligence; he who shows mercy, with cheerfulness.*
9 *Let love be without hypocrisy. Abhor what is evil; cling to what is good.*
10 *Be devoted to one another in brotherly love; give preference to one another in honor;*
11 *not lagging behind in diligence, fervent in spirit, serving the Lord...*

The remainder of the chapter discusses the relationship of man to man. Chapter thirteen's topic is subjection to the governmental authorities because they are "established by God". It is also in this chapter that we find the phrase "love your neighbor as yourself" because "love does no wrong to a neighbor" therefore "love is the fulfillment of the law".

I Corinthians 12: 1-27

1 *Now concerning spiritual gifts, brethren, I do not want you to be unaware.*
2 *You know that when you were pagans, you were led astray to the dumb idols, however you were led.*
3 *Therefore I make known to you, that no one speaking by the Spirit of God says "Jesus is accursed"; and no one can say, "Jesus is Lord," except by the Holy Spirit.*
4 *Now there are varieties of gifts, but the same Spirit.*
5 *And there are varieties of ministries, and the same Lord.*
6 *And there are varieties of effects, but the same God who works all things in all persons.*
7 *But to each one is given the manifestation of the Spirit for the common good.*
8 *For to one is given the word of wisdom through the Spirit, and to another the word of knowledge according to the same Spirit;*
9 *to another faith by the same Spirit, and to another gifts of healing by the one Spirit,*
10 *and to another the effecting of miracles, and to another prophecy, and to another the distinguishing of spirits, to another various kinds of tongues, and to another the interpretation of tongues.*
11 *But one and the same Spirit works all these things, distributing to each one individually just as He wills.*
12 *For even as the body is one and yet has many members, and all the members of the body, though they are many, are one body, so also is Christ.*
13 *For by one Spirit we were all baptized into one body, whether Jews or Greeks, whether slaves or free, and we were all made to drink of one Spirit.*
14 *For the body is not one member but many.*
15 *If the foot should say, "Because I am not a hand, I am not a part of the body," it is not for*

this reason any the less a part of the body.

16 *And if the ear should say, "Because I am not an eye, I am not a part of the body," it is not for this reason any the less a part of the body.*

17 *If the whole body were an eye, where would the hearing be? If the whole were hearing, where would the sense of smell be?*

18 *But now God has placed the members, each one of them, in the body, just as he desired.*

19 *And if they were all one member, where would the body be?*

20 *But now there are many members, but one body.*

21 *And the eye cannot say to the hand, "I have no need of you"; of again the head to the feet, "I have no need of you."*

22 *On the contrary, it is truer that the members of the body which seem to be weaker are necessary;*

23 *and those members of the body, which we deem less honorable, on these we bestow more abundant honor, and our unseemly members come to have more abundant seemliness,*

24 *whereas our seemly members have no need of it. But God has so composed the body, giving more abundant honor to that member which lacked,*

25 *that there should be no division in the body, but that the members should have the same care for one another.*

26 *And if one member suffers, all members suffer with it; if one member is honored, all the members rejoice with it.*

27 *Now you are Christ's body, and individually members of it.*

In Colossians God is described as the creator of the earth.

Colossians 1:15-17

15 *And He is the image of the invisible God, the first-born of all creation*

16 *For by Him all things were created, both in the heavens and on earth, visible and invisible, whether thrones or dominions or rulers or authorities--all things have been created by Him and for Him.*

17 *And He is before all things, and in Him all things hold together.*

In I Peter stewardship for that which has been given to us is discussed.

I Peter 4:10

10 As each one has received a special gift, employ it in serving one another, as good stewards of the manifold grace of God.

THEORETIC INQUIRY

B. A PERSONAL SYNTHESIS

As a result of the preceding study a purpose statement for practice has been defined.

1. FOUNDATIONS FOR A PHILOSOPHY ON ART

Design is an inevitable occupation: A definition of design could be as follows: Design is an expression of "creative order" by a person of reason to satisfy a need. We are created in the image of God, in His likeness.

Genesis 1:27

And God created man in His own image, in the image of God He created him; male and female He created them.

If we are in the image of God then we hold some of the attributes of God, namely, creativity. Therefore, as creative beings, in every solution to a problem we express our creativity.

Rules and Order: Order is the result of rules. The use of rules enables a person to realize the full potential of expression. Within guidelines there is direction. Without direction there can be no real progress and therefore no real creativity. An approach to design that allows for unrestricted influence of intellectual, emotional and spiritual factors in what might be considered a free inquiry will result in a chaotic outcome. The world has been designed to function, both spiritually and physically, in a specific way, according to certain rules. These rules are expressed in nature by the laws of physics, in society by civil laws and in morals by moral law. God is sovereign in each of these areas and is able to guide the designer by rule to a truly creative result that is able to communicate to the viewer.

Beauty ("good art") is not entirely subjective: The influence of personal bias and emotive experience is important but it is not the final authority as to whether something is beautiful or not. There are black and white situations. God is absolute truth, devoted love, and unique beauty.

Psalms 27:4

One thing that I have asked from the Lord, that I shall seek: That I may dwell in the house of the Lord all the days of my life, to behold the beauty of the Lord, and to meditate in His temple.

The final judgment is whether or not art brings glory to God.

I Corinthians 10:31

Whether, then, you eat or drink or whatever you do, do all to the glory of God.

Art has standards. Art (architecture in this case) is the balance of:

1. Creating - Art has value in itself, the act of doing.
2. Expressing - Art can relate a message and more importantly a worldview (in the body of a complete set of works of an artist). This also implies the ability of the viewer to understand the message as intended.
3. Technique - Art can be evaluated on the grounds of appropriate techniques; color, proportion, balance, selection of media, etc.
4. Function - art can, and should, fulfill a need such as satisfying a functional requirement or communicating a message.

As a result of these standards a work of art can be considered on a spectrum of "good" to "bad" according to how it satisfies the standards.

Architecture, as defined by Eero Saarinan, is, "To shelter and enhance man's life on earth and to fulfill his belief in the nobility of his existence..." and, I would add, the beauty of the reality of the existence of God.

2. A PARADIGM FOR ORGANIC ARCHITECTURE

I have developed the following principles in view of the study previously presented. My basic premise is as stated by the director of this study, John Rauma - "I am here yet with respect for you."

a. Ten Principles for Design

Macro View

One - Ultimately, nature has its source in God. To base architecture upon nature is to accept the fact that it is God who has created it.

Colossians 1:15-17

15 And He is the image of the invisible God, the first-born of all creation

16 For by Him all things were created, both in the heavens and on earth, visible and invisible, whether thrones or dominions or rulers or authorities--all things have been created by Him and for Him.

17 And He is before all things, and in Him all things hold together.

Nature, as the word has meaning for many people today, is a self-sustaining machine with a particular inherent beauty. In contrast to that view nature is an extension of the hand of God and provides for us an indicator that God exists.

Romans 1:20

For since the creation of the world His invisible attributes, His eternal power and divine nature, have been clearly seen, being understood through what has been made, so that they are without excuse.

The relevance of this to organic architecture is that nature is a vehicle and not an end in itself.

Two - Man's creativity comes from God. Man is created in the image of God and was intended to have fellowship with Him. The Westminster Catechism of 1600 states the following: "the chief end of man is to glorify God and (by) enjoy(ing) Him forever".

Genesis 1:26,27

26 Then God said, "Let Us make man in Our image, according to Our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth."

27 And God created man in His own image, in the image of God He created him; male and female He created them.

Three - Man has a responsibility for nature. Man is to have dominion over nature and in turn nature can be a vehicle for fellowship and therefore praise to God. It exists as something that should work for him. See the appendix for the paper by Natalie Porter, "A Christian's Response

to the Environment".

Genesis 1:28-31

28 And God blessed them; and God said to them, "Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky, and over every living thing that moves on the earth."

29 Then God said, "Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you;

30 and to every beast of the earth and to every thing that moves on the earth which has life, I have given every green plant for food"; and it was so.

31 And God saw all that He had made, and behold, it was very good. And there was evening and there was morning, the sixth day.

This may seem to give license to using the resources of the earth as one may wish. This is not the case. Subdue, mentioned in the above reference, means, according to the dictionary, to bring into cultivation, as land. I Corinthians addresses this in that we are stewards of what God has given us.

I Corinthians 4:1-2

1 Let a man regard us in this manner, as servants of Christ, and stewards of the mysteries of God.

2 In this case, moreover, it is required of stewards that one be found trustworthy.

Micro View

Four - An organizing instrument must exist. Just as God is the organ of nature so there must be an integrating instrument for design in architecture. Randomness without constraint or a semblance of order is chaos and chaos does not benefit reasonable man. This instrument is the generator that will facilitate the following principle.

Five - Parts should relate to the whole. The integrity of the design depends on the extent of purpose given to each element in the composition. An organizing instrument will allow each element to exist in a compatible and contributing way within the composition of the product. A synergy results from this. The elements should be selected or designed with respect to the organizing instrument and as a result the organizing instrument will be reflected in each element. The Biblical precedents for this are the references discussed before, Romans 12 and I Corinthians

12.

Six - The site is worthy of respect. As the site is considered in view of the organizing instrument and the potential synergy of the elements it can become a contributing factor in the development of the design. We should embrace the land. The book of Genesis states that:

Genesis 2:9
"...God caused to grow every tree that is pleasing to the sight...".

In this statement we understand, in part, why we as humans are so often overwhelmed with the beauty of nature. God has created nature in such a way that it causes us to be satisfied and pleased. Another verse in Genesis reads:

Genesis 2:15
"...God took the man and put him into the Garden of Eden to cultivate and keep it."

I understand the word keep here to mean stewardship, to properly use what has been placed in the steward's trust.

Respecting the site entails concern for the features of the site such as the landform and topography, trees, vegetation, and geological features. The orientation of the site is important. The views and climatic conditions (sun and wind) can give design direction to the project. Light, as a result of the orientation and the surrounding shading devices such as trees and buildings, is also an important consideration of organic design. Stewardship also implies that there is a responsibility to the One who has set these things in place.

Seven - Complexity and Scale should be elements of the design. Nature is made up of parts that are small and complex. Many simple parts can contribute to create a complex whole. As one looks at nature one sees many pieces in combination. This model of nature should be imitated by using variety, repetition, and a scale reflective of that in nature.

Eight - The user is to be satisfied. The user is the primary purpose for architecture. Therefore it is imperative that there be a positive response, on the part of the user, to the scale, function, and feeling of the product. It is important that these three aspects are to be resolved congruently.

Nine - All resources are worthy of respect. There are many sources of input to the design

process. These sources include the owner, the user, the existing conditions, current technology, history, precedents, and programmatic requirements. This necessitates more extensive study in the design process, but the outcome will be better as the result of the integration of all the valid resources of the project. The relationship of the parts to the whole applies to the design process and, for that matter, to every aspect of life.

Ten – Movement through space brings depth to meaning. The manipulation of the spatial experience adds expansiveness and intrigue. Architecture is more aptly described as forming the negative space of air rather than the assemblage of materials.

b. Implementation

The following are some specific methods that can be implemented in order to arrive at a more organic solution to a design problem.

Layering -	Provide a "lengthy" transition from the outside to the inside. This can be done through a succession of man made outdoor spaces and nature made indoor spaces.
Asymmetry -	Asymmetrical composition of symmetrical components.
Materials -	Natural materials including wood and stone and their by-products.
Appropriate use -	Honesty. Materials should be expressed in such a way that its characteristics are enhanced both structurally and aesthetically.
Scale -	Human. That which one can caress with the hands.
Workmanship -	Wherever possible, glorify the craftsmanship of the human hand and the use of tools in order to express the nature of the material and to relate the structure directly to the user.
Extension -	Extension expresses a quality of embracing the land.
Detail -	The attention to detail, the small design opportunities, can enhance the integrity of a project.
Overlap -	Overlap facilitates integration and thus an organic architecture.

REFERENCES

1. Nuttgens, Patrick, Understanding Modern Architecture, 1988, Unwin Hyman Limited, pg. 77
2. Curtis, William J. R., Modern Architecture Since 1900, 1987, Prentice Hal, Inc., pg. 29
3. Menocal, Narciso G., Architecture as Nature, 1981, University of Wisconson Press, pg. 6
4. Ibid.
5. Ibid.
6. Ibid., pg. 7
7. Ibid., pg. 3
8. Ibid.
9. Russell, Frank, Art Nouveau Architecture, 1986, Arch Cape Press, pg. 269
10. Jacobs, David, Architecture, (containing excerpts of Sullivan's essay, "The Tall Office Building Artistically Considered") 1974, Newsweek Books, pg. 154
11. Ibid.
12. Ibid.
13. Ibid.
14. Menocal, Architecture as Nature, pg. 3
15. Menocal, Architecture as Nature, pg. 3
16. Jacobs, David, Architecture, (containing excerpts of Wright's book An Organic Architecture), pg. 156
17. Nuttgens, Understanding Modern Architecture, pg. 65
18. Wright, Frank Lloyd, The Natural House, 1954, Mentor Books, New Horizon Press, Inc., pg. 36
19. Jacobs, David, Architecture, (containing excerpts of Wright's book An Autobiography), pg. 158
20. Wright, The Natural House, pg. 15
21. Ibid.
22. Nuttgens, Understanding Modern Architecture, pg. 76
23. Curtis, Modern Architecture Since 1900, pg. 78
24. Nuttgens, Understanding Modern Architecture, pg. 199
25. The Nature of Frank Lloyd Wright, 1987, University of Chicago Press
26. Gebhard, David, Work of Purcell and Elmslie Architects, 1965, The Prairie School Press, introduction
27. Western Architect, January, 1913, pg. 4
28. Ibid.
29. Architecture Minnesota, May/June, 1988, pg. 32
30. Ibid.

31. Western Architect, January, 1913, pg. 6
32. Ibid.
33. Dow, Alden B., Reflections, 1970, Northwoods Institute, pg. 6
34. Ibid., pg. 12, 13
35. Ibid., pg. 7
36. Jacobs, Architecture, (containing excerpts of Saarinen's remark's at Dickinson College, 1959), pg. 165
37. Ibid., pg. 10
38. Ibid., pg. 8
39. Ibid., pg. 13
40. Architecture, March, 1990, pg. 82
41. Architecture, March, 1990, pg. 82
42. Inland Architect, November/December, 1989, pg. 31
43. Ibid.
44. Ibid.
45. Arkansas Gazette, February 18, pg. 4F
46. Ibid.
47. Kitchen and Bath Concepts, January, 1990, pg. 37
48. Inland Architect, November/December, 1989, pg. 30
49. Soleri, Paulo, Fragments, 1981, Harper and Row, pg. xii (forward)
50. Soleri, Fragments, pg. 19,20
51. Ibid., pg. viii (forward)
52. Ibid., pg. ix (forward)
53. The Development by Paulo Soleri of the Design for the Cosanti Foundation, Arizona, U.S.A., 1964, University of North Carolina
54. Insight, January, 1990, pg. 56
55. Progressive Architecture, March, 1991, pg. 77
56. Ibid., pg. 76
57. Ibid.
58. Ibid.
59. Trachtenberg, Marvin, and Isabelle Hyman, Architecture, from Pre-History to Post Modernism, The Western Tradition, 1986, Prentice-Hall, Inc., pg. 489
60. Ibid., pg. 458
61. Ruskin, John, The Seven Lamps of Architecture, pg. 58
62. Trachtenberg, Architecture, pg. 458
63. Ibid.

64. Ibid., pg. 490
65. Mumford, Lewis, Roots of Contempory American Architecture, Reinhold Publishing Company, Essay by Horatio Greenough, "Form and Function", pg. 33
66. Ibid.
67. Ibid., pg. 35
68. Ibid., pg. 41
69. Ibid., pg. 43
70. Ibid., pg. 48
71. Ibid., pg. 46
72. Catherwood, Christopher, Five Evangelical Leaders, 1985, Harold Shaw Publishers, pg. 114
73. Schaeffer, Francis A., Escape From Reason, 1968, Inner Varsity Press, pg. 12
74. Ibid., pg. 13
75. Ibid., pg. 32
76. Ibid., pg. 21
77. Schaeffer, Art and the Bible, 1973, Inner Varsity Press, pg. 27
78. Ibid., pg. 33-63

SELLECTED BIBLIOGRAPHY

Aalto, Alvar, Alvar Aalto,
1963, Verlag fur Architekur

The American Institute of Architects, Architectural Graphic Standards,
1988, John Wiley and Sons, Inc.

Birrell, James, Walter Burely Griffin,
1964, University of Queensland Press

Cook, Jeffrey, The Architecture of Bruce Goff,
1978, Fitzhenry & Whiteside Limited

Hitchcock, Henry Russell, In the Nature of Materials,
1942, DeCapo Press, Inc.

The Johnson Foundation, Wingspread - The Building,
1981

Pfeiffer, Bruce Brooks, Frank Lloyd Wright Drawings,
1990, The Frank Lloyd Wright Foundation

Robinson, Sidney K., Life Imitates Architecture: Taliesin and Alden Dow's Studio
1980, Monograph

Schaeffer, Francis A., The God Who is There,

1966, Inner Varsity Press
Schaeffer, Francis A., A Christian Manifesto,
1981, Crossway Books
Scully, Vincent, The Shingle Style Today,
1974, George Braziller
Sola-Morales, Ignasi de, Gaudi,
1984, Rizolli International Publications, Inc.
Strand, Janann, A Green and Green Guide,
1974, Grant Dahlstrom/The Castle Press
Taliesin Associated Architects, Production Dwellings,
1970, The Frank Lloyd Wright Foundation
Vittorio Magnago Lampugnani, Encyclopedia of 20th-Century Architecture,
1986, Harry N. Abrams, Inc. Publishers
Webster, Webster's New Collegiate Dictionary,
1956, G. & C. Merriam Co.