Architecture:
The Making of Metaphors

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By

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CAMBRIDGE
SCHOLARS
PUBLISHING

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This book first published 2012

Cambridge Scholars Publishing

12 Back Chapman Street, Newcastle upon Tyne, NE6 2XX, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-4438-3517-X, ISBN (13): 978-1-4438-3517-6

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PREFACE

The title: *"Architecture: The Making of Metaphors"* originates from a series of lectures held at Yale University in 1967. The intended purpose of this book is to give readers the wherewithal to better understand, manage and enjoy the design process and the built environment.

PHENOMENOLOGY

For any one individual *"Architecture: The Making of Metaphors"* is predicated on a personal encounter of both sense and mind. Kant's phenomenon philosophy and [34] Berleant's approach to aesthetics view an object as it is perceived by the senses. After having derived and developed the ideas of architecture as the making of metaphors it still incumbent on readers to realize the phenomenon and epiphany by relating them to the process of design and its environment.

Architecture: The Making of Metaphors is more than an idea but about phenomena and as such is the immediate objectification of awareness in experience. In earlier monographs I quoted [6] Husserl and others noting the *dasein* of the metaphor and the epiphany of the revelation coalesce in the understanding that architecture *is* the making of metaphors.

Implicit in this is the knowledge that experience, perception and design transform and that time, space and substance do not matter, except as part of the sanctified and separate experience of creation. It is that special awareness during the design and habitation of buildings where the phenomena of the architecture and metaphor live. When you get it, you know that you know, because the process and product achieve this end.

ACKNOWLEDGEMENTS AND SCOPE

To understand metaphor as a key to the built environment we explore what forms and shapes the built environment and why one building seems better than the next. As a key to the built environment (technology and context) metaphor is the answer which not only shapes the built environment but is the means by which we read what is formed. With metaphor as the *gestalt*, design embraces the whole.

Current design practices are enhanced by considering metaphors in both the programming and design process. To some this monograph will be a confirmation of current practice and to others a check-list. Many will discover how other scientific disciplines can be brought into the design conversation.

For me it was my wife, Christina Fez-Barringten (philosopher, theologian, writer, and artist), who introduced me to metaphors, their meanings and applications which in turn led me to the understanding of [1] Irving Kriesberg's announcement that [2] "*art was the making of metaphors"* from which I inferred from years of being initiated, that architecture, too, was an art. It was a metaphor, I saw a relationship and knew I had to connect them so I visited my mentor [3] Dr. Paul Weiss to find the commonality. Coincidently, at the time in 1967, I was one of the editors of Yale's Architectural Journal, "*Perspecta"*. I then needed to know exactly what a metaphor was.

Dr. Weiss suggested that I first visit the world's leading linguistic scholars all of whom just happened to be at Yale University. He made the arrangements, but after so many interviews I came up empty. He and I were both astounded. Still, needing the information we decided to bring together scholars and design professionals to form a symposium which could then be transcribed and published by *"Perspecta"*.

"*Architecture as the Making of Metaphors"* was organized near the Art and Architecture building at the Museum of Fine Arts Yale University from 11 February 1967 to 12 April 1967. The guest speakers included: Paul Weiss, [4] William J.J. Gordon, Christopher Tunnard, Vincent Scully, Turan Onat, Kent Bloomer, Peter Millard, Robert Venturi, Charles Moore, Forrest Wilson, and John Cage.

I would also like to acknowledge the contribution of E. R. Hart of Glasgow, Scotland (UK), in editing this book.

BACKGROUND TO THE RESEARCH

The Yale lectures were transcribed, but instead of being published by *"Perspecta"* part of the proceedings was published in 1971 by [5] *"Main Currents in Modern Thought"*. In 1991, after twenty years of professional practice designing and applying this approach to design, I wrote [6] many monographs, nine of which were then published by various learned journals (see references); six remain unpublished.

In Manhattan, from 1969 to 1973, we formed and operated [7] LME, "*Laboratories for Metaphoric Environments"* to bring together scholars and practitioners to further study metaphors. Out of this came a plethora of drawings now published in a book called [6] "*Gibe*". Many of my studies were also complemented by visits to Europe where I made hundreds of pen and ink drawings which were put into a book and now hang in art galleries throughout Florida.

In 2009, and as part of the conversations with scholars on the internet site called *Academia.com,* I again researched [8] Andrew Ortony's book entitled "*Metaphor and Thought"* (Northwestern University) which thankfully and finally had a compendium of linguistic, psychological, philosophical, educational, communication and scientific contributions on metaphors. From this and my notes from [3] Paul Weiss and [9] William J.J. Gordon, I wrote 21 monographs two of which have been published while the other 19 are submitted and awaiting peer review.

"Architecture: The Making of Metaphors" and several of my recent monographs were informed by my daily study of [10] David Zarefsky's (Northwestern University) lectures and book titled [10] "*Argumentation: The Study of Effective Reasoning"* published by The Teaching Company (see footnotes). There are many others which are documented in my references and footnotes as I am their grateful and passionate student.

All of this has been driven by my childhood quest which has persisted in my studies, teaching and practice, where I have learned that ultimately it is the individual talent within each designer, artist, writer, and scholar that finally shapes the works that surround us. The answer was there all the time, I just had to be "educated"; a process which I look forward to continuing for a long time as led by the example of Paul Weiss, who died at the age 103 years just after completing his last book, "*Surrogates*".

METHODOLOGY

Practicing what I preach, this book talks about one thing in terms of another in order to make the strange familiar. In this case the familiar is the phenomenon that architecture is the making of metaphors and the *strange* is both reasoning and science. To elevate a catharsis of underrating and aesthetic experience to intellectual pleasure, I have painstakingly followed [10] Zarefsky's outline, adapting it from "argumentation" to metaphor so as to bring structure to my own findings and those of Ortony, Weiss and Gordon. In so doing, I have found my type of writing analogous to my work on architecture, design, project and program development. [10] Zarefsky's work has given me a structure to further describe the results of my research. It is yet another in my efforts to explicate architecture as the making of metaphors.

This way of reasoning not only illuminates metaphor but articulates patterns by which metaphor is experienced. As "*Argumentation: The Study of Effective Reasoning"* defines how to build a case and support a resolution, so "Architecture: The Making of Metaphors" defines how to build design. In this way the vocabulary of argumentation tells us something about architecture and architecture tells us something about argumentation, they both use metaphors and are understood by a reasoned methodology.

ORGANIZATION OF CHAPTERS

Architecture: The Making of Metaphors is the key to the built environment and introduces metaphysical definitions and linguistic examples of metaphor. Metaphor is shown to be a tool used by designers, architects, and users as well as a medium which operates between creators and readers. It explains the tracks of the built metaphor as technical, conceptual, practical and artistic. Both the private and the public face the contrast between specific and plausible metaphoric pre-conditions. The role of design in the aesthetic of metaphors is viewed in light of art, common sense and practicality. Described also, is metaphor's usefulness in social, business, professional planning and in shaping society.

While I have drawn on my earlier research all of the material in "A*rchitecture: The Making of Metaphors*" is new and fresh. As much as the written word permits, I've tried to emulate what I would say were I invited to conduct a seminar.

Underlying Assumptions presents the role of design and the key assumptions we make when we make metaphors. It looks in particular at differences in macro and micro perceptions and conspicuous and obscure metaphors. It describes the combined use of metaphor as a rational tool for design and how design professionals and metaphors are surrogates for end-users. This is expanded upon by looking at the way in which design teams have a commonality not only in metaphor but in the way in which working relationships impact on their ability to form them. Finally, Chapter XII explores how metaphors are merely the surface manifestation of the conceptual (program, design and contact documents) metaphor.

Metaphoric Complementarities contrasts metaphors and sub-metaphors, process and product metaphors, implicit and obscure to conspicuous and overt metaphors as well as the metaphors of myth and fantasy. In this the role of art-verses-intellect is explored and six principles at work the way that the pairs inform one another, prioritize, sequence, interact and beget one another, triangulate and form a new cognition, and finally co-mingle and stratify.

History of Metaphor highlights the way metaphors have been used in architecture from prehistory to the modern day. Indeed, I highlight the architectural metaphoric vocabulary as defined by the social and political metaphor of each.

Stasis: The Heart of the Metaphor defines the focal point of a metaphor, the point at which contending factors meet where it is the commonplace in combination with a complex weave of dominant, sub-dominant and tertiary metaphors. In addition, I discuss when users and creators fail to agree upon the stasis as well as the consequences between representative knowledge and comparisons. It concludes with the making of habitable conceptual metaphors which, after assimilating the program, involves the initial steps needed to design and develop a "parte".

Metaphoric Bundling: Metaphor from Parts to Sum explains how metaphors bridge the gap between the strange and the familiar. It will also look at common errors in this pattern of inference as the reader perceives it with its warrants and connects the evidence. Resolving the "seen" from the "claims" to achieve a resolution, occurs when separate and potentially compatible elements are brought together to produce a working metaphor. The whole of the metaphor is designed in such a way as to clarify, orient and provide reification of all the design parameters that go into the creation of a highly structured work.

Metaphor with Comparisons describes the types of analogies and tests for making metaphors. Through comparison, including abbreviated similes, one can come to appreciate similarities and analogies which contrast the various ways in which metaphors predicate warrants. For example, figurative metaphors used to make the strange familiar, often talk about one thing in terms of another. However, they possess a certain commonality which is not mutually exclusive and indeed often reflects an essence which is common to both.

Metaphor as an Inference from Sign involves identifying how sign inferences work. In any sign inference there is a relationship between two factors: the knowledge of the sign, the predicate if you like, and those novel images and image metaphors that it creates. This chapter also discusses two types of mappings (conceptual mappings and image mappings) as the matrix of conditions, operation, ideal and goals of the thesis; the thesis being the establishment of similarities and differences. It concludes that below the level of consciousness, our use of metaphor is central to our ability to understand and act on experience. Sign architectural metaphors infer the unknown from the known, where constructs are unknowable yet presumed abstractions such as intelligence, economic health and happiness.

Cause and Effect illustrates how literary metaphors establish mental connections while architectural metaphors manifest themselves as material shelter. Whether large or small, loud or soft, simple or complex, intended or unintended, metaphors have an effect. Designers count on the

behavioral sciences to induce specific effects with such devices as compressed space, color to shrink or heighten scale, furniture of differing size, length of hemlines, textures, material qualities (luster, shade, light, dark, patterns etc.), lighting volumes, etc. Yet, while the intention and the cause are designed there may be unintended consequences or effects which demonstrate the influence of metaphor.

*Aesthetics as Commonplace of Metaphor c*onsiders inferences that are based on social knowledge (commonplaces) of aesthetics. Knowledge usually derived from direct and personal contact in a limited context such as a school, campus, work place, neighborhood, platoon, squad etc. This chapter explores aesthetics of scale and buildings to discover those which represent architecture, art or metaphor and those that do not. It will also look at contemporary aesthetics, cognition in creation and conceptual metaphor and how they can work together in the creation and perception of a particular aesthetic experience, subject or individual. Finally, this chapter will discuss aesthetic decorum, memory and historical points of view.

What Makes a Good Metaphor Validity and Fallacy examines errors specific to each particular pattern of inference, and deficiencies in clarity, which results from the use of unclear language. It will then consider general errors of vacuity ("empty" metaphors). We will consider how each of these misuses of metaphor can cause a design process to go astray in the summary descriptions of 15 different common and un-common forms (patterns) of metaphor. In conclusion, we will consider that a metaphor that is invalid is fallacious where fallacy is a deficiency in the form of a metaphor.

Metaphor between Surrogates looks at the practice of making metaphor in society. The organizing principle is the concept of spheres of metaphor, distinctive sets of expectations that provide contexts for making metaphors. After introducing the ideas of spheres and distinctions among the personal, technical and public domain, this chapter will concern itself with the personal sphere. It also discusses the non-literal use of language found in the habitable metaphor and investigates signs, symbols, shapes and forms.

Framing the Art vs. Architecture Argument attempts to resolve the argument surrounding the status of architects and urban designers in the making of metaphors. This is done by presenting the thinking on making both natural and synthetic cities as well the design of buildings and neighborhoods. Cited throughout are linguistic, cognitive, psychological and philosophical mechanisms of the metaphor and their applicability. The parties to the argument are indicated as well as their context and vested

interests. In the case of buildings, the argument of the art of the building may involve its price, quality, origins, uses, location and history of ownership. In any case the opponents would not delve to find the metaphors, concepts and ideas but instead would appraise and value the building in terms of its commercial "footprint" or is monetary value compared with similar properties.

Evidence of crisis comes in the form of a public who are apathetic or indifferent about the built environment because they construe it as irrelevant. People are lonely in big cities in part because the buildings have no individuality, identity and/or personality. The business community is faced with the dilemma of wanting quality, imagination and beauty or choosing utility, cost-effectiveness and prestige. Often they are ambivalent or disdainful of the people and processes which bring about these results.

