A NATURAL FORMATIVE BASIS TO POST-MODERN ARCHITECTURE

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CONTENTS

Preface

This work introduces a natural, formative basis to encompass developing needs of the post-modern period. And it is necessary to stress the point here that appropriate corresponding aesthetic and technic expression can only be realized through natural creative development stemming from this formative basis. Formal creative expression will therefore merit secondary importance in this thesis.

"...THINGS...AS IN THEIR SUBSTANCE, OR USES, OR OUTWARD FORMS, ARE NOBLE OR IGNOBLE IN PROPORTION TO THE FULLNESS OF THE LIFE THEY THEMSELVES ENJOY, OR OF WHOSE ACTION THEY BEAR THE EVIDENCE...BUT MOST PECULIARLY AND IMPERATIVELY DOES THE RULE HOLD WITH RESPECT TO THE CREATION OF ARCHITECTURE."

John Ruskin, in "The Lamp of Life" The Seven Lamps of Architecture, (London: Sunnyside, 1891), pp. 270-271.

INTRODUCTION

This thesis presents an idea, or more formally, a theory for what may appropriately be called an emerging natural 'image' in architecture. It is based on a balanced and therefore holistic generative potential from Nature as a source of creative vitalization and as a guiding theme in the development of a more wholesome architecture in harmony with the natural creation.

Paralleling natural law, natural creativity will be used in this thesis to encompass the intuitive creative potential more based on natural understanding [1] and instinct (naturalism), rather than on reasoned thought. It may be stated that this kind of creativity seeks to attain ends antithetically to present trends of constructively-oriented Western thought.

Possibly in our lifetime another age will be upon us manifesting a new architecture to continue the advance of the expanding complexities of mankind. An age to reverse the deficiency and dysfunction brought

about by an increasingly constructive emphasis during the Modern period. And an architecture to restore the internal natural goodness absolutely necessary for a truly enhanced and enriched man-built environment in harmony with Nature.

The following diagram (Figure 1) describes this thesis by showing the historical evolutions of architecture. Only a very extensive and time consuming research pursuit can yield a precise diagram of the historical evolutions noted in this essay, and it must be mentioned that this work represents an initial study of fundamental ideas. It should also be noted that a precise diagram would also necessarily involve temporal as well as national variations of these progressions.

It is sincerely hoped the ideas presented in this thesis can stimulate others to seek more sensible approaches to architecture embodying a beauty inspired by Nature.

figure 1; diagram of historical evolutions

PART I

HISTORICAL PRECEDENCE

FOREWORD

The discussion of historical precedence will serve to establish general trends during Western history - progressions which have grown from a natural formative basis of creativity whose manifestitation lies in formative art toward a more reasoned creativity whose manifestation lies in fine art.

While the use of the organic analogy in this discussion may be interpreted as a natural formative basis, the more detailed discussion of post-modern design in Part Two distinquishes 'natural ordering' as a creative potential. 'Natural ordering' in architecture is defined in this thesis as the manifestation given to natural environmental factors, for a more responsive design according with the forces and cycles of Nature.

1. NATURAL FORMATIVE BASIS

It is only in ephemeral instances during history that a perfect balance has occurred between the two contrasting extremes of creativity. Those which may be generally noted as encompassing the realm between intuitive and constructive imagination; that is, natural understanding to reason, instinct to thought. Walter Curt Behrendt recognizes only a single instance in architectural history where such balance has occurred, and that is the Doric temple [2]. All other architecture can be seen as the manifestation of a 'biased' creativity, as part of a great rhythmic progression of creative potential between its extremes, denoting the rise and then fall of civilizations, and the evolutions and then revolutions of thought and architecture.

The artistic manifestations of such rhythmically biased creativity are characteristically of two general and contrasting distinctions in Western Art, described by Johann Wolfgang von Goethe as "formative art" and "fine art". These encompass the progression from a more natural or romantic kind of manifestation to a more ideal or classic manifestation. Correspondingly, Claude Bragdon distinquishes two kinds of architecture; the one, "organic, following the laws of natural organisms," and the other, "arranged, in according to some Euclidean ideal devised by proud spirited man." [3]

First, formative art is inherently natural by being created more through intuitive natural understanding rather than constructive reason. Formative art is therefore in greater closeness to natural law than

fine art, inherently embodying truth, beauty and harmony parallel to that of Nature, truly devoted to human life in its individual aspects. Next, fine art is inherently more absolutely ideal by being created more through constructive reason searching for universal and unchanging order and its beauty, systematizing and geometrizing the order of Nature. (An example of aesthetic construct may be given as the use of the golden section, a geometrical abstraction of many growth or formative tendencies in organic nature.) The creative progression from formative to fine art may be seen to tend away from a more natural origin toward the formal expression of absolutes; the aesthetic and technic beauty of architecture as well as humanism. As expressed by Goethe, in original rather than dualistic terms, "art is formative long before it is fine, true and great, often truer and greater than fine art itself." [4]

This is not to say exclusively that formative art evolves into fine art, but also that here are two fundamentally different paradigms, presuppositions underlying art, religion, philosophy and science, delineating the difference between a veneration for the natural creation and a dominion over it. In Ruskinian terms these are the two great intellectual Lamps of architecture, of course if they are complementary; "the one consisting in a just and humble veneration for the works of God upon the earth, and the other in an understanding of the dominion over those works which has been vested in man." [5] If veneration is based on natural understandings and instincts given to us by Nature, then the understanding of dominion is based on morality. And morality

is inherently based on "Natural Law"*, which "is the law of God as disclosed by Nature to the reason of man." [6] Furthermore, natural understandings and instincts, which may be seen as the link between the mind of man and Nature, can be the source of empathy to discipline and direct the governing powers of man, thereby ensuring its moral dedication.

Morality, then, necessitates that overall constructive imagination be bound to the intuitive, reason to natural understanding. As expressed by John Randall, the primitive emotions, instinctive judgements, natural instincts, and first impressions are more trustowrthy as a basis for action than all the reflection, caution, and experience that comes from the association with others [7].

Naturalism and morality are inextricably linked, and needless to say, by their nature, they are spiritually dedicated. There can be little doubt that it is only through natural creative potential that constructive creativity becomes morally dedicated. And in conclusion, natural creativity must therefore embody the fundamental formative genesis or basis. This may be seen as the fundamental natural goodness in artistic creation. Inherently, the natural goodness in architecture is that which it bears of the natural creation through the mind of man.

It is only when the creative progression is in complementary balance between its natural formative basis and the impression received

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*Quoting from Alan Gowans, in On Parallels In Universal History, "Only on the basis of Natural Law or practical reason can societies...exist; it is the foundation alike of all civil law and all ethics." [8]

through formal expression that holistic value can be possible; its natural formative basis always providing the generative spirit and inner meaning from which complementary constructive rationale is encouraged. Increasing constructiveness therefore contributes to a loss of formative potential, not only destroying creative balance and its holistic potential but inevitably leading to increasing deficiency in moral and spiritual dedication in the manifestation.

2. PARADIGM REBIRTH

> "Everything is good as it comes from the hand of the author of Nature; but everything degenerates in the hands of man." [9]
>
> Jean J. Rousseau

Historically, the rhythmic biases on creative potential can be associated with three recurring progressions, or evolutions of architecture and thought. (It is important to note that these progressions tend away from a more formative origin and toward increasing constructivism.) With regard to history, three general references can be made: the first in the progression from primitive or vernacular beginnings to Egyptian civilization through Classical Greece and culminating in the Roman Empire, in which it is worthy to note that the Romans were more engineering oriented; secondly, the progression from the Early Christian civilization through the Middle Ages and finally culminating in the Renaissance; and thirdly, the progression from the

Romantic Period through the Modern Movements, which may be seen to be culminating in the present generation.

Of further historical significance are the characteristic evolutionary peaks reached. Reference can be made first to the decline and fall of the Roman Empire, where there was a loss of an internal basis for organization. The spiritual matrix became fragmented and state and civilization needed a new ethos if they were to survive [10]. And secondly, reference can be made to the dissolution of the Renaissance, representing a practical limitation to the Enlightenment. It may be stated that these peaks represent the practical limitation to materialism. Where the 'empathy' or generative potential of a natural formative basis became dangerously weakened along with moral and spiritual dedication, through excessive rationalization and self-interest. Furthermore, it may be concluded that the vestiges of these passing ages bore the necessity for the next age: A renewed natural creative basis as well as morality and Christianity to restore deficiencies instrumented by the constructive progression. This phenomenon may be described as a paradigm rebirth.

The historical precedence for paradigm rebirth is evident in the emergence of Romanticism from Classicism. In Hegelian philosophy, "Classic Art...dissappears with the decease of anthropomorphism and on its collapse follows...Romantic Art." [11] Reference can be made first to the birth of Christianity during the decline of the Roman Empire, which formed the genesis for the forthcoming organic Gothic architecture to embody the unity of the Christian civilization of the

Middle Ages; and secondly, reference can be made to the romantic appeals of the nineteenth century to the culminating Renaissance 'Age of Reason', which was vividly manifested in the forthcoming Romantic Movement and Gothic Revival. The Gothic architecture of the Middle Ages, which "constitutes the characteristic center of the truly romantic type of architecture," [12] and the Romantic Art of the nineteenth century, are in great closeness to Nature, morality and Christianity, inherently embodying a beauty parallel to Nature.

A further description of the segment of history from Gothic to Romantic will serve to clarify the constructive progression which occurred as well as the resulting paradigm rebirth.

Looking first to Gothic architecture, Bradbury makes this reference to a description by Goethe in his essay "On German Architecture". "Architecture is admired primarily for its symbolic or emotional content, for its expression of the glory of living nature. Rampant naturalism is everywhere apparent, for the building is treated as an "idealized natural" form, a form which although organized by the mind and hand of man still remains an integral part of nature out of which its materials originally came." [13] In its sublimeness, Gothic architecture nobly aspires to the Heavens and God, its soaring vaults and light penetrating tracery linking the soul to the spiritual source of life. It embodies a harmony in its totality devoted to the spiritual and moral fulfillment of the human existence. In Gothic architecture, the strength and unity of Christian faith reached a level which was not found again during the Renaissance. For the constructive

progression which founded the Renaissance tended to direct man's morality away from more natural origins placing an increasing emphasis on humanistic ideals. "Some of the men who began now to cultivate more closely the study of classical authors went on to invoke pagan classical ideals explicitly and invented the notion of the Middle Ages to emphasize their sense of having entered a new and better era. But they too were formed in the culture which the great changes in Christian civilization from the twelfth century onward had made possible."* [14] Man in the Renaissance attained a greater status and dignity and rather than maintaining a strong natural, moral and Christian basis he began to view the World more anthropocentrically.

Renaissance architecture also represented the search for absolute beauty, geometrical origins of harmony and beauty, hence the inevitable interest in and revival of the classical secrets of harmonic unity. This emphasis on aesthetic order can be exemplified by Alberti's definition of beauty: "the harmony and concord of all parts achieved in such a manner that nothing could be added or taken away or altered except for the worse." [15] In this regard, "the whole facade of S. Maria Novella can be exactly circumscribed by a square. A square of half the side of the larger square defines the relationship of the two stories" [16], etc. This geometrically-arranged composition can be

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*Quoting further from Roberts, A History Of The World, "The word "Renaissance" is useful if we keep in mind the limitations of the context in which we use the word, but it falsifies history if we take it to imply a radical break with Medieval Christian civilization...There was no sharp line in European history which separates the Renaissance from the Middle Ages."

described in greater detail, but the point must be stressed that the more constructively interpreted aesthetic foundation of the Renaissance is antithetic to the organic evolution of Gothic architecture. For Gothic architecture embodies intrinsic geometrical order derived according to and subordinated to the whole following the nature of use, material and construction.

In a further contrast of Gothic architecture (organic) to that of the Renaissance (arranged), Bragdon maintains that in the organic, "form is everywhere determined by the function, changing as that changes," whereas Renaissance architecture, "represents an ideal in conformity with which the function is made to accommodate itself, to a certain extent, to forms and arrangements chosen less with a view to their exact suitability and expressiveness than to their innate beauty." [17]*

The constructive progression of the Renaissance reached extremes in its formal adherence to convention. The potentiality of formative creative expression was dominated by formal creative expression, thereby diminishing the importance of natural understanding in the manifestation. Moral and spirtual dedication suffered. From the constructive forces of humanism emerged a necessity for revitalization of the human existence which could not be found through elements of

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*A specific example of the emphasis on absolute beauty may be given in the frequent use of 'structural elements' as primarily non-structural aesthetic elements. This is evident in many Renaissance palaces in the decorative use of the Classical 'Orders'.

Renaissance idealism. Generally, this may be evidenced in certain objection to state and religious authority, for example the Reformation of the sixteenth century. In art and philosophy, the romantic appeals of the nineteenth century mark a definite realization of the weaknesses of excessive rationalism and self-interest, and they signified practical limits to the Renaissance progression. Stated by Bradbury, "academicism was subjected in all fields to the most devastating criticism and the whole idea of reasoned formula for proportion in the Fine Arts was replaced by an intense revulsion for any such methods. The idea of an art shackled by rules and canons became an anathema to the naturalistic romanticists who saw "beauty" not in rule but rather in the exception of it. Architecture was envisaged not as an affair of mathematical rules of symmetry and design, but rather as generative art developing from the needs and desires of human beings." [18]

While it is true that the Renaissance as well as the Romantic period had a faith in the beauty and harmony of Nature, there is a fundamental difference in the essence of this faith which truly underlies the difference in the creative thought: While the Renaissance had been characterized by a faith based on reason, the Romantic period was a time where reason had been based on this faith [19]. The antithesis to Renaissance idealism, Romanticism embodied a strong natural basis renewing moral and spiritual dedication, which are matters of natural feeling rather than reasoned thought. (Of special note, a revival of Christianity was characteristic to the Romantic period.) In a general sense the emphasis during this period was on the

manifestation given to intuition, natural understandings and instincts to truthfully embrace individual aspects freer from the restraint of excessive formalism. In essence its rationale may be seen to lie in Ruskin's motto that "truth is beauty", not in the absolute sense of the Renaissance, but rather in relative truth encompassing the diversity and changeability of the human existence. Bradbury emphasizes the point in saying "truth becomes the great cornerstone of so - many theories of architecture because truth is the fundamental law in nature, and man being a part of nature must obey that law in all of his works of creation." [20]

It has been concluded by F. L. Lucas that the term romanticism "is considered as a Zeitgeist of the early nineteenth century." [21]* Lucas has further concluded that "romanticism or the romantic spirit is no longer considered the exclusive property of the Romantic Movement, but is found to be a fundamental and ever recurring phenomenon of artistic creation." [23] In a more general sense, Bradbury maintains that "one of the main trends in the nineteenth century was towards naturalism in all fields of human activity." [24] Is it not logical to conclude that natural creativity, whose renewed potential provided the generator for romanticism in the nineteenth century, can be considered to be an even more fundamental recurring Zeitgeist?

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*The Romantic period in history can be arbitrarily dated from 1775 to 1840. Also it is worthy to note that in its disruption of the Renaissance evolution, the Romantic period can be associated in economic history as the period of laissez-faire, in political theory as the Age of Democracy, and in literature as the time of the romantic schools [22]. These Romantic ideals are clearly in contrast, if not antithetical to the Renaissance ideal.

PART II

TWENTIETH CENTURY PARADIGM REBIRTH?

"MODERN MAN WITH HIS GREAT KNOWLEDGE
HAS IT WITHIN HIS POWER TO CREATE
ON THIS EARTH A PARADISE BEYOND HIS
FONDEST DREAMING. BUT HE IS FAILING.
AND HE WILL FAIL SO LONG AS HIS PLANS
ARE CONCEIVED IN OBVIOUS AND HEAVY
HANDED VIOLATION OF NATURE AND NATURE'S
PRINCIPLES." [1]

John O. Simonds

"THE WORLD IS A GLORIOUS BOUNTY...
IN THE QUEST FOR SURVIVAL, SUCCESS AND
FULFILLMENT, THE ECOLOGICAL WAY OFFERS
AN INVALUABLE INSIGHT. IT SHOWS THE WAY
FOR THE MAN WHO WOULD BE THE ENZYME OF
THE BIOSPHERE - ITS STEWARD, ENHANCING
THE CREATIVE FIT OF MAN-ENVIRONMENT,
REALIZING MAN'S DESIGN WITH NATURE." [2]

Ian L. Mcharg

PART II

TWENTIETH CENTURY PARADIGM REBIRTH

FOREWORD

In continuation of the rhythmic order of history, part II describes a natural formative basis to post-modern design. This basis encompasses developing needs of modern design approaches, and may be differentiated into two principles of natural creativity - a dualism between 'organic ordering' and 'natural ordering' in architecture.

'Natural ordering' may be distinquished from 'organic ordering' in the sense that organic form, being within the much vaster realm of Nature, is modified through 'natural ordering'. A harmonious integration of architecture and nature can be created through 'natural ordering', whose potential has been long dominated by emphasis on constructively-founded environmental control technology.

1. VESTIGE OF A PASSING AGE

It is becoming evident that the advance of Western culture into the Industrial Age can be seen now, like the Renaissance was, as an age of increasing emphasis on constructive imagination in progressing away from the nineteenth century Zeitgeist of naturalistic Romanticism. Rather than maintaining the integrity of a natural formative basis of creative potential, Modern architecture has gone its own way. Not only has an understanding of Nature been weakened, but so too the internal harmony for continually enhancing and embracing the nature of human life.

The present state of the modern progression can be seen holding an antithesis to the early twentieth century organic analogy of Frank Lloyd Wright. Instead of encouraging naturally generated harmony in its response to diverse and changing needs and desires of human beings, Modern architecture has encouraged the specialization and standardization at all scales. Excessive rationalization has begun to force our natural existence away from a natural basis, fragmenting holistic potential and thereby creating objectionable deficiencies. Stein maintains that an intellectual fragmentation has taken place only since World War II, considering early twentieth century art and architecture to be associated with greater wholeness. He states that "the unified object and its philosophy have been dismembered. Minimal art appeared. Conceptural art eliminated the object. Architectural formalism extracted the forms produced by these earlier attempts and used them outside their context, undisciplined by any philosophical

principles." [13] In its negative impact on architectural development, the Modern progression has brought not only a loss of designer impressed wholeness through standardization, but also increasing environmental dysfunction through reliance on industrial environmental control technology. These two phenomenon can be seen as distinct products of the Modern Age.

The architect has been in a historically unprecedented situation to generally limit his design capabilities and skills to aesthetics and function regarding program. Consequently, environmental control technology has been developed, to a large degree, extrinsic to both the architectural and natural environments, thereby attaining little intrinsic relation to them. A completely, artifically tempered indoor climate emerged, a 'sealed box' denying the cycle of the seasons. "With confidence in the capability of mechanical systems to overcome any uneven or unsatisfactory internal conditions caused by too much sun, special programmatic needs, too much heat loss, or inadequate light, architects considered their buildings to be liberated from the local and specific demands that had shaped architecture in the past." [4] As natural environmental factors of a particular site became of minor sympathy to overall design, industrial technology became neither sympathetic to Nature, nor creative, but defensive and destructive. [5]

Instead of a veneration toward Nature, industrial man attained undisciplined dominion over the Benefactress, through an emphasis on scientific theory and technological method. And creative potential has been restrained by false construct and perception, for example, "cheap

energy has blurred the seasons to uniformity, and has relegated the sun to a summer nuissance of overheating which is 'solved' by an energy-guzzling cooling system" [6]. The emphasis on construct has clearly deprived industrial man's innate "natural comprehension" [7]. This has impaired the wisdom and perception to intuitively and rationally embody greater natural ordering in architecture to accord with the forces and cycles of Nature. Industrial environmental control technology has debased its potential, producing atrophy in industrial man's sense of harmony and symbiotic responsibility toward Nature. And it is apparent how modern science and technology have triumphed, for example over medieval alchemy, by eliminating the mind's effective resonance with Nature [8].

Most environmental problems are solved by industrial-based mechanism*, thereby eliminating the necessity for appropriate, logical and adjustable fit between man and Nature. The seemingly endless sources of energy and unnatural intervention of technology have contributed to a loss of foresight and developmental philosophy for emulating negative effects on man, culture and Nature. An architecture with little adaptive potential to temporally enhance man-Nature harmony has emerged a far less satisfactory man-built environment with increasing deficiency and dysfunction-waste, environmental damage,

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*The unwholesome 'advantage' to overreliance on mechanism was recognized by Marek in Yestermorrow: Notes On Man's Progress in the 1960's. He stated the paradox that not only does the machine belong to the environment of man, but man belongs to the environment of the machine [9]. The situation, then, is one which does not regard adaptive or developmental potential of the mechanism.

pollution as well as the inevitable loss of sensitivities which enrich human life. In our age, the constructive emphasis can be seen as a temporary anthropocentric aberration at the expense of man and Nature: On the one hand in having lost a strong wholeness to embrace the diversity and changeability of human life, and on the other hand in having lost the capability to continually maintain symbiotic poise between man and Nature.

Left with us from the progression away from more wholesome concerns are unresponsive physical manifestations. The technological, functional and economical skeleton is all around us, but gone are symbol, myth, sensuality, spirit and history; the flesh and soul of architecture [10]. There can be little doubt that moral and spirtual dedication have suffered correspondingly.

Such an idealistic philosophy has contributed to the development of a static and unresponsive architecture divorced from Nature. And the phenomenal deficiencies, both environmentally and energetically, are increasing in magnitude. They represent an unsophistication and impracticality in construct undisciplined to naturalism and humanness. Seemingly, they are revealing to us the ignoble vestige of a passing age.

2. EMERGING DUALISM: NATURAL * ORGANIC

> "Fitness of the parts to the design for which every thing is formed, either by art or Nature is first to be considered as it is of greatest consequence to the beauty of the whole." [11]
>
> William Hogarth

The development of the Modern Movement has tended to force creativity away from a natural formative basis, in the process losing holistic potential. A fundamental paradigm rebirth may be implied for revitalizing the lost potential of more natural design concerns in post-modern design. Seemingly, there can be no alternative because a continued domination of man over Nature, humanism over humanness only contributes to increasing anthropocentrism, thereby weakening moral and spiritual dedication and eventually leading to self-destruction.

Antithetical to the constructive developments of the Modern Age can be given an emerging dualism in the manifestation of natural creativity. On the one hand, the anathema to complete reliance on industrial environmental control technology to articifically temper indoor climate becomes an architecture truthfully responding to the forces and cycles of Nature, thereby properly subordinating metabolic mechanism. And on the other hand, the anathema to standardization in building form and social fabric becomes an architecture generated truthfully from human needs and desires, thereby properly subordinating formalism.

Generically, this antithesis to contemporary design approach can be viewed as the dualistic tendencies for order between "native constitution and outside environment"*, and may be seen as a parallel analogy to the dualistic tendencies for order in Nature, between organic

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*Gyorgy Kepes presents this dualism in a much broader context, stating: every phenomenon - a physical object, an organic form, a feeling, a thought, or group life - owes its shape and character to the dual between opposing tendencies. A physical configuration is a product of the dual between native constitution and outside environment." [12]

nature and inorganic nature.* In further description, this dualism may be expressed as the manifestation given to internal environmental factors (the inner 'nature') on the one hand, and to external natural environmental factors (the outer nature) on the other hand. The latter principle, through a responsive attunement to the natural environment, involves the creative expression of man - Nature harmony, seasonally and diurnally, and may be associated with the analogy of 'natural ordering' in architecture. The former mentioned principle through a generative order from the internal human environment, involves the creative expression of man-architecture harmony, experientially, spatially, and structurally. It may be associated with the traditional Wrightian thesis of 'organic ordering'.**

These two complementary principles of order may be given as the composition of a natural formative basis to post-modern architecture: An inherent dualism in natural creativity, the manifestations of which would embody truth, beauty and harmony paralleling that of Nature, without a formal search for them. (In this context, functionalism is

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*As it exists in Nature, this dualism was described extensively by John Ruskin in Modern Painters, where he distinquishes on the one hand the "typical beauty" of the broadest and most uniform order of Nature, and on the other hand, within this part of Nature, the "vital beauty" of the more special forms of organic nature, "as consisting in the felicitous fulfillment of function in living things." [13] And it should also be noted here that "vital beauty", in being modified by the forces and cycles of Nature inherently shares "typical beauty".

**It has been stated that "Wright's reflection of nature is in conforming to the classic example of Goethe, of that creative kind where intuition itself becomes thinking, and thinking as intuition." [14]

inherent to the manifestation and therefore it is not necessary to express it overtly). In endless complementary, these two principles or order are synergistically related, their manifestation having no distinct boundaries, but rather being in continual interaction from within to without: In a manner similarly to the way that an organic 'form' of a plant as well as its internal composition are modified in untold manifoldness by the action of the forces and cycles of Nature. And while it may be a presumption, it seems reasonable to say that an architecture embodying this dualism of order would hold a "vital" beauty paralleling organic nature (for instance the Gothic cathedral), and furthermore by sharing the cyclic order of Nature it would also share the "typical" beauty as well.

This nature formative basis may be seen to encompass the important generative potential that has been lost during the constructive progression of the Modern Age: A potential for a truly enhanced and enriched architecture having intrinsic fitness, variety and adaptiveness for fulfilling the full gamut of the human existence in harmony with the natural creation. To establish the truth in this theory, the appropriate 'parallel analogy' to architecture may be found in true vernacular building, which embody the fundamental expression of these two principles of creative ordering. Generally, most vernacular building inherently embody both 'organic order' and 'natural order' through the instinctive grasps of structure, form and space on the one hand, and the natural environmental factors on the other hand. Vernaculars can be likened to merely natural formative 'images'

virtually untouched by constructive or formal creative expression, aesthetically or technically. As expressed by Bernard Rudofsky in The Prodigious Builders, the manifestations of vernacular builders go to the root of human existence and in this sense are of more than technical or aesthetic interest [15].

Unlike vernaculars, architecture, even that within the Goethean distinction of formative art, requires complementary between a natural formative basis and its formal creative expression. In the spirit of a sophisticated creative balance, traditional Japanese domestic architecture provides a more direct analogy for this theory. Having maintained the integrity of its natural origins, this architecture embodies 'organic ordering' in the responsive organization of space and form and 'natural ordering' in its responsive attunenent to the forces and cycle of Nature. With the creative balance maintained by the Japanese until World War II, there is a veneration and high level of comprehension for Nature. This represents an antithesis to contemporary architecture of our Western culture.

3. SCENARIOS

It is worthy to note that the organic analogy of Frank Lloyd Wright is Romantic in origin* and therefore may be directly

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*Quoting from De Zurko in Origins Of Functionalist Theory, "Oskar Walzel has traced the idea of application of organic concepts and terminology to art primarily to the German Romantic Movement. Donald Drew Egbert accepts Walzel's thesis and finds German Romanticism the primary source of the organic architecture of Sullivan, Wright and Cropius ." [16]

associated with the nineteenth century Zeitgeist. The natural analogy, then, may be seen as a contemporary complement to this same but recurring Zeitgeist. While 'organic ordering' has been significant to the early development of Modern architecture, its complement of 'natural ordering' has been virtually insignificant. 'Natural ordering' may be seen as a lost potentiality holding new dimensions and beauty to architectural design which are held latent by the domination of industrial environmental control technology.

Natural Ordering In Architecture: Selective * Variable

> "While the earth remains,
> seedtime and harvest,
> cold and heat,
> summer and winter,
> day and night, shall not cease."
>
> Genesis 8:22

So far, modern man has chosen the ignoble Man-Technology relation over the Man-Nature harmony. In representing a fundamentally different paradigm, an architecture which embodies 'natural ordering' becomes free from an unresponsive environment and its inherent deficiency. As expressed by Mcharg, "we must abandon the self-multilation which has been our way and give expression to the potential of man-Nature harmony." [17] For our scientifically advanced culture to be inter-woven into the fabric of Nature, a fundamentally different basis must be formed through a fuller and deeper understanding and respect for Nature as well as our own innate capabilities.

Regardless of scale, architecture may be considered to embody 'natural order' when harmoniously integrated with the much larger order of Nature, nobly aspiring to Nature rather than existing in undisciplined dominion. More particularly, this end may be achieved by maintaining more symbiotical relations with Nature through environmental flexibility; a responsive juxtaposition with the changing natural environment gaining sustenance from the Benefactress. Such adaptiveness requires a complementary of both selective and variable responses to effectively temper the cyclic natural environment from summer to winter and day to night, if a harmony is to be maintained. For just a selective response necessitates a compromise without the capability to actively adjust to varying factors.

Here it may be noted that selective response can be exemplified by the work of Ralph Knowles in Energy And Form, concerning natural form responses and the derivation of geometrical orders for differing orientation, with respect to the natural cycles. And in complementary to a selective response, variability may be described as the further use of adjustable parameters. This may be exemplified by the use of seasonally and diurnally selective parts and systems that could be temporally adjusted to continually enhance man-Nature fit*, transcending simply a selective form.

In dynamic poise between the architectural and natural environments

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*In further explanation of this example, a design study is presented in Appendix II.

natural tempering systems would inherently embody the harmonious order of Nature. (This may be seen as an analogy to the way a sailing yacht is harmonized with its natural environment yet antithetically to that of a power boat.) Surely, intrinsic to 'natural ordering' in architecture is a natural beauty in the experientially rich and manifold expression of man-Nature harmony sharing the drama of our temperate seasons.

ORGANIC ORDERING IN ARCHITECTURE: Form * Space

As I have previously shown, the organic analogy has been prevalent during history inherently as formative art. De Zurko notes its persistence in antiquity, and in the Aristotelian sense it may be seen as artistic "wholeness" in which each part as well as the whole conform and contribute to its existence; "a unity which is unfolded and expanded according to the law of its own nature, an organism which developes from within." [18]

This regard for the individual internal nature, a form acting from within outwards, underlies most interpretations of the organic analogy. Stated by Sullivan, "the architect must cause the building to form naturally, logically and poetically out of conditions... [19]. And Frank Lloyd Wright expressed his conviction that "an organic form grows out of its conditions as a plant grows out of the soil, both unfold similarly from within." [20] Also Walter Curt Behrendt has described the organic principle in architecture as "one which takes the structuring as an organism, growing on its own according to the proper

and immutable law of its individual existence; ...developing itself in its proper lifespace." [21] To these expressions of the organic analogy can be added the additional point that organic form also encompasses the manifestation given to accidental site factors, such as views, access, and topography.

Regardless of personal variations in interpretations of the organic analogy, there is a common truth to be found. It is the manifestation given to inherent realities of a design problem, those qualities of being true to life. Organic architecture involves organization embodying a freedom to fulfill the diversity and changeability of human life free from imposed ideals, for example of eclectic aestheticism or functionalism, and "aims at being human before being humanist." [22]

The manifestation of 'organic ordering' lies in the organization of form (inclusive of structure) and space, in an unselfish response to needs and desires, whose whole transcends the sum of parts. Organic architecture, likened to organic creations in Nature ultimately embody an organic beauty through the creative expression of the inner nature of design.

CONCLUSION

Modern architecture has evolved to its present forms becoming less disciplined with respect to natural creativity, thereby losing a strong natural fomative basis. And without this vital creative motivation, architecture has lost much appropriate genesis and holistic value for fulfilling diverse and changing needs and desires of human beings. With decidedly little manifestation given to particular natural environmental factors and corresponding individual human environmental factors, the tendencies have been toward the standardization of architecture as well as life, rather than toward an increasing harmony in life and its manifestations.

Future development of a more holistic architecture is dependent on more balanced creative potential which can be realized only through a renewed natural creativity to provide the formative genesis which has been lost in the constructive progression of the Modern Age.

In the Wrightian sense that an organic architecture means more or less an organic society, a natural architecture further embodies a harmony with the forces and cycles of Nature. Through the natural formative dualism of order, architecture can embody a greater truth and beauty. And interpreted in more formal creative expression, natural architecture brings into light the contrasting pole of 'constructive' imagination. Its complementary with the natural formative basis may be seen to provide the foundation for a corresponding aesthetic and technic beauty to architecture.

Considering the severity of the projections for growth and diminishing resources, future architecture must be designed in more sophisticated harmony with Nature and man if beauty is to remain. It is the present necessity of man to evolve a new architecture vitalized by Nature in guiding the creation of a more morally and spiritually dedicated man-built environment. One where deficiency in design is elegantly dismissed to reveal even greater generosity in architecture to nobly fulfill human needs and desires.

The design of an architecture based on the formative dual of 'organic ordering' and 'natural ordering' holds lost potential for a truly enhanced and enriched architecture embodying the basis for a new beauty.

"THE TERMS OF BEAUTY, OR NATURE
WHICH ARE GENERAL IDEAS,
ARE BUT DIFFERENT MODES OF
EXPRESSING THE SAME THING." [23]

Joshua Reynolds

FOOTNOTES

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APPENDIX: TWO EXAMPLES OF 'NATURAL ORDERING' IN ARCHITECTURE

..."we have an instinct in us...
of the ordering of the universe:
and the object we admire answers
to that order, and reveals to us
the measure of its adaptation...
Seemingly, our own works must also
obey these natural injunctions:
tiny universes harmonized with great
ones by means of that relay, man." [24]

1. THE SAILBOAT ANALOGY

It is worthy to view a sailboat as a holistic composition, for in addition to an organic wholeness she embodies strong natural ordering with respect to particular imposed natural environmental forces. One of those rare instances where wisdom and necessity meet she is one of the most beautiful creations of man.

Manifested optimally to interface with Nature, the sailing yacht evidences a naturally generated complexity in response to the necessity to equalize the power needed for propulsion to that available from the wind. The sailing yacht evolved to her present forms responding to human and natural forces through two fundamental parts; the hull and the rigging. (A third but subordinated part being an auxilliary source of power.) The hull is a near optimal form with respect to the forces imposed, serving to minimize the amount of energy needed to sail through natural form response. It is a hydrodynamically stable configuration composed of living and working spaces. The hull then becomes the platform on which is situated the rigging, or energy collecting system. The rigging, through continual adjustment with changing direction and intensity of wind, enables the optimal juxtaposition of yacht to wind and water.

Of particular note, beauty is a quality intrinsic to the sailing yacht, in the forms of the hull to resist force and in the intricate and adjustable rigging to catch and deliver wind power. The antithesis to the sailing yacht may be considered to be a power boat because it

has not maintained the integrity of natural ordering. Consequently, the power boat is composed of two less sophisticated but corresponding parts: a hull and engine. The high energy engine, of low efficiency, is analogous to the HVAC mechanism which artificially tempers interior architectural climate in that both are depended upon as primary sources of energy. Unlike the sailing yacht, the power boat is not considered to embody as great a beauty.

The sailing yacht represents a design in which there is a high level of understanding of the natural forces and the physical parameters involved, as well as of anthropometry, and implications of the architecture; spatial, circulatory, aesthetic etc. Corresponding with a natural beauty is a sophisticated level of refinement and detail of various controls and objects with respect to human use, and this is possible only through fine craftsmanship.

In the holistic sense, the sailing yacht is a complexity representing a highly ordered, low energy manifestation, intrinsically beautiful. Underway, she is a configuration in harmony with all forces and experiencing the motion from the yacht's silent juxtaposition with respect to the wind and water is reminiscent of certain life-like qualities.

2. DESIGN STUDY: A SEASONALLY ADAPTIVE HOUSE

It must be mentioned first that the products of this design study were general ideas rather than architectonic form. Therefore, drawings will not be presented.

The emphasis or theme was in the generation of adaptive order with respect to the forces and cycles of Nature; maintaining that architecture should be capable of actively interposing itself between man and Nature through natural tempering systems, thereby lessening the seasonal and diurnal stress imposed by the external natural environment.

The house design embodies both a natural form response and natural variability for attaining harmony with the cyclic variations of Nature. And analogous to the sailing yacht, the house is composed of a 'selective hull' and a 'variable rigging' or energy tempering system. The discussion which follows will concentrate on one natural response, for the reason that in the concept of one the other is implied. This will be the variable response.

Situated within a rolling green meadow at the south edge of a small woods, the house is harmoniously linked to its surrounding site, gaining sustenance from the Benefactress, Nature. The summer architectural environment becomes the antithesis to the winter one; the summer tempering system being adjusted to a winter tempering system through a series of seasonal and diurnal environmental translations. The equinoxes become the transitory period during which the solstitial adjustments are made. Through the changing juxtaposition of the house to the sun and natural variations of climate, a year round well - tempered living environment is maintained, theoretically sharing the drama and character of the temperate seasons, experientially and associationally.

In general, the more internal environment of winter is segregated

from the external natural environment through spatial layering. In summer, the spatial layering translates to a more continuous progression from the inside to the outside creating 'gradients' in temperature, air flows as well as enclosure. It is through a varying degree and quality of this enclosure in both the western and southern interfaces that enables changes in the indoor-outdoor relationships during the course of the year.

The western interface provides the major entries as well as a porch in summer, as the glass envelope can be moved aside thereby integrating this space with the outdoor space. The outdoor space is shaded from afternoon sun by trees. Other functions of this space are the winter-time storage of four to six cords of hickory, as well as the collection of afternoon sunlight in winter. As an 'unheated' space, this space automatically maintains more or less a 'median' climate between the internal and external climates, thereby moderating the climate felt internally.

The southern interface, enclosed by a glass roof in winter, is more responsively attuned to seasonal and diurnal variations, and the adjustments which can be made are more dramatic. In addition to being used as a solarium or greenhouse during the winter, the kitchen, dining room, living room and bedrooms can open and extend into this space through a movable glass wall. In winter the transparency of the envelope is controlled by insulated louvers which follow the diurnal motion of the sun, becoming closed at night. Sunlight is absorbed by the masonry walls, plants, and through direct penetration into the

internal living areas. Natural convective air flows, enhanced by fans which are located at the top of the thermal storage mass, provide continuous ventilation. Additional thermal loads are brought from a series of south oriented flat plate solar collectors on the east side of the house. On sunless days, the glass partitions remain closed and air circulation is maintained only in the internal spaces. Also during sunless days, the wood burning system then becomes the primary metabolic system and is integral with the thermal storage mass. To the south, a large semi-circular landform has been created which becomes reflective after the first snowfall thereby providing additional sunlight to the greenhouse. The glare which may occur from this reflection, during the early morning and late afternoon hours when the louvers assume a more horizontal position, is controlled by blinds or screens integral with the movable glass wall.

During spring, adjustments can begin to be made for the summer. The glass roof is manually moved into a summer position beneath the permanently situated domestic hot water solar collectors. The tubular steel trusses remain in place, but the louvers can be dismantled and stored for the summer months. In their place are tensioned adjustable, colorful, canvass awnings between stays. Shade may also be supplied by vines growing from the sod and earthen roof covering.

To augment summer ventilation through the house, the dome above the stair may be opened to the north, thus providing an outlet for the southwesterly prevailing breezes. Also, the solar collectors on the east side of the house may be subtracted during the spring and stored

for the summer months to maintain the integrity of the natural landscape as well as to prevent unwanted reflections. The ductwork is in a permanent underground position.

The design study and ideas presented here represent only a very small segment of the nearly infinite potential involved in other kinds of adaptive systems. The use of lightweight structures such as pneumatics, tensile structures, tents and membranes provides even larger scale adaptivity, and surely will find their place once again in future architecture for the creation of a more human and responsive man-built environment.

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A NATURAL FORMATIVE BASIS TO POST-MODERN ARCHITECTURE

by

Willis Patten Lawrie

(ABSTRACT)

Within the cyclic order of history, the Modern Age may be seen to have an emphasis on constructive creativity contributing to its progression away from a natural formative basis for order.

As a fundamentally different paradigm to post-modern design approaches, a natural formative basis may be seen to embody the dual of 'organic ordering' and 'natural ordering': An inherent dualism in intuitive creative potential, the manifestation of which embodies truth, beauty and harmony.

'Natural ordering' is becoming increasingly important to energy conscious design of the post-modern age, representing a lost creative potential held latent by the emphasis on industrial-founded environmental control technology.