The Six Ways: How Architecture Works as a Metaphor with Warrants to the Inference explains what happens when the evidence is presented to support the claim but may not justify the claim and therefore warrants are provided in support for or inference from the claim. The warrant, where a metaphor talks about one thing in terms of another, supports the claim that cities, estates, buildings, rooms, building systems, materials, forms, and styles are examples of architecture as the making of metaphors.

The supposition that architecture is the making of metaphors is supported by deduction. Since art is the making of metaphors and architecture is an art, ergo, it too makes metaphors. The 10 warrants to the inference are described (including metaphors) which allow us to express two truths at the same time; the past and the future. Metaphors make the strange familiar. They talk about one thing in terms of another by expressing a truth that is common to both. Architecture blends certain programmatic specifics with concerns that are implicit to its own medium etc. This is presented in six ways which prove how architecture is a metaphor in itself (as a whole) and through its parts (components) etc.

Design Construction Making a Metaphor explores the complex structure of a "program" (itself a metaphor) of metaphoric architecture as the program of design is used to compose a metaphor; the design and the program have a metaphoric relationship. *Topoi* ("stock issues") offer a shortcut to location issues in a given project; *topois* (which literally means "places") are issues that are always raised when addressing programs of a given type. The works of architects are not in themselves the metaphors but the shadow of the metaphor which exists elsewhere in the minds of both the creator and the user. It follows, therefore, that the creator and the user may have commonality (not a commonplace).

Reification includes metaphor's cause and effect; metaphor analysis; diagramming and complex structures. In the vocabulary of the program and *proforma* projects metaphor provides illustration of the process of making metaphor.

CHAPTER ONE

INTRODUCTION

Summary

In the preceding preface and introduction I presented the context of metaphors, relevance, acknowledgements, scope, background, methodology and organization of the chapters. The goal was to assure readers that this monograph would be worth their investment and outline what benefits they could expect from it.

It is my hope that not only will readers be able to make better metaphors but appreciate them as well; thus enriching one of life's great opportunities: the enjoyment of the built environment. In this first chapter I introduce imagination and provide an elaborate definition of the metaphor and its overall effects. I introduce the different kinds of metaphors and introduce those people who are involved in the creation, perception and use of them.

Scope

Metaphors and imagination are vital to understanding the built environment and go hand in hand in our ordinary life where, with very little information, we instinctively find a *commonplace*. In this way the most obscure, trivial or overwhelming is brought to light whether it be natural, man-made, social, etc. In this way imagination is the backbone of metaphors.

Metaphors are everywhere as in song, conversation, media, school, work, etc. It is in such things as a building's silhouette, volume, height, detail, windows and floors. It is by metaphors that the mystery of whom we are in the universe as well as what lurks in books, people, society, politics and government is found; from the little we can see we make the unknown familiar**.** Our built environment is no exception as we discern its essence, identity and impact on our daily lives. So the metaphor is a very useful tool. Metaphor is an eye-opener and mental guide to understanding and use of the built environment. Where did it come from and does it have

other uses? [3] Everyday usage of metaphor is borrowed from linguistics and applied to other contexts. However, I have come to discover that metaphor is also a disciplined system of thinking. Some would even say it is synonymous with thinking.

How is this way of thinking applied to building construction? While architects are the master builders (being the arbiter between the owner and contractor), the final building is a result of a metaphoric thought process called *design*, which creates the metaphor. Design is part of the professional process by which architects compose the metaphor. So, how does the literary metaphor work?

> [3] "Metaphor is a literary term which means "carrying over". It associates meanings and emotions which otherwise would not have been related. Words (essences) which have a preferential or primary use in one context are explicitly employed in another."

From linguistics we derive the form of the metaphor which talks about one thing in terms of another; makes the strange familiar; contains two peripheral elements which are both unlike and from different contexts, are apparently unrelated but have a commonality which is not apparent. Historically, [16] metaphor is present in the oldest written language (Sumerian/Akkadian) narrative: the *Epic of Gilgamesh;* and the idea of metaphor can be traced back to Aristotle. Modern European languages have a large number of metaphors which represent the whole of nature. Many of these, such as "*mother nature*", the "*celestial harmony",* the "*great chain of being*", and the "*book of nature*" are used in natural sciences and in literature.

Most of these words can be traced back into prehistory where they arose from the same small set of mythological images. Even hieroglyphics on cave walls are entirely metaphoric as language itself is essentially metaphoric expressing one thing in terms of another in order to find an essence common to both.

[3] When we use linguistic metaphor metaphorically we can say that a linguistic metaphor is the same as an architectural metaphor. This explains how we can understand the reasons metaphor is a key to the built environment especially when [11] "metaphor allows us to understand a relatively abstract or inherently unstructured subject matter in terms of a more concrete or at least more highly structured subject matter".

With metaphors, owner-occupied specialized works of architectural metaphors may begin to be composed after long periods of research, observations and analysis. With the metaphoric structure the Project Management Team (PMT) and/or designer arrive at conclusions from all

aspects of the process from start to finish. Metaphor is generalized when it is accessible, usable and compatible.

Such terms as “screaming headlines”, “brut architecture”, “foxy grandpa”, and “Richard the Lion-Hearted” take terms normally used in one context and bring them over into another with the object of illuminating or making more evident something in the second domain which would otherwise be obscure. What are building types with metaphoric identities? Architecturally, metaphor is seen in city hospitals, public libraries, public schools, dwellings, shopping malls as well as in their building details and processes.

Do metaphors have other benefits? [3] Metaphor is not a one-way process it allows us to express two truths at the same time. In “Richard the Lion-Hearted”, the kingly quality of Richard affects the meaning of lion and the strength of the lion affects the meaning of Richard. “Lion-hearted” tells us what Richard would be were he an animal, equally it tells us what the lion would be like were it human.

Both meanings converge in the idea of a being that not only rules but deserves to rule, which is not only brave, but brave in a particular way; brave as a leader, brave as one who serves to be leader, the metaphor, in other words, points beyond each of its members to the reality they diversely express, articulating a power common to both, telling us that they both have an intrinsic nature.

The whole of the architectural metaphor is structured in such a way as to clarify, orient and provide reification of all the design parameters into a highly structured work. It is a work which homogenizes all these diverse disjointed systems and operations into a well working machine. Very often the metaphor is not necessarily homogeneous but it is perceived as coherent, coordinated and complete; the aesthetics of which is the commonplace of the metaphor and subject of a later chapter.

> [3] “Architecture (design) is a common but imperiled activity. It is sometime thought that, because everyone does it, design does not require careful study. Design, indeed, is pervasive in daily life. It occurs everywhere from informal encounters between owners and contractors to the formally structured design agreement between an owner and design professional. Design is almost instinctive as we try to take control and rectify a situation. The very act of noticing a need is the first step and looking for remedies follows.”

Design is one way in which we attempt to shelter; it is possible, though, to design for oneself. [10] Design is not made in a vacuum and effective design is concerned with its audience as [11] though much of our

conceptual system is metaphorical, a significant part of it is non-metaphorical. Metaphorical understanding is grounded in non-metaphorical understanding.

The science of the strength of materials, mathematics, structures, indeterminate beams, truss design, mechanical systems, electricity, lighting, etc. are each understood metaphorically and their precepts applied metaphorically. But often selections, trials and feasibility are random and rather a search for metaphor without knowing what it is or how, indeed, or if it will fit. Is this the right context for a steel or reinforced concrete structure? What roofing, which siding, etc.? On the other hand we may select another based on non-metaphorical, empirical tests or descriptions of other properties. We then try to understand the metaphor in the selection, we do so through its commonality, how it contributes to the new application or by what attributes it contributes.

> How does metaphor compare to art? [3] "On the other hand architecture 'assaults' us every day; it is the intrusive art from which there is no escape. It is always with us, either enclosing us, pressing us down within its four walls, or outside looming at us on every hand. We can close a book of poems, turn off a symphony, refuse to go to a play or watch a dance, and shut our eyes to a painting or piece of sculpture. But architecture cannot be avoided."

Architecture as the making of Metaphors is the [10] study of effective design (see Chapter Nine). Popular conceptions of the use of metaphor in linguistics need to be set aside. It is not only the picturesque, allegorical or translation - but an operating cognitive, psychological, sociological and political mechanism. Metaphor is transferring, bridging and carrying-over where transfer can bridge anything to anything and has consequences. In this way metaphor is the key to the design and enjoyment of the built environment.

One of the conditions to enjoyment ultimately depends on the *assent* of users, audience, inhabitants, etc. Assent is based on users' acceptance of the design and often involves making the work one's own. [12] Peculiarization, personalization and authentication are required for a metaphor to live. This, too, is the way the user metaphorizes the using process: the user and the work *empathize*.

In this is the art of making metaphors for the architect of public works. His metaphor must "read" the cultural, social and rightness of the metaphor's proposed context. Whereas a dead metaphor is one which really does not contain any fresh metaphor insofar as it does not really "get thoughts across"; "language seems rather to help one person to construct

out of his own stock of mental stuff something like a replica, or copy, of someone's else's thoughts". I say: "dead-in, dead-out" and "you are what you eat"; designs without concern for scale, hierarchies, scenarios, surprise, delight, vistas, etc. will be "dead", they are without an aesthetic.

In fact, they are *technê* engineered buildings without metaphoric (aesthetic) concerns. Such a work is a *technê*-driven design where "craft-like" knowledge is called a *technê*. It is most useful when the knowledge is practically applied, rather than theoretically or aesthetically applied. It is the rational method involved in producing an object or accomplishing a building design. It is actually a system of practical knowledge. As a craft or art *technê* is the practice of design which is informed by knowledge of forms and methodologies such as the "craft" of managing a firm of architects where even virtue is a kind of *technê* of management and design practice, one that is based on an understanding of the profession, business and market.

Sub-metaphors which alone are strange and unrelated, when coupled with the whole become part of the created metaphor connecting the given to a proposed, or a building system to a dimensional module which turns an architecturally amorphic scheme from a diagram into reality.

This introductory chapter provides metaphysical destinations and linguistic examples of metaphor. Metaphor is shown to be a tool used by designers, architects, and users as well as the medium between its creators and readers. The built metaphor is explained as the dual tracks which combine the technical and conceptual with the practical and artistic.

Technê are such activities as drafting, specifying, managing, negotiating, programming, planning, supervising, and inspection; by association with these, we can include house-building, mathematics, plumbing, making money, writing, and painting. There is a tendency to downplay study and practice of design in the humanities and to downplay theories of architecture in favor of developing the "crafts, skills and understanding" needed to engineer, plan, sketch, draw, delineate, specify, write, and design.

It is confirmed in common-sense experience with most buildings in most cultures that what it is we refer to as beauty is well made and what is well made is often something of beauty. Even the lowest budget and least expensive project can be exquisite when beautifully designed. In either case the user reads the metaphor.

[3] There is a public and private face to design and metaphor. There is the overt and obvious and then there is the obscure and implicit. Metaphors of the private, personal and intimate are where we imagine and

picture something from what is apparent. We translate and transfer the real into a future not yet manifest.

The more the internet bombards us with images and solutions the less we have the time to "picture". Design may be a lost art. [11] Plausible accounts rather than scientific results are why we have conventional metaphors and why conceptual systems contain one set of metaphorical mappings rather than another.

An architectural work establishes its own vocabulary which once comprehended become the way in which we experience the work, finding its discrepancies and fits and seeking the first and all the other similar elements. We judge the work on the basis of consistency, integrity and aesthetics. Buildings which do not have these characteristics do not work as metaphors. It is similar to the experience of reading a proposed manuscript with blatant typing, spelling and grammatical errors; the content is there but difficult to decipher. The same applies to design documents which are poor poorly drafted, where lettering is not aligned and where titles and descriptions are inadequate and vague.

The relevance of studying the metaphorical basis of architecture is to provide practitioners, owners, and mainly architects who shape the built environment that they have a somber and serious responsibility to fill our world with meaning and significance. As in city planning where the [11] geometry of urban blocks and the location of building masses that reflect one another is a scheme to sharply define the volume and mass of the block and experience of city streets (Vincent Scully).

In New York City the grid and the insistence that buildings reflect its geometry is a metaphor of city-wide proportions. The streets are defined by the 90 degree angles, planes and the tightness of the cubes and rectangles to the city plan. In this way the metaphor of the overall and each building design, no matter where its location on the block, no matter when or in what sequence the metaphoric constraint of appropriateness or zoning formulas, all lead ideas to flow from architect to another.

One of the keys to accessing the built environment is the reader's ability to "appreciate" (to value is to attach importance to a thing because of its worth) the street, its geometry, limits and linearity. These are ideas in the [12] conduit from the architect, through the metaphor and to the reader where a conduit is a minor framework which overlooks words as containers and allows ideas and feelings to flow, unfettered and completely disembodied, into a kind of ambient space between human heads. Regardless of the details, the overall concept is "transferred "from one to the other, irrespective of sub-dominant and tertiary design elements, they flow without regard to their content, meaning or relevance.

[11] Architect and client may have different design ideas but the actual design is the antidote. The difference between productive design and irrelevant design is in the understanding of principles. Metaphor is both objective and subjective, what is seen and what is not seen; for the public and for the designer. Even the distinction between the client and the designer is between practice making metaphors with skill, knowledge and resources.

One of many warrants is "recognizing", exemplified by operating the front door of a castle as we would the front door of our apartment; another warrant is the "adaptive uses" of obsolete buildings to new uses as adapting a factory to multi-family residential use. We see the common space and structure and reason that the building codes written to protect the health, safety and welfare of the general public can be adapted and the property re-zoned to fit the new uses in the fabric of the mixed-use zoned area. We can [12] "comprehend abstract concepts (building codes and design layouts) and perform abstract reasoning".

There is a design vocabulary for the public and one for the contactors, building officials, trade, etc. The metaphor for the public is social, political, corporate, contextual and familiar; the metaphor for the contractors is technical, legal, and constrained by the laws of physics, engineering and government.

Design is both a product and process and occasionally people focus on metaphor, the product of design. Metaphor is both explicit and implicit; [13] the difference between the indirect uses of metaphor and the direct use of language to explain the world is referred to as tangential thinking, that approaching a subject from its edges without getting to the point. For example, when users accept works which are vague, inane, and nondescript, evasive and disorienting, they are accepting inane metaphors.

The result is provided by drab public housing, "ticky-tacky" subdivisions, anonymous canyons of "plain vanilla towers" (with countless nameless windows, offices with a sea of desks, nameless workstations and the daunting boredom of straight highways on a desert plain), they are given indirect metaphors. This, too, applies to works of architecture which assemble and construct the minimum in a stoic fashion considering the least needed to produce a work that fills the minimum economy of its commission.

As such many architectural works escape the many and various realities settling for a minimum of expression. Elements or the whole metaphor can be referents when the design metaphor is cast into language and in architecture that language is ultimately the building. [14] The building incarnates the basic principle of an expression with its literal

meaning and corresponding truth conditions and can, in various ways that are specific to the metaphor, call to mind another meaning and corresponding set of truths. In other words “one thing reminds us of another”. We can see a graphic, natural form, or sculpture and explain in words what we see with our eyes.

The words we use are symbols for what (metaphors) we already know, but the combination of these particular words about the specific visual is unique**.** Elements of the metaphor and the metaphor are *referents* because they refer to something outside of themselves. Without apparent rhyme or reason metaphors of all arts have a way of recalling other metaphors of other times and places.

In my mind I recall Brooklyn brick warehouses on Atlantic Avenue with turn-of-the-century Ford trucks and men dressed in vests, white shirts and bow ties loading packages from those loading docks under large green metal canopies. The streets are cobbled. I can cross to this image when seeing most old brick buildings in Leipzig, San Francisco or Boston. In these cases the metaphor is the referent.

Designs are capable of analysis and appraisal [11] as various subject matter from the most mundane to the most abstruse scientific theories, can only be comprehended via metaphor, as each perceives a different part of the metaphor and with one’s own unique metaphors where some notice the conditions, others the operations, others the ideals and yet others the goals of the designs. As one reifies the form with words, new truths about perception, context and identity become apparent. Even an anonymous Florentine back alley’s brick wall, carved door, wall fountain, shuttered windows, building height, coloration of the fresco communicates with us.

Design is an interaction in which designer and client, designer and user maintain what they think are mutually exclusive positions, and they seek to resolve their disagreements or differences. They are in a surrogate relationship where the relationship between designer and user is one of trust. [3] Architecturally, a surrogate is "a replacement that is used as a means for transmitting benefits from a context in which its user may not be a part”. Here, too, the user trusts the metaphor and its referents. In this way architecture’s metaphors bridge the gap between the program, designs and contactors to a shelter and trusted habitat.

The user enters and occupies the habitat without his having formulated or articulated any of its characteristics. Yet it works. It makes sense, therefore, to speak of two sides to a surrogate, the user side and the context side (from which the user is absent or unable to function). Each of us uses others to achieve a benefit for ourselves. We have that ability. None of us is just a person, a lived body, or just an organism. We are all three and

more. We are singulars who own and express ourselves in and through them. In my early twenties, I diagramed "being" as "appetite", "desire" and "mind". I defined each and described their inter-relationships and support of one another. Metaphor is one and all of these. It contains both our experience of sharing our inner life with the world outside. [3] In our mother language and other primary things we, too, ascribe like relations with objects and even buildings, assigning them a value from which we may benefit and which we may support.

We cannot separate these three from each other so that it follows that we may find it impossible to separate ourselves from the external metaphors. Inferences that are not yet warranted can be real even before we have the evidence. Metaphors are accepted at face value (*prima facie*) and architecture is accepted at face value. [3] It is surely desirable to make a good use of linguistic surrogates. A common language contains many usable surrogates with different ranges, all kept within the limited confines that an established convention prescribes. It is amazing how different people can understand one another and how we can read meaning and conduct transactions with non-human extents, hence architecture.

Architecture is such a "third party" to our experience, yet understandable, and in any context. In his search for what is real Weiss says he has explored the large and the small and the relationships that realities have to one another.

> "Accustomed to surrogates architecture is made by assuming these connections are real and have benefit. Until they are built and used we trust that they will benefit the end user. They seek to convince each other, but at the same time they are open to influence themselves. Science studies how designer and client go about resolving their difference into a single metaphor that might be acceptable to both the client and the public."

This brings us to design which is the field of study in which rhetoric, logic, linguistics, engineering, art, architecture, building, behavioral psychology, philosophy, and sociology meet and like rhetoric where we derive our concern for the audience. Collectively architectural interiors, product, fashion and industrial design are much more because they involve the manipulation by sketches, plans and diagram spaces, boundaries, materials, volumes, shapes and forms.

Design is not only cerebral and conceptual but tactile and artistic. In stark contrast to contemporary abstract architecture, today's rhetoric often has negative connotations, including insincerity, vacuity, bombast and ornamentation. Yet it has a passionate yearning for the expression of the materials and their properties. Historically, classical understanding of

rhetoric was the study of how messages influence people and focus on the development of communication and knowledge between speakers and listeners, or in the case of building design, between designer and user.

One example is [15] instructive metaphors which create an analogy between a-to-be-learned system (target domain) and a familiar system (metaphoric domain). It was in recognition of the responsibility of the relationship between design and users as between the properties of materials, that Frank Lloyd Wright separated from the architecture of Louis Sullivan and what spurred the collective work of the Bauhaus in Germany, that is to express the truth about the building systems, materials, open life styles, use of light and air and bringing nature into the buildings environment, not to mention ridding design of the clichés of building design decoration, and traditional principles of classical architecture as professed by the Beaux-Arts [2] movement. Many critiques ascribe their behavior and works with integrity, elegance and consequence.

All of this ushered in a primary change to the aesthetic of equipoise when "unity, symmetry and balance" were replaced by "asymmetrical tensional relationships", between "dominant, subdominant and tertiary" forms and the results of science and engineering influence on architectural design a new design metaphor was born.

The Bauhaus found the metaphor in all the arts, the commonalties in making jewelry, furniture, architecture, interior design, decoration, lighting, industrial design, etc. [10] In this sense, "thinking rhetorically" means reasoning with audience predispositions in mind, a definite prerequisite in architectural design and the function of the metaphor to make the strange familiar. From logic we derived our concern with the form and structure of reasoning. Today, logic is often mistakenly seen as encompassing only formal, symbolic and mathematical reasoning. Informal logic, from which design borrows, is grounded in ordinary language, art, sculpture, geometry, and describes reasoning patterns that lack the certainty of mathematics.

[10] Ethical considerations figure prominently in design because metaphors affect people. Any attempt to affect other people raises ethical issues; it is a limitation on freedom of choice; it is the application of superior to inferior force. Design seeks to achieve ethical influence and it does not influence people against their will but seeks their free assent. Yet buildings are externally intrusive and public, giving people no choice but to see them. This fact alone contributes to designers and public officials making sure they are politically, socially, and culturally correct. In a pluralistic and diverse society this also means welcoming bland, abstract and the non-descript works.

Without influence, the conditions of society and community are not possible. We are virtually all about metaphors between each other and our surroundings. Design respects different ways of thinking and reasoning knowing that metaphors are a way of reasoning. Life drawing of a metaphorical work dramatizes the way in which we approach the technical metaphor as it involves rendering on paper what is seen without concern for its function, history or identity. Drawing and seeing in this way is about the only time we can confront a metaphorical work and construct its image, however accurately, by eye to hand motor activity absent of the conceptual metaphor or the metaphor it may conjure up.

While the very act is metaphorical in that there are two referents, the object and artist, the technique results in a drawing which is indeed a picture as accurate as the eye and hand can render leaving the conceptual for another time. Perceiving and seeing, in general, require rigor and some training. Most of commonplace training comes with use and familiarity, but "seeing" is a learned behavior and metaphors very much depend on this ability. Much of the metaphor presumes this discipline to one or another degree. Of course, the more disciplined and trained, the more will be the metaphor experience.

To illustrate how the metaphor is a key to the built environment [10] this book will explore the nature of architectural design metaphors.

a. I will try to accomplish several goals.

1. Develop a vocabulary that helps us to recognize and describe design metaphors.
2. We will become aware of the significance of choice and will broaden our understanding of the choices available to designers, architects and users.
3. We will develop standards for appraising designs and explaining what will make them better.
4. We will examine a variety of historical and contemporary design examples.
5. We should improve our abilities both as analysts and as designers.

b. We will follow an organizational plan

1. We will begin by reviewing the assumptions underlying design and the historical development in the field.
2. We will then explore strategies and tactics of design construction, applications and use.
3. We will consider the components of design in more detail and consider how they work.

4. We will investigate the concept of validity (unintended consequences of metaphor) and consider the fallacies in design.
5. We will investigate how design functions in society, the personal, technical and public spheres.
6. Finally, we will review a project *proforma* to apply what we have learned about making and perceiving architectural design metaphors.

Remember, [12] not withstanding "idolatry" the metaphors are the contexts of life's dramas as our physical bodies are read by our neighbors finding evidence for inferences about social, political and philosophical claims about our culture and their place in the universe. Even if you are now weak in reading metaphors, know that they are all about and part of the illusive mystery and reason your environment brings you no joy.

CHAPTER TWO

UNDERLYING ASSUMPTIONS ABOUT METAPHOR

Summary

In the previous chapter I introduced the role of imagination and quoted Paul Weiss' elaborate definition of the metaphor and its overall affects. I introduced the different kinds of metaphors and who is involved in the creation, perception and use of them. I did so with the understanding that this chapter would delve deeper into the design process and its differences as well as the importance of understanding the variations of perception of metaphor. Most importantly, I discuss the bond between designer and universal client (user, public, inhabitants, visitors, pedestrians, etc.).

Scope

What are the underlying assumptions about metaphor and how do they affect the design and use of the built environment? The reader will find that when I refer to making metaphors, I either mean *design-making* or a *reading audience*. In addition to what I have described in Chapter One and elsewhere, design includes research, choices and decision-making. Because metaphor is a vehicle of communication there are several key assumptions that we make when we apply the metaphoric structure (the subject of this study).

In this regard we will focus on five key (and underlying) assumptions: first, design takes place with an audience in mind and the audience is the ultimate judge of success or failure; second, design occurs only under conditions of uncertainty, about matters that could be otherwise (there are as many design solutions as there are designers and users); third, design involves justification (rather than proof, hence design juries, *charrettes*, programs and contract documents); forth, despite its seemingly adversarial character, design is basically cooperative (amongst surrogates) and fifth, designers, architects, contractors, clients and users accept risks, and their nature and significance will be explained.

Since design takes place with an audience in mind that audience is the ultimate judge of success or failure. The essence of communication is to be heard; we are relationship creatures who utter sounds and hear others to learn, understand our place in the universe and interact. Design is merely a complex extension of this process. The design is seen and the audience reacts with words.

Historical examples establish the significance of the audience. Belmopan city was a project I designed using building systems I selected where local unskilled workers could merely assemble pre-manufactured parts; where I designed open "dog run" areas to reflect the traditional house plan and indigenous cladding from Belize.

Barwa City was designed to provide low-cost housing to immigrant workers and their families in an area which was once a toxic waste dump and only accessible by a highway which was overrun with traffic .I managed to get additional roads and access to the site and made it safe.

King Faisel University New Campus designed by a French architectural and engineering firm had many separated buildings and was located on the Arabian Gulf. The theme of the design included round columns and was only designed after numerous meetings, questionnaires and statistical analysis of needs.

These examples suggest that the claims being advanced were not universal truths but subject to the acceptance of actual listeners. The particulars of an audience's situation will affect its values, priorities, and methods of judgment. The audience for design consists of people the designers want to influence; not necessarily those who are immediately present. Recognizing differences in audience beliefs does not entail accepting the idea that any belief is as good as any other. The consequence of this could be blasé, inane, or "plain vanilla" outcomes where apathetic design produces banal results.

However, design takes place under conditions of uncertainty and need. We do not design something that is already designed although even the notion of design is audience-dependent. Whether the architect goes through rigorous programming or simple intuition, the design is made as a metaphor meant to be shared, used and unfolded. The metaphor and sub-metaphors are all meant to be perceived, used and linked to human scale and particular users in particular places for particular reasons. While some designs are Pavlovian, looking for responses based on certain stimuli, others generally project pictorial references for enjoyment. Yet there are haphazard fabrications which defy peculiarization such as pre-engineered manufactured buildings.

Yes, these too have their own aesthetic and when metaphors are applied in a metaphoric way they are thought to be very beautiful. However, things that are not designed are potentially controversial. If these are set in residential neighborhoods amidst single family residences they will be rejected as inappropriate and dissonant. The lack of control and disarray is normally rejected in any context.

The style of “de-construction” capitalizes on discombobulation. Deconstructivism in architecture, also called “deconstruction”, is a development of post-modern architecture that began in the late 1980s. [16] It is characterized by ideas of fragmentation, an interest in manipulating ideas of a structure's surface or skin, non-rectilinear shapes which serve to distort and dislocate some of the elements of architecture, such as structure and envelope. The finished appearance of buildings that exhibit the many deconstructivist "styles" is often characterized by a stimulating unpredictability and a “controlled chaos”.

As an aside this study is not to determine the merits, metaphor, relevance and aesthetics of one or another style. It is not even to discuss style as a particular kind, sort, or type, as with reference to form, appearance, or character. Yet when the style of the house becomes too austere for users it is obviously a metaphoric matter. However, that being said, very often clients will make their style preferences known to their designer and in words and graphics so that one or another aesthetic style may be employed. We will study this in more detail in the chapters on Aesthetics and History.

As the metaphor is a key to understanding the built environment metaphors involve genuine differences of perceptions that matter to the participants and which they wish to see resolved. Both referents are strange, adversarial and sovereign yet have an underlying commonality and a way to both engage and resonate. You might say there is an underlying harmony and equipoise in dissonance in cacophony. Designs have multiple dimensions. [13] There are distinctions and relationships between micro and macro metaphors and the way they can inform one another as the form of a design may refer to its program or a distinct connector may reflect the concept of articulation as a design concept. The way one 45 degree angle may reflect all the building’s geometry, more the way the design concept, design vision drawn on a napkin can be the vision, *gestalt*, formulae and “grand design” of a particular project. Such an ideal can be the rudder guiding all other design decisions.

In classic periods the royal design was emulated by the citizens and those outside the court adapted some of the functional concepts. In those times emulation of the royal style was advised to engender favor,

protection and alignment with the ruler. The macro metaphor would drive the micro while they both informed one another.

Egyptian, Greek, Roman, Gothic, Renaissance, Baroque, Rocco, Gothic, Tudor, Empire, Biedermeier, Modern, etc. are examples of styles and periods where a macro design imperative controlled micro decisions. The same applies, vice versa, where construction means and methods determined certain designs and styles as in the Gothic flying buttress and the Roman arch. [10] They may be explicit, overt, and conspicuous (recognized by the participants), or implicit and obscure (recognized by an analyst). An analyst may be someone like a lifetime inhabitant of an Italian village who can not only identify, locate and describe each of the village's artifacts but their history, design philosophy and designers even when the implicit is not perceived by the users since they do not know the factors, commonalities or differences of the component factors. They may be unmixed (only one user or one designer maintains a design) or mixed (multiple users and multiple designers). They may be single (relating to only to one design solution) or multiple (relating to more than one design solution).

Uncertainty implies that things could be otherwise; the outcome is not known for sure (there can be many metaphors and design solutions). Therefore, there is an inferential leap in the design, from the known to the unknown; the "metaphor makes the strange familiar while talking about one thing in terms of the other". The audience is asked to accept this leap. Since metaphor is the main mechanism through which we comprehend abstract concepts and perform abstract reasoning: [11] What is built is first thought and conceived separately from building as thinking and conceiving are separate from the outward expression, so metaphor is a process and architectural metaphor is a process and what we see is what the process issues; not the manifest metaphor.

Basic to understanding the built environment [10] design involves justification of its claims; designers and clients (PMT or Project Management Team) offer a rationale for accepting an uncertain design program. Design being a controlled disciple is girded by the expectation of reason. It is neither capricious nor cerebral aggrandizement but rather a fierce reckoning into form of disparate contradictions and complexities. The result is a design which in turn communicates the created metaphor. The rationale represents reasons for making the inferential leap. The reasons are acceptable if they can convince a reasonable person who is exercising critical judgment.

Design programs and design documents which precede construction must be accepted by the client prior to executing the construction contract.

Contractors will build from nothing less. If so, we say that the design is approved. To say that programs are justified entails certain implications. Justification is different from proof; it is subjective and dependent upon a particular audience. It implies that people are willing to be convinced, yet skeptical enough not to take statements on faith. Justification (defense) is always provisional and subject to changes in information or design. Often programs and schematics are combined to offer clients graphic tests of assumptions to clarify the metaphor, whatever it takes to make the strange familiar. Their requirements are not strange but the designer's understanding and assumptions and potential graphic need to be made familiar. It varies in degree of strength, ranging from merely plausible to highly probable. Architecture's metaphors bridge from the program through designs and contactors to a shelter and trusted habitat.

The user enters and occupies the habitat after having formulated but not articulated any of its characteristics. Imagine that, someone rents, buys or squats in a dwelling without talking to anyone about its merits. Yet, it works with only an inner cognition.

Design is fundamentally a cooperative enterprise where the architect is the surrogate of the client against the contractor but a consultant to the owner. [3] A surrogate is a replacement that is used as a means for transmitting benefits from a context in which its user may not be a part.

> "It makes sense, therefore, to speak of two sides to a surrogate, the user side and the context side (from which the user is absent or unable to function). Each of us uses others to achieve a benefit for ourselves. We have that ability. None of us is just a person, a lived body, or just an organism. We are all these and more. We are singulars who own and express ourselves in and through them."

In my early twenties I diagramed a person as a combination of "appetite", "desire" and "mind". I defined each and described their interrelationships and support of one another. Metaphor is one and all of these plus our first experience of sharing life within with what is outside. PMT shares a common goal of reaching the best possible decision under the circumstances. The surrogate elements of design are a means toward the achievement of this common goal. They improve the rigor of the procedure; they reduce the likelihood that critical details will be omitted and they increase confidence in the result.

There are other matters in which the PMT agree as [11] a frame of reference: some level of commonality upon which their differences are built. The metaphor-building clarifies our place, status and value. As metaphor is the main mechanism through which we comprehend abstract

concepts and perform abstract reasoning, so works of architecture inform our social, psychological and political condition. They share a common language and system of meaning. It is the job of the design professional to ascertain these differences and by metaphors make the strange familiar and clarify differences until there is a common vocabulary.

They share procedural assumptions and norms, such as what counts as existing conditions and any evidence demonstrating needs and necessities, operations, ideals and goals of the proposed. [3] "They share the values of modesty, respect for the users (readers) and the importance of free assent." Just imagine finding a military armored tank and pontoon boats on Main Street. While they would be recognizable they would be uniformly perceived as incongruous. Likewise buildings in most areas follow conventions of building systems, coverings, shapes and forms; to the extent that it would be prohibitive to build a flat roof house in a typical subdivision of gabled roofs. Perhaps you could build a mansard, pyramidal, hipped or gambrel, but not a flat profile. Many subdivision protective covenants, ordinances and rules include these understandings mandating such metaphoric design standards.

Metaphor is crucial to understanding risks when creating and using the built environment. Design entails risk. PMTs face two principle risks. They face the risk of being shown to be wrong and hence redoing the contract, program or design. If built they face having to suffer the public's criticism of non-functional facility and to make costly repairs. They face the risk of loss-of-face, shame and embarrassment from the perception that they have performed badly in the design. If a person knew, for sure, that he or she had a design solution, that person might not have an incentive to engage in design process.

For example, some architects will not engage in design with those who seek to ignore building codes, local ordinances and manufacturers' recommended means and methods. Others will not engage in design with those who cast doubt on generally accepted architectural, metaphorical or design theories. Conversely, the decision to engage in design suggests a willingness to run the risks.

People run the risk because they do not know for sure that they have the program and all that it takes to deal with a contractor, building department and the general public. The architect process and what is assembled may or may not correlate; likewise what we perceive of what we see is not necessarily what we think or believe we have seen. As thought, poetry, song, etc. architecture is both precise around the technique but vague about the cultural, psychic and social bridges. Yet architecture is rich with its icons, classic silhouettes, orders of architecture, styles and

periods. While it wants to be right and its PMT righteous it does not want to be a safe copy nor a clone.

Another underlying assumption about metaphor [11] is that it is fundamentally conceptual, not linguistic, in nature. It is the difference between the thing and what we perceive. Our perception of a particular building is the metaphor while the building is the evidence of the design process and the keys to unlock our mind. [11] Architecture's metaphorical language (building) is a surface manifestation of conceptual metaphor (program, design and contact documents). The built metaphor is the residue, product and periphery of the deep and complex reality of the building's creative process and extant reality. As we don't know the inner workings of our car and yet are able to drive, so we can use our buildings as what we design and what we read not the metaphor but a surface manifestation of the concept metaphor. It is a concept which we can only know as well as we are able to discern metaphorical language. The construction and the metaphor beneath are mapped by the building being the manifestation of the hidden conceptual metaphor. To know the conceptual metaphor we must read the building.

Metaphor is a key to the built environment

People run the risk because they value the judgment of the other members of the PMT and want assent only if it is freely given. In this way they optimize the chance of getting a coordinated, complete and comprehensive metaphor, one that is relevant and compatible with the context, users and general public. In valuing the personality of the client, the designer claims the same value for him or herself. In making the metaphor the first test is for the maker to believe that what was communicated to the maker will also communicate to the client. The reciprocity of the metaphor in shaping the built environment is natural to the mechanism of the metaphor. However, for the sub-metaphors the makers must rely upon county officials for code compliance, manufacturers for technique and contactors for means and method of construction. They do not always participate in the making but in other aspects of conditioning the metaphor. Lastly, a conceptual metaphor may be exemplified by a game where you name a string of common characteristics and the challenger then may answer contextually: "things that are on animals, in buildings, etc." In other words people can identify the metaphor once given a set of common characteristics. The challenger makes a metaphor between the words and association best suited to those words. When naming the thing and it coincides with the proponents, the

challenger is correct. If he loses he still may know the string but not what links them.

To echo what I said earlier, an inhabitant is still able to function in the world but not in the instance of the game. Armed now with the underlying assumptions about metaphor we shall now further see how it works.

CHAPTER THREE

METAPHORIC COMPLEMENTARITIES: TECHNICAL AND CONCEPTUAL METAPHOR AND IMPLICIT AND EXPLICIT PROCESS

Summary

In the previous chapter I described the design process and its differences as well as the importance of understanding the variations of perception of metaphor. I also discuss the bond between designer and universal client. This third chapter divides the types, kinds and characteristics of the metaphor giving the learner perspective on the multiple aspects it has. This should answer readers who know that all metaphors are neither the same nor of only one kind. In a later chapter will give specific examples of the different kinds of metaphors but in this chapter only the characteristics, application, and roles of metaphors. Knowing these will guide the designer and reader in approaching a metaphor.

Scope

In what way do complementarities affect the way metaphors shape the built environment? Metaphors are not all the same or a monolith of types and applications and levels of importance. They may appear as complementarities in contradictory forms. In one instance metaphors and sub-metaphors may be implicit (as opposed to explicit) as well as process (and product metaphors); where metaphor can be obscure, hidden and in-on-itself, not apparent and so subtle that it can only be read with special direction and knowledge (hence you'd have to be a "gourmet" to appreciate what has been designed). This characteristic of the metaphor is in all the bits and pieces that compose buildings and their systems, materials and structures and yet they are obtuse and unnoticed. It is the metaphor of a building that is the so-called *back-of-house* operations and

conditions of such things as building codes, laws and governing statutes. All of these are implicit to the explicit and overt metaphor and are metaphorical. It is the obscure metaphor which does not communicate externally but operates metaphorically and internally transferring meaning from one to the other component based on a commonality, linkage and bridge. It consists of all the program aspects selected, identified and known to the designers. It is rarely, if ever, communicated to users, occupants and owners. While in another chapter we will discuss the effect of warrants on appreciation of the metaphor. As a child it is the very thing that mystified and lured me to delve into its evidence and inferences.

On the practical side, for example, parts of the heating, ventilating and air-conditioning systems are operating metaphorically where the compressor and the heat exchanger transfer and exchange; where the columns and beams transfer their loads; where the studs and the wall-board attach and where the lighting fixtures and lamps work to give the light which is communicated and seen. By themselves and out of this context they are usually not seen as metaphors but when considered in the context of metaphors can be used metaphorically. For users, you would have to live there to find these kinds of metaphors. They are the kinds that, if you notice, unfold over time and with maintenance and use.

A stark example of a technical metaphoric building design is an [52] origami chapel for Catholic nuns that has been built in the small village of St Loup in the south of Switzerland. The temporary building, by Lausanne-based Local Architecture, uses structural principles inspired by folded paper which uses folding to create strength and rigidity in small structures. The wooden chapel is the first full-scale structure that incorporates design and structural analysis based on [53] Weinand and Buri's method of generating novel geometrical forms. However, this is one of many techné-inspired metaphors, where concepts happen to work for a place of worship.

On the conceptual side, metaphor is also explicit, overt and conspicuous. It can easily be read and experienced. In fact it is this characteristic which scholars, poets and the general public refer to as metaphor while in fact metaphor is much more. It is this public virtue which is most often cited to be the metaphor of architecture and is reified in [3] "… the idea of monumentality, which is closely related to myth or what in political terms we call ideology. All of these offer vivid and humanistic forms for expressing ultimate ideals." [3] The myth dramatically articulates the ideals that appeal to a populace, which they would like to follow. Every age has its own myths, though it is hard to know what our own may be? We shall probably have to leave it to some

future historian to define our myths for us. This is a definition architects are impatient for; most of them want to be told clearly what the myth of our time is, so that they can build architecture for it.

> "They forget that architecture is itself part of the process of making the myth that will find its definition only in the future. It is the "skyscrapers" of New York (and Chicago) that have produced a skyscraper point of view; it is the quantification of office space that has placed the emphasis upon the quantitative rather than the qualitative aspect of human populations."

Look at the way emerging cities are urbanizing using this model with little rhyme or reason merely emulate the myth. It is like the way France emulated Italy, Germany emulated France and Poland emulated Germany during the Renaissance. The remnants of the Renaissance can be seen in Barcelona, Warsaw and Dresden to name but a few. The complement to myth is fact and in their yearning for integrity fact, non-fiction, and truth in life as well as design many reject *architecture as the making of metaphors* as a kind of heresy.

[3] On the other side of the concept complement is "technique" which is manifest in art. [2] Art itself is always working (though not consciously) under the governance of prevailing myths which define the very attitudes that artist embody in their work. The way in which the myth works unconsciously but powerfully in them is verified by the fact that when it becomes self-conscious it loses its continuity and its fundamental creativity.

So it is only when we turn to the present that we find the force of creativity as a metaphorically understood process. The work of architecture takes place within the framework of a work, even a cosmos. It is affected by means of its setting. The collection of these affects I gather as "conditions" which condition the work such as building codes, state and local statutes, manufacturers requirements, structural systems, materials, methods of construction, neighborhood and site specifics, traffic, transportation, vehicular and pedestrian access and the like. All of these condition the work, are sovereign and disjointed, unrelated and yet have essences common to one another.

> [3] "In his book on Greek temples, Scully (*The Villas of Palladio)* points out that they are oriented towards the mountains. All architecture has an orientation of this kind, a place (context) within a larger scheme. The air, the light and the wind enter in, and some account must be taken of them; the possibility of earthquakes and storms must be thought of. All these are the intrusions of a cosmic order, nature making it metaphorical. In a lesser way, the impingement of the specific environment (the line of the horizon,

> the proximity of neighboring buildings) also helps constitute the character, meaning and the design of the architectural works. No building stops at its surface, and therefore the architect is alert to how his or her work is affected by what lies beyond it."

When considering scale we can see how metaphor is a key to the built environment.

> [3] "The point emerges most conspicuously in the idea of scale, which is an architect's word for metaphor and the way by which we measure size. (We make metaphors without quite knowing how we do it, and they are pertinent and illuminating or just the opposite. The same thing is true of scale). In order to use man as a scale in our architectural work, we have to know what a man is. It would be legitimate to use a man's physical size as a scale if buildings were only physical entities. But buildings are something more. Museums, churches, schools must have a space to accommodate man's spiritual needs. There are no rules to guide us in the application of a spiritual scale; this can only be done through sensitivity to men's inner needs, interests and aspirations."

For example, schools want to inspire education, friendliness, and a scholarly attitude and museums want to be monumental, historic and epic. The complement of scale would be a kind of seamless infinity which disorients space as a kind of architectural vertigo.

[3] This is one aspect of the architectural work. But another lies in man's need for privacy, [54] for quiet and for security (ref: "Community and Privacy": Alexander, C. & Chermayeff, S.). He has emotional desires for a space of his own, where he and his family may be together, sheltered from the world at large. The design of his dwelling should take account of these needs, but too often it does not. A good architect of human habitation pays attention not only to man's physical requirements but also to his inner life. Today social questions loom large for everyone. Of all the arts, architecture is inescapably social in its import. It is related to city planning, to economic factors and to transportation. In the construction of factories and office buildings, we have to take into account the multitude of people who will work in them, and who have to be understood not merely as individual units but as part of a social whole. In our contemporary environment, there is a reciprocal movement between man and the work of architecture which he inhabits.

We take account of the impact of architecture on man when we put museums and schools in certain areas. If we think of metaphor as a carrying over, here is a case of a building's meaning carrying over to people. I suppose one can say to everyone that every work of architecture,

even if it is nothing more than a lion's cage or a fish bowl, has and outside and an inside. [3] There is a clear definition or separation between the two. One of the main problems of architecture is the relationship of the outside and the inside, the way in which the import of the outside is carried over into the inside. We feel disappointed and somewhat cheated, if the outside is not relevant to what is within. There is something deceptive or fraudulent about giving a bar the façade of a Gothic cathedral. So a magnificent exterior must not lead to a radical disappointment when we step inside. The reciprocal is also true; we must not suffer a shock in moving back and forth between inside and outside. There must be an intrinsic relationship between the two, even though each has a different orientation. The outside is oriented to the exterior world which is largely beyond our control whereas the inside is related normally to factors which we can control, nevertheless, inside and outside must form a whole. [3] There is in addition the relation of one part of the interior to every other part. There is a confrontation of wall with wall; there is a geometricizing of interior space. The effect which every part of the interior has upon every other part embodies a kind of non-Euclidean geometry, with tensions and releases and vibrations which extend from part to part. This is extremely important in terms of what is done within the building. There should be a modulated movement from place to place.

> "A magnificent example of such modulation is [55] King-lui Wu's Manuscript Building (Yale University), in which he has achieved a subtle movement from one place to another, rather than trying to separate its individual parts."

[3] There is also the consideration of what can be called common-sense space; the space in which we ordinarily live. That space we never lose, for we carry ourselves and our habits and spatial judgments with us wherever we go. No matter what contours the architectural space may take, they must be adjusted to the fact that human beings retain their common-sense space. The architect has also to be conscious of common-sense engineering problems. So, when he or she creates this space they make metaphorical use of common-sense space, giving it a role in his or her final product which unites the creative tensional spaces built by their art with their common-sense space laid down by ordinary use, that is, by the floor that must be felt and threats that must be sat upon.

[3] All of this says nothing more than that the architectural work must be an organic unity, in which each part is not merely in juxtaposition, grouped with other parts, but which all parts closely affect one another. [3] Strictly speaking, a metaphor involves the carrying over of material

ordinarily employed in a rather well-defined context into a wholly different situation. If there is no initial separation between the two elements there is no metaphor. The metaphor involves the intrusion not of neighbors but of aliens. It brings together what seems to be radically different in nature. This is the heart and secret of great art and of great architecture.

> [3] "Then there is the ideal of excellence, traditionally called beauty (see Chapter Ten, Aesthetics), which directs and conditions what is being done, but which exists also as a possibility of future achievement. Once more we can think of the creative act as metaphor, this time integrating the future with the materials at hand.
>
> Thus the metaphoric dynamic within art, and especially within architecture, continually carries the past forward into the future."

The six principles of art's and architecture's technical and conceptual metaphors are based on the (two complementary stasis-the technical and conceptual metaphors) which point to architecture being an art. [2] Dividing the discipline's metaphors between technical and conceptual is not something fully explored, or I believe, ever noticed.

In addition to the multidiscipline relevance, general use of metaphors, and metaphoric axioms (arguments in favor of the stasis of why architecture is an art), the two realities of the metaphor work separately and together in six creative ways.

Art [2] is the process or product of deliberately arranging elements in a way that appeals to the senses or emotions. Till now we did nothing to reason why art [2] is the making of metaphors and why architecture is an art. Since 1967, I proceeded to analyze the presumptions and find its many applications. My early monographs justifying *architecture as the making of metaphors* were steeped in deductive reasoning since we could not find new information pertaining to metaphors. Many of my monographs included analyzing and explaining the syllogism:

Art [2] *is the making of metaphors.*
Architecture is an art [2].
Therefore architecture is the making of metaphors.

This new scientific information in *Metaphor and Thought* by [8] Andrew Ortony first published in 1979, provides information to support inductive reasoning and to this end each axiom is its own warrant to the inferences of the above syllogism and the answer to questions of why metaphor is the stasis to any of the syllogism's claims and implications.

For over forty years I have researched and written monographs presenting the evidence, inferences, warrants, claims and resolution for architecture as the making of metaphors and always another principle of the resolution emerges. This time I explain the stasis in terms of metaphor's two *technical* and *conceptual* dimensions. Both are valid separately and even more acceptable in combination. But how do they two operate and how does knowing this benefit design, use and evaluation of built works?

The *technical* is that all art [2], including architecture, expresses one thing in terms of another by its inherent and distinct *craft.* On the one hand there is the architect who acts as the master builder (head carpenter); and on the other the fountain of conceptual metaphors which express ideas as built conceptual metaphors otherwise known as works of architecture. *Techné* is actually a system of practical knowledge as a craft or art informed by knowledge of the physical properties and strength of materials, geometry, mathematics, and other sciences.

Metaphoric pairs of complements contrasts metaphors and sub-metaphors, process and product, implicit and obscure to conspicuous and overt metaphors as well as the metaphor of myth and fantasy. In their yearning for integrity fact, non-fiction, and truth in life as well as design many reject *architecture as the making of metaphors* as a "blasphemy". However, in this the role of art versus intellect is explored. There are six principles at work which show the way that the pairs inform one another, prioritize and sequence. More often than not sub-systems will be selected and designed before the whole, the idea being that they inform the figuration of the form.

On the other hand much of the metaphor of a metaphor is fantasy, myth and imagined. It isn't really there, nor did its architects intend that particular metaphor but as any given metaphoric work in a multi-programmed composition of [48] conditions, operations, ideals and goals the user may perceive any one or combination to perceive and compose a unique metaphor; a metaphor personal and peculiar to that combination and person. Neither the referent image nor the correct answer is the metaphor. What is the metaphor but the process of making the association between the words and something stored in the mind.

Whether automated, instinctive, educated, licensed, indigenous or cultural the fact remains that a bridge that transfers one from another permeates all forms of thought. In fact the artifact that we see manifest is a remnant of the technical and conceptual metaphoric processes. To say that art is a metaphor and then that architecture too must be a metaphor, assumes that the art is the manifest work and not what it represents.

Early classical music in the age of Mozart known as the Rococo period was a music of technique; it wasn't until Tchaikovsky's symphonies and the romantics that conceptual metaphor in music was born. That is not to say that the *technical* did not have its complementary *conceptual* and the conceptual its complementary technical and so forth down the scale from resolution, claims, warrants and inferences (see Chapter Thirteen Framing the Art vs. Architecture Argument).

Six Principles at Work

First: referents inform one another (see Chapter Nine Cause and Effect of Metaphor in Works of Architecture). The two inform each other; that is the complementarities of technical and conceptual learn from and affect one another. That is the aspects of the craft, building technology, shape and form, geometry, strength of material, and dimensions, bridge and carry-over to ideas about people, places, events, social status, scale, significance and moods. Contrarily, ideas of pomp, pageant, royalty translate into techniques producing large scale, great height, decorations, symbols, etc. [12] In conduits of city-wide metaphors, geometry and location of urban blocks masses that reflect one another is a scheme to sharply define the volume and mass of the city block and the experience of city streets. ([56] Vincent Scully; early lectures at Yale) In New York City, the grid and this insistence on buildings reflecting the geometry of the grid is a [12] conduit metaphor of city-wide proportions.

In New York the streets are defined by the 90 degree corners, planes and tightness of the cubes and rectangles to the city plan. In this way the metaphor of the overall and each building design no matter where its location on the block, no matter when or in what sequence the metaphoric constraint of appropriateness or zoning formulas, all lead the ideas to flow from one to another architect. Furthermore, the reader is able to "appreciate" (to attach importance to a thing because of its worth) the street, its geometry, limits and linearity as an idea on the [12] conduit from the architect, through the metaphor and to the reader. In formulating the architectural program with all its general and specific dimensions the architect summons his technical knowledge conditioning the client's stated requirements to determine site selection, budget, building program, financing, construction applicable government regulations traffic, transportation and utility availabilities. At this stage both the technical and conceptual of each metaphor of each must be articulated, valued and their implications to each other determined.

Financing a building project is no less an important part of understanding metaphor as a key to the built environment. Financial access, value and importance must be determined both by itself and as an [3] "emphatic (a forceful expression) against the sky". How will the financing affect the budget and the budget affect achieving the program's goal? The admixture of financial, budget and business planning all inform one another as well as the other technical and conceptual processes. At work is technical knowledge and abilities in banking, book-keeping, estimating, budgeting, construction contract cash flows, etc. All of these are required to establish the very money available to program, plan and design. Yet establishing the cost relative to the type of project, location, and context tests the interaction of concept to technique and proving just one of the conditions of the program as well as the value of the ideal and the extent to which operational and building goals can be achieved. The technical metaphor contains conceptual metaphors and their combination informs the conceptual metaphors of the each subsequent metaphor and their sub-metaphors. Each is a bridge, each expresses one thing in terms of the other and each expresses itself in terms of another. An estimated bill of quantities will be expressed as a budget, a bank loan as a draw schedule, etc.

Second: *prioritizing where one comes before the other.*

[19] In principle, three steps: recognition, reconstruction, and interpretation must be taken in understating metaphors; although in the simplest instance the processing may occur so rapidly that all three blend into a single mental act. [19] When we face a new metaphor (building) a new context with its own vocabulary is presented, one which the creator must find and connect and the other which the reader must read and transfer from previous experience. After assimilating the program in the process of making a habitable conceptual metaphor, the very first step in the design process is to develop a *parte* as [10] (presumptive) resolutions of an program. [19] It is a "top-down" approach later followed by designs which meet the *parte*. Alternatively, the *parte* may follow the design process and be presented to defend the design. Once achieved the *parte* (concept/gestalt) manifests and can be articulated.

> "Form follows function is such an order of priority where architect first organizes the operations of the program prior to shaping the building. It also implies that the ultimate form will somehow reflect the operations and function of the building."

Third: *sequencing where the first dominates the second.*

Just the evolution of a design, deciding on what to build, where, how and then assembling the team each affects the other. Project managers schedule process which may continue in parallel with others while others are critical to the overall and what subsequent steps are taken. Making an architectural metaphor without an agreed program can be expensive, disappointing and result in a metaphor which is not compatible with the metaphoric expectation of the users, within the limits of the budget and be chaotic for the contractor. To one degree or another, this is the reason why there are so many "change orders" during the course of the design and construction process because the first metaphor was incomplete, not comprehensive and not coordinated.

The effect of the first on the second is pronounced, whereas a well-conceived and approved program including all the technical and conceptual metaphors will only lead to the perfect start of a controlled design process. This process begins with a *parte*, schematic, preliminary and ends in a final design. The technical metaphor of the allocation of spaces, building materials, and building systems are all coordinated with the cost of construction and building schedules. Metaphorically, the value of the design meeting the budget, dominates the conceptual as a parameter to manifest the metaphor as a building.

A design which begins with line drawing allocation, organizing functions as well as sketches of the possible building configuration, once agreed can be overlaid and developed into more detailed technical ideas and conceptualizations of the metaphor until the architect and the owner agree on one acceptable metaphor. If the facade of a building is designed in one order of architecture you can presume the other parts are in like arrangement where the whole may have been of that same order including its plan, section and details because of mapping and channeling one idea from one level to another.

Frank Lloyd Wright designed his prairie house architecture with a dominant horizontal axis to reflect the common horizontality of the landscape in which the buildings were located. In geometrical formal parts of an architectural metaphor we note those common elements where fit, coupling and joints occur.

Forth: *interactive chain* where the technical begets the conceptual begets the technical and so forth. It is a series where if one fails all fail. [11] A conceptual system contains thousands of conventional metaphorical mappings which form a highly structured subsystem of the conceptual system. Over the years, society, cultures, families and individuals

experience and store a plethora of mapping routines which are part of society's mapping vocabulary.

As a potential user, when encountering a new building-type, such as a hi-tech manufacturing center, we call upon our highly structured subsystem to find conceptual systems which will work to navigate this particular event. They play between the design of the building form and its structural system entails give and take modulation until the two fit together. As the building is shaped the structure is estimated until a final form where the structure and form work together.

Fifth: triangulation where the technical and the conceptual combine and form a single cognition containing the characteristics of both technical and conceptual. [17] Architects make a spatial representation in which local subspaces can be mapped into points of higher-order hyper-spaces and vice versa is possible because they have a common set of dimensions. Architects organize broad categories of operations and their subsets seeing that they are different from each other so as to warrant a separate group and that their subsets fit because they have common operational, functional conditions, operations, models and objectives. For example, hotel front and back-of-the-house operations; hospital surgical from outpatient and both from administration and offices are obvious sets and subsets.

Sixth: co-mingling of vocabulary between technical and conceptual.

Stratification and leveling involves a situation in which either the conceptual or the technical characteristics simultaneously exist on separate levels. Diagonal association may occur between conceptual and technical on different levels as a technical on one level finding commonality with conceptual on another level. [18] "A metaphor involves a non-literal use of language." The building design and the program cannot be a perfect mapping. A non-literal use of language means that what is said is to have effect but may not be specific. At each moment in its use the metaphor may mean different things, least of which may be any intended by its authors.

Elegant architectural metaphors are those in which the big idea and the smallest of details echo and reinforce one another. Contemporary architects wrapping their *parte* in "green", "myths" and "eclectic images" are no less guilty than were their predecessors of the Bauhaus exuding asymmetry, tension and dissonance as were the classical and Renaissance insisting on unity, symmetry and balance. The architect's *parte* and the users' grasp of cliché *parte* were expected and easy "fill-in" proving the importance of learned mappings, learned inferences and a familiarity with bridging.

[14] A problem of the metaphor concerns the relations between the means of expression and design meaning on the one hand, and architect's meaning or sketch-meaning, on the other. Whenever we talk about the metaphorical meaning of a word, expression, or sentence, we are talking about what a speaker might utter it to mean, in a way that it departs from what the word, expression or sentence actually means. Architecturally it is the facade which implies an entry, a volume which implies stature, glass which seems to open to space and yet keeps the air from flowing. It is the over or under-scaled space which diminishes or exaggerates human form.

[14] "What are the principles which relate built design meaning to metaphorical design meaning" where one is comprehensive, complete and coordinated while the other is merely an incomplete scanty indication of something non-specific. [14] How does one thing remind us of another?

The basic principle of an expression with its literal meaning and corresponding truth-conditions can, in various ways that are specific to the metaphor, call to mind another meaning and corresponding set of truths. Unlike a legal brief, specification and engineering document, a work of architecture with all its metaphors tolerates a variety of interpretations, innuendo and diverse translations. Building owners are asked to translate a two-dimensional set of drawings as fulfilling their design requirements to what might eventually be built. [17] Architecture is often more suggestive and trusting rather than being pedantic; it leads and directs circulation, use recognition while abstracting shapes and forms hitherto unknown, but ergonometric. Furthermore as observation, analysis and use fill in the gaps users' inference the location of concealed rooms, passages and supports; they infer from a typology of the type a warehouse of expectations and similes to this metaphor from others. In this way there are the perceived and the representations they perceive which represents when explored and inert what we call beautiful, pleasurable and wonderful. Upon entering a traditional church in any culture we anticipate finding a common vocabulary of vestibule, baptistery, pews, nave, chancel, and choir area including transepts, chapels, statuary, altar, apse, sacristy, ambulatory and side altars. Through understanding metaphors complementarities we have hopefully gained a better understanding of the workings of the metaphor. Now we shall apply some of these understandings to some historical examples.

CHAPTER FOUR

AN ARCHITECTURAL HISTORY OF METAPHORS

Summary

The previous chapter divided the types, kinds and characteristics of the metaphor giving the learner a perspective on their multiple aspects. We learned that metaphors differ by characteristics, application and role. Knowing this should guide the designer and reader in approaching a metaphor and seeing it through historical evolution of architecture. This in turn will give the learner the vocabulary to both create and appreciate existing and new metaphors. It should also provide clients with the necessary vocabulary to help them converse with architects, builders or developers.

Scope

This chapter presents a brief review and an historical perspective of the architectural metaphor. It identifies the metaphorical characteristics which are common to historical periods and those which are distinctive or different.

Introduction

History is metaphor of time, space and realities segmented into modules of subjects and themes. In fact works of architecture are the landmarks of each period's metaphors and are themselves the metaphors of that time. The history of metaphors in periods of architecture is one such reality. Thucydides said "history is philosophy teaching by example" (Strassler, R. B) and Santayana said "those who fail to learn from history are doomed to repeat it" (Santayana, G.); while so many important people have given their views on history it is still a vehicle for communicating

metaphors from one time to another because each of these metaphors encapsulates and recalls the commonplace and artifacts of its time.

On the other hand, to the modern art and architecture profession, history is purposely ignored in favor of new, innovative and contemporary expressions. Furthermore, while beauty is in the eye of the beholder, aesthetics is one of the commonplaces of metaphor, and as such, it is personally and culturally peculiar to its time and place. Nevertheless, metaphor can also relevant and transferable across time. In a good sense, some historians are cultural voyeurs who want to compare their own metaphors with those of others. Do they do so in the belief they will find a yet undiscovered metaphor in the past which will give them a clue for the future? Or do they do it in order to clarify the metaphor of their own time? In either case, metaphorically, they are “carrying-over” and “transferring” from one time to the other by the very act of making metaphors. As many study the old testament to find its law, so some historians study history in search of some truths about some issue: in this case metaphors and design. While architecture is the process of making of metaphors, each period in history is marked by the products of architecture’s metaphors; they are the landmarks of time.

Actually, contemporary architecture is more about the unseen and implicit metaphors where the metaphor is between elements and factors of program, building technology and social context. It is more the essence of the architecture; the making of metaphors than that overview of the apparent historical metaphor.

In his introduction to Robert Venturi's “Complexity and Contradiction”, Vincent Scully observed that 1966 was an absolute break with the pluralistic and demonstrated cataclysmic planning principles. In one lecture I attended he observed that contemporary planners and architects had a “cataclysmic view”, which destroyed the past for the sake of the future. On the one hand I agree that while eminent domain and commercial interest often result in benefits for the public, they sometimes do so at a price which neither the owners not the public afford. On the other hand, by removing and replacing one for another structure the encapsulated referent of the past in one context is forever lost. I prefer urban planning allowing for free enterprise with strenuous attempts by quasi government landmark commissions to achieve both financial feasibility and public good. Since this statement by Scully such commissions have flourished and been successful. In one sense referring to the way landmarks are destroyed to make way for a new building, and in another, the way yesterday’s principles and practices are challenged in favor of today’s.

Architectural metaphors are not new. For example, from Egyptian temples and pyramids to today's skyscrapers, copies of the images of metaphors of classic elements have dominated the development of architecture and design throughout history. Most of these monuments were originally designed for one reason but copied for another. Perhaps originally designed with the mainstays of metaphors but copied to partake of the righteousness, nobility and grandeur they represented; as if to say, as they are, so are we. In each pre-modern period these works were appreciated, particularly because they were the amalgamation of all the treasure, wealth, technology, arts and crafts of their times (Miller, G. A). In psychology "appreciation" is a general term for those mental processes whereby an attached experience is brought into relation with an already acquired and familiar conceptual system.

The metaphoric works were as sensational as the edifices of world's affairs as monuments were to society's triumph over superstition, nature and adversity. However, in each period there were exceptions: the merchant houses which stood over the hovels of the poor or mass housing compared with grandeur of public buildings. It isn't until later that mass housing even in Greece and Rome started to mimic scaled-down versions of temples or the stuccoed, rendered and false roofs of city town houses emulated classical mansions. Even today's plethora of global subdivision housing and New England "salt shaker" houses emulated the metaphors of the classic (Egyptian, Greek and Roman) ideals.

The commonplace to any one of most of history's metaphors is the commonplace of them all; their collective metaphor is something they have in common. If you know one you know the others as one speaks in terms of the other, and either singularly or collectively, makes the strange familiar. That is to say: their commonplaces are *turf (area of influence); identity; security; status; power; protection; shelter and religious purpose; and use (such as rituals, teaching and networking)*. These commonplaces transfer from one period of history to another and represent the collective commonplace of the history of all metaphors regardless of their place in time. In any case, "metaphors simply impart their commonplaces" (Boyd, R. 1993).

Whether central or decentralized, publicly perceived, architectural metaphors are all about names, titles, and the access the work provides for the reader to learn and develop. They also symbolize the trade and values of the owner, user and society. In free-enterprise democratic societies where central government allows for sovereign citizens to contract, own land and build, there is a rush for them to emulate historical models to build identity, security and status into the ideals of their metaphors. At its

best the vocabulary of the parts and whole of the metaphoric work (building or work of architecture) is an encyclopedia and cultural building block. The work is imbued with the current state of man's culture and society. The freedom of both the creator and reader to "dub and show" is all part of the learning experience of the metaphor (Kuhn, T. S. 1993).

In the metaphoric period of the 1960s, I dubbed this phenomenon as "popular architecture" or "POP ARCH" as distinct from Pop Art. What are the commonalities and differences between one period's style and the other and what does this show about making and using metaphors?

> "Like any other work, architecture issues arise from the past; a past which is multi-faceted. There is first the past of the architect himself, his or her background, training, experience, and knowledge. There is also the whole history of the subject, for the architect, like every other artist, is brought up in the world of his art. Traditional or classical (non-primitive) art is based on what has gone before. Indeed, the most revolutionary changes are produced by men and women, who have a good acquaintance with the past, and want to avoid its limitations. The past may play a negative role, but it powerfully enters in. To put this in metaphoric terms, we can think of innovation and radical change as negative metaphors, where the past participates under a minor or negative sign." (Weiss, P. 1971).

For example, the way Frank Lloyd Wright designed his buildings against the tenets of Louis Sullivan welcoming the long span beams and letting in the light. Similarly, Maria Theresa commissioned Schönbrunn (a multi-dimensional/multi-disciplined metaphorical masterpiece and a model for many generations thereafter (Versailles & Fontainebleau to name but two) was a marked counterpoint to the over-scaled palaces of the Renaissance and addressed human scale, needs and necessities (e.g. heating, convenient furniture, etc.).

> "There is not only a past; there is also a future. No art- and certainly no architecture- is produced without some awareness of the future. This takes many guises. There is first the plan of the work to be accomplished and the function to perform. Is the object a church, a school, a pavilion, a cage, a roadway, a city?" (Weiss, P. 1971).

Like all impressive government buildings the treasury exudes the very wealth it aims to protect. A metaphor which still today translates into money-storage buildings designed to "appear" like mighty fortresses (or at least like impenetrable vaults). In each pre-modern period there was a passion to enamor the shelter with images to demonstrate the status of wealth, military might and strategic geopolitical position of the state.

Castles were not only a monarch's home but an overt demonstration of military might. Crenellations and ramparts were metaphors bridging cannon, fireballs and arrow slits with stone. The building was designed as a fighting machine. You can see this very clearly on a visit to Castel Saint Angelo on the banks of the Tiber, Rome.

Throughout much of art history, artists and architects were concerned with the proportions of the parts of their works. For example, if you were designing a temple, you might want to make the ratio of its height a particular value**.** In fact, there were not only particular ratios that were preferred; but sometimes entire systems of proportions. Each period is remembered for its metaphors including its geometry and the method of proportioning. As proportioning and scale are related the difference in the metaphor scale, the appearance of colonial Williamsburg and European castles are very different. The proportions used by Michelangelo in his buildings' facades are reifications of his study of scale and proportion of the human figure (Hugh, B. 1951).

In fact we can see a relationship between the metaphors of a period in the abstract relationships between ancient pyramids and contemporary geometric building designs. The dimension of the technical metaphor remarkably subdivides periods but none changed the paradigm as much as indoor and stacked plumbing, structural iron and steel, elevators, electricity, mechanical heating and air-conditioning.

Ancient and prehistoric architecture is remembered for its caves and hieroglyphics where the creation and use of metaphors in architecture is traced back to the Tell Turlu in Mesopotamia. Most were cave and mandala-shaped ground excavations habitats in the Near East from 1100BC to 4300 BC. When some left their caves to build shelters they made mandala-like circles in the ground and inhabited them. They modeled their design after the mandala. The word mandala (http://www.craftsinindia.com/ products/buddha-painting-thanka.html) means a circle in the classical Indian language of Sanskrit. It represents wholeness, and can be seen as a model for the organizational structure of life itself - a cosmic diagram. For some the metaphor connects to earth energies and the wisdom of nature and for others to capture the images of the countless demons and gods (Gardiner, S. 1974).

These are metaphors in that they have two referents which liken themselves to each other and claim a commonplace. The very fact that mandalas are drawn in the form of a circle, can lead us to an experience of wholeness when we take time to make them and then wonder what they mean. In the strict use of the mandala, there is a central point or focus within the symbol from which radiates a symmetrical design. This

suggests there is a center within each one of us to which everything is related, by which everything is ordered, and which is itself a source of energy and power.

One can only surmise from the evidence and findings that, for example, one cave housed a tribe and within there were some who hovered together to secure for themselves one personal space (Brown, D. 1991). To be claimed, perhaps this place in the cave had to be identified, secured and addressed. Continuing the example, when this same group went and found its own cave, as did so many others, it may also have needed to be identified, secured and defended. Each time a metaphor talks about one thing (the tribe) in terms of another (the sign, the contour or location of the cave). Roaming away from the cave to the plains, rivers and lakes, they dug holes in the ground to copy and "mark" the cave in the ground, they made metaphors of their cave and the mandalas. Each time they made something with their hands (techné) and thoughts (concept), they made the primary constituents of metaphor (Gordon, W. J. J. 1971).

The vertical side of the ground replaced the cave's walls. They considered new concepts as being characterized in terms of old ones (plus logical conjunctives). By the circular mandala form, the metaphor-building clarified their location, status and value. Virtually every known spiritual and religious system asserts the reality of such an inner center (Pylyshyn, Z. W. 1993).

> "The Romans worshiped it as the genius within. The Greeks called it the inner *daemon* (a subordinate deity, as the genius of a place or a person's attendant spirit). Christian religions speak about the soul and the Christ within. In psychology they speak of the higher self." (Lakoff, G. 1993).

The Neolithic peoples in the Levant, Anatolia, Syria, northern Mesopotamia and Central Asia were great builders, utilizing mud-brick to construct houses and villages. At Çatal Höyük, in present day Turkey, houses were plastered and painted with elaborate scenes of humans and animals. The advent of the city itself was a metaphor to the power, position and potential of the society. It was totally urban and metaphoric. Since everyone participated in their design and construction, its metaphors were both implicit and explicit. Metaphorically, this was the hand-technology era depending on what man could etch out of nature's rock, soils and trees (Ching, F. 2006).

The scale of habitable metaphors is the intrinsic relation between the human figure and its surroundings as measured, proportioned and sensed. It is dramatically represented by Da Vinci's Vitruvian man who is based

on the correlations of ideal human proportions with geometry described by the ancient Roman architect Vitruvius (Lakoff, G. 1993).

The two referents of the metaphor are the geometrical proportions of the ideal human figure with scale as the commonplace. As the human figure is to the space so is the volume (height, width and depth) of the space. A huge volume would dwarf the figure while a small volume could exaggerate it. Both classical and contemporary design takes advantage of scale as a design tool and itself the apparent metaphor.

The symbolic pyramids, pottery and large scale temples of Ancient Egypt gave the Napoleonic period its "Empire" styles, and, later "Biedermeier" furniture. Metaphorically, the pyramids are a mystery as we can see the referent of the current context; but historians cannot absolutely finalize the other referent of the metaphor.

> "The founding and ordering of the city and her most important buildings (the palace or temple) were often executed by priests or even the ruler himself and the construction was accompanied by rituals intended to enter human activity into continued divine benediction." (Copplestone, T. 1963).

Contrast this metaphor with contemporary metaphors involving, for examples, Fortune 500 corporate images, a new town of a real estate development, commercial retail chains (i.e. McDonalds), and public housing or public works projects. The Egyptian example kept tight control on the overt conceptual metaphor and used the building as a state instrument. Often these are dubbed onto the culture to invest with a name, character, dignity, title, or style (Kuhn, T. S. 1993).

Metaphors are often signs and monuments to spiritual beings in an effort to say "as they, so are we"; or "as we are, so are they". In the 21st century democracies, or would-be democracies, such divination reminds people to distrust metaphors and metaphoric thinking, supposing they allude to unpopular metaphors of religiosity, anarchy and despotism. Wishing not to recall the oppression under Turkish occupation, the Kingdom of Saudi Arabia does not maintain the buildings built during that era.

Contemporary architecture is more concerned about the unseen and implicit metaphors where the metaphor is between elements and factors of program, building technology and social context. It is less about the gestalt and more about its component parts. It is more the essence of architecture; the making of metaphors than that overview of the apparent historical metaphor. Yet, today, in synthetic urbanisms, metaphors attract and provide scenarios of metaphoric lifestyles providing all the mainstay commonplaces. Ancient architecture was characterized by the tension

between the divine and mortal world, even cities, where metaphor markings defined the sacred space from the external wilderness of nature. The temple or palace continued this role by acting as a house for the gods.

Of these, the most famous was the first city of Babylon (Baghdad) built around 600 B.C. in Lower Mesopotamia. In it was one of the Seven Wonders of the World and includes the hanging gardens of Babylon and the famous Ziggurat which were the focal and spiritual centers of the city. It was amongst the first urbanizations where much urbanization first occurred between 4000 and 3500 BC (Sundell, G.).

The City of Baghdad later became the first city where its citizens surrendered (primary definition of Islam) their rights to a "straight easement" to create straight streets off the walled houses and properties (Hakim, B. 1958). If ever a city had a metaphoric commonplace it was the "straight street". Perhaps, this is the first sign of a city when its citizens surrender their rights of space and yield right of ways and easements so that the whole may function (Akbar, J. A. 1988).

The oldest civilization we know is the Sumerian - located in the far south of present-day Iraq. Around 6,000 years ago, the Sumerians built the world's first city - Uruk - and, introduced urban civilization.

It is here where Fertile Crescent of Mesopotamia – bounded by the Tigris and Euphrates – ends just before present-day Basra. It was urban because it had infrastructure which included a water supply system, sewers, roads, law and order. Metaphorically, the city was a reification of authority and consensus, represented by the wide spread use of "seals" which points to a rudimentary form of government (Schmidt, J. 1964).

As metaphors, these seals were the precursors++ to the crudest form of writing, cuneiform, whose characters are formed by the arrangement of small wedge-shaped elements. This writing, which was commonly found in ancient Sumerian, Akkad, Assyria, Babylon, and Persia), was the language of trade and exchange. As its buildings, the city itself was a metaphor with apparently unrelated factors yet having commonalities. These commonalities were represented in monumental buildings, steps, and edifices.

"The Epic of Gilgamesh", which was written in Sumerian, around 4,500 years ago describes how Gilgamesh, a king of Uruk, set out on a quest for knowledge and immortality (one of ancient pillars of metaphors), and how in the end he found them through architecture (Schmidt, J.1964). The Sumerians believed that only by building, could a king honor his gods and obtain immortality. To the Sumerian kings, who stamped their names in the bricks of their buildings so they would forever live in the memory of man; city building, architecture, was divine (Schmidt, J. 1964).

Over time Uruk became a major city of Babylonian Empire. It is thought that the expansion was driven by the necessity for raw materials such as base metals, timber, stone and oils, as well as exotic goods such as rare metals, semi-precious and precious stones, none of which was available in the alluvial plains of the south.

The necessity of these essential goods led the Uruk culture to establish a number of urban communities along the lines of older trade routes attained by either tribute to local rulers, small foraging insurgents and plundering, or more commonly by reciprocating with labor-intensive processed and semi-processed goods. It produced the metaphor of pomp, pageantry and ostentatious wealth. As many later cities built trade crossroads, so the city itself was a metaphor of those commonalities and differences it accommodated (Jeziorski, M. 1993). More often than not designers were more influenced by the existence of similar types than they were to re-invent anew. Like a dance they emulated one another.

> "The architect, be the priest or king, was not the sole important figure; he was merely part of a continuing tradition." (Hitchcock, H-P, 1958).

Indeed, these master builders made the kind of metaphors that communicated overtly and left no doubt as to their intent or meaning.

In ancient Egypt, pyramids were early examples of implicit metaphors where all the metaphors were not for the public but for the gods. They were meant to communicate but not to the general public. Most were built as tombs for the country's pharaohs and their consorts during the Old and Middle Kingdom periods. As such they were built far away from population centers.

On the other hand, a pharaoh's wealth and the appreciation for receiving more wealth from his subjects and other protectorates were exemplified by open treasuries and lavish decorations exhibiting the wealth. In psychology "appreciation" is a general term for those mental processes whereby an attached experience is brought into relation with an already acquired and familiar conceptual system (encoding, mapping, categorizing, inference, assimilation and accommodation, and attribution) (Miller, G. A. 1993). In this case the pharaoh appreciated by exhibiting the accumulation of what his subjects and protectorates had given. Such is the way public metaphors and monuments are created as an aggregate of a common idea by one culture and society.

In geometry, one form of pyramid is a polyhedron formed by connecting a polygonal base and a point called the apex. The pyramid is an elegant metaphor where each base edge and apex forms a triangle. It is a

conic solid with a polygonal base. The other, a tetrahedron, has a three rather than the four-sided base (Nuttgens, Patrick, 1983).

The pyramids are claimed to have many "secrets"; that they are models of the earth; that they form part of an enormous star chart; that their shafts are aligned with certain stars; that they are part of a navigational system to help travelers in the desert find their way and so on. The mystery of the referent is exaggerated because it is out of our current context and its referent is unknown. The Great Pyramid is said to contain the metaphor of the "golden ratio". Buckminster Fuller extended the geometry of the triangle to form the geodesic dome, which he later explained derives a universal structure seen in the stars (Fuller, R. B. 1975). The metaphor of the pyramid's technology depended on nature but was conditioned by the mechanics of pulleys, cables and the invention of the wheel.

Architectural metaphors are composed of both conceptual and technical metaphors as [1] art involves a craft. Little known to historians is that much of the Egyptian temple architecture (post and lintel) was derived from "up-river" Sudan. This exemplifies that although "much of our conceptual system is metaphorical; a significant part of it is non-metaphorical. "Metaphorical understanding is grounded in non-metaphorical understanding." (Lakoff, G. 1993).

Our primary experiences grounded in the laws of physics of gravity, plasticity, liquids, winds, sunlight, etc. all contribute to our metaphorical understanding where the conceptual commonality accepts the strange.

Mesoamerican architecture is the set of architectural traditions produced by pre-Columbian cultures and civilizations of Mesoamerica-traditions which are best known in the form of public, ceremonial and urban monumental buildings and structures (Bannister, F. 1996). Where its cities were formed, prehistoric groups in these areas are characterized by agricultural villages and large ceremonial and politico-religious capitals. This cultural area included some of the most complex and advanced cultures of the Americas, including the Olmec, Teotihuacan, the Maya, and the Aztec (Carrasco, Pedro, 2008).

Mesoamerican architecture is mostly noted for its pyramids which are the largest such structures outside of Ancient Egypt (Bannister, F. 1996). They are not unlike the Greek or Roman cities formed on a single spine off of which are symmetrically placed buildings such as temples, markets, baths, administration buildings and ball courts. Over time and changing periods, like many of the temples in Europe they were built over each other and when excavated one can uncover layers of periods of older temples buried beneath; most notably in Split, in Croatia, where in one

building the layers of time are accessible to the public and can be seen from outside as well as by climbing down to the lowest level.

The German ethnologist, Paul Kirchhoff, defined the Mesoamerican zone as a cultural area based on a suite of interrelated similarities brought about by millennia of inter- and intra-regional interaction or diffusion (Kirchhoff, P, 1963). These included sedentarism, agriculture (specifically a reliance on the cultivation of maize), the use of two different calendars (a 260-day ritual calendar and a 365-day calendar based on the solar year), a base 20 (vigesimal) number system, pictographic and hieroglyphic writing systems, the practice of various forms of sacrifice, and a complex of shared ideological concepts. It is intriguing the way that this Greek word for middle *meso* became the metaphor for the combined culture and its unique commonplace (Carrasco, P, 2008).

The Saudi Arabs use the Hydra calendar, which subdivides 12 months into 30-day intervals and is annually adjusted by the appearance of the moon. What is most striking throughout Saudi Arabia is the way city grids are oriented toward Mecca. And if they were not the *qiblah* (votive direction) and its *minbar* (pulpit) of the mosque are built off the grid of its context to face the Kaaba in Mecca. There are many other details of Saudi architecture which provides insights into the way many of the ancient metaphors were designed. In Saudi Arabia, as a professor of architecture, I taught the design of mosques, planning and building design of both traditional and modern buildings. To explain what I learned and taught I have written several monographs such as: “The Aesthetics of the Arab Architectural Metaphor”; “A Partial Metaphoric Vocabulary of Arabia”; “The Context of Arabia in Metaphor”; “Arabia’s Metaphoric Images”; The Conditions of Arabia in Metaphor”; “The Basis of the Metaphor of Arabia”; “Mosques and Metaphors”, and a full length book titled: “A Metaphoric Perspective of the Arabian Built Environment (Fez-Barringten, B, 1993).

For western culture the period of ancient Greece resonates till today. Both the Greeks and the Roman metaphors were based on their orders of architecture including their metaphoric columns, entablatures, statues and sculptures (Bannister, F. 1996). Each of these referred to something else; the column was the tree and capitals defined one from the other order (Doric, Ionic and Corinthian), and the entablatures contained depictions of their deities and heroes. The architecture and urbanism of the Greeks and Romans were very different from those of the Egyptians or Persians in that civic life gained importance. During the time of the ancients, religious matters were the domain of the ruling order alone; by the time of the Greeks, religious mystery had skipped the confines of the temple-palace

and was the subject of the people or *polis*. The conceptual metaphor embodied Greek civic life sustained by new, open spaces called the *agora* which were surrounded by public buildings, stores and temples. The *agora* embodied the new-found respect for social justice received through open debate rather than imperial mandate.

> "Though divine wisdom still presided over human affairs, the living rituals of ancient civilizations had become inscribed in space, in the paths that wound towards the acropolis for example. Each place had its own nature, set within a world refracted through myth, thus temples were sited atop mountains all the better to touch the heavens." (Bannister, F. 1996).

The Greeks metaphorically transformed the Egyptian post and lintel from wood to stone. The same technology that had earlier been invented by the Egyptians was now adapted and used for stone and statues which became columns and gable ends (entablatures), and which were decorated with the carved relief of the people's government. These were analogical transfers, where instructive metaphors created an analogy between a-to-be-learned system (target domain) and a familiar system (metaphoric domain) (Mayer, R. E. 1993). Later, not unlike classical Gothic, modern architecture liked to express the truth about the building systems, materials, and open lifestyles, use of light and air and bringing nature into the building environment. Modern architecture went a step further, ridding buildings of the irrelevant and the clichés of building design decoration, and traditional principles of classical architecture as, for example, professed by the Beaux-Arts movement.

In modern and Eastern architecture the equipoise achieved by the axiom of "unity, symmetry and balance" was replaced by "asymmetrical tensional relationships" between "dominant, subdominant and tertiary forms", and the influence of science and engineering on architectural design gave rise to new design metaphors. The Bauhaus found the metaphor in all the arts, the commonalties in designing architecture, jewelry, furniture and clothes.

One way to look at the metaphoric unity of Roman architecture is through a new-found realization of theory derived from practice and embodied spatially. Civically this is found happening in the Roman forum (sibling of the Greek agora), where public participation is increasingly removed from the performance of rituals and represented in the decor of the architecture. Thus we finally see the beginnings of the contemporary public square in the Forum Iulium, begun by Julius Caesar, where the buildings present themselves through their facades as representations within the space.

As the Romans chose representations (metaphors) of sanctity over actual sacred spaces to participate in society, so the communicative nature of space was opened to human manipulation. None of which would have been possible without the advances of Roman engineering and construction or the newly found marble quarries which were the spoils of war; inventions like the arch and concrete gave a whole new form to Roman architecture, fluidly enclosing space in taut domes and colonnades, clothing the grounds for imperial rule and civic order. An unintended consequence was a model for social concerns and accommodations (public baths, toilets, markets, parks, recreation areas, crafts, etc.)

The Romans widely employed, and further developed the arch, vault and dome. Their innovative use of concrete facilitated the building of the many public buildings of often unprecedented size throughout the empire. These include temples, baths, bridges, aqueducts, harbors, triumphal arches, amphitheaters, circuses, palaces, mausoleums and in the late empire, also churches (Bannister, F. 1996).

The metaphors of law and order, civic pride led to architectural simplifications of the structure keeping the treasure hidden but exemplifying the metaphor of the government in its "order" of architecture as metaphor for the government's civic order. As the government did, so the architecture exuded technical and conceptual metaphorical forms of unity, symmetry and balance. As the Egyptians did, so the Greeks and the Romans built monuments as sign-metaphors to publicly express consensus toward gods, persons and events. Temples were built to house the gods such as Venus and Apollo as well as the courts of justice and senate (Bannister, F. 1996). The architecture metaphors were the representation residue of the consensus and righteousness of society.

Elsewhere, India's urban civilization is traceable to Mohenjo-Daro and Harappa, now in Pakistan. Over a period of time, the ancient Indian art of construction blended with Greek styles and spread to Central Asia. India's metaphors are their distinctive design of temples and colorful Hindu art which incorporated statues, *appliqués*, pilasters and columns of the many aspects of their deities including Rama, Saraswati, Hanuman, Ganesha, Devi, and many others (Copplestone, T. 1963). They were both metaphors of their contextual consensus while being analogies of their foreign political, social and commercial alliances.

In Chinese architecture pagodas, Buddha and the Great Wall are the three distinctive metaphors of China. One example is the use of yellow roof tiles; yellow having been the imperial color, yellow roof tiles still adorn most of the buildings within the Forbidden City. The Temple of Heaven, however, uses blue roof tiles to symbolize the sky. The roofs are

almost invariably supported by brackets, a feature shared only with the largest of religious buildings. The wooden columns of the buildings, as well as the surface of the walls, tend to be red in color (Ching, F. 2006). In the age of science, colors are used to induce certain emotional conditions and achieve effective spatial designs. However, out of context, their ancient metaphoric significance is often forgotten.

Ancient Japanese architecture is best exemplified by the metaphoric Japanese tea house, where bamboo and paper walls remain Japan's metaphoric cultural legacy.

> "Two new forms of architecture were developed in medieval Japan in response to the militaristic climate of the times: the castle, a defensive structure built to house a feudal lord and his soldiers in times of trouble; and the *shoin*, a reception hall and private study area designed to reflect the relationships of lord and vassal within a feudal society." (Ching, F. 2006).

Most notable is the Japanese tea house which is "place" but not "function" oriented. Any function can occur in any area and areas may or may not be separated by sliding paper partitions. Operations and circulation metaphor is to the context of the designed landscape which is the architect's version of a kind of paradise. Western architecture's sighting of castles, estates and private residences learns from this metaphor relating family occupants to context concerned with topography, surrounds, winds, sun-rise and sunset and other bio-climatic factors. In the background was origami (the art of folding paper) which has recently been adapted by mathematicians to design buildings, sculptures, and furniture made part of the (conditions, operations, ideals and goals) program. Such systems potentially can result in such buildings as recently designed for the Emirates (Dubai, Doha and Abu Dhabi), Shanghai, Hong Kong and Glasgow (Zaha Hadid's Riverside Museum).

Bedouins are nomadic and tent design and layouts are concerned with the environment of the desert and arrayed with the tribal metaphors emblems, colors, banners and carpets (Fez-Barringten, B.1993).

> "Each color and combination of colors is distinctive to the family and 'turf' of the tribe. Some distinctive structures in Islamic architecture are mosques, tombs, palaces and forts, although Islamic architects have, of course, also applied their distinctive design precepts to domestic architecture."

Like the retail store of today, each Arabian souk is a metaphor of its culture, craft and artistic technology. The architecture of the Arabian souk emulates the Bedouin tents and makeshift gathering of traders. Arab

homes are surrounded by walls and windows clad with *mashrabia* for privacy particularly for the family and its women. There is a separate area of the home for the family and the visitor with separate entrances.

Most so-called Arab architecture is exemplified by asymmetrical placements of window openings and decoration. The metaphor of ambulatories and public passages is a history of surrender and intervention between neighbors and tribes as they collected in cities like Babylon. In the 1960s, Frei Otto designed the stadia for the Munich Olympics using canvas and cables on a mammoth scale based on the tent cable system developed by the Arabs. Much of this asymmetry is recalled in both European and Turkish fortresses.

Africa's architectural technical legacy is its post and lintel construction where horizontal, diagonal and vertical elements are attached at their intersecting joints with hemp forming the outlines of what was later transferred down the Nile (the northern section of the river flows almost entirely through desert) to Egypt to be the technological metaphor for Egyptian palaces. These were transferred by the Sudanese (Nubia and Meroë) to Egypt along with abundant labor, wood and colorful pigment to decorate the buildings. These tied joints were later reflected in the capitals and brackets of Greek architecture.

Medieval architecture was dominated by palaces and castles surrounded by walls where the court lived within and the serfs and farmers lived outside. Farmers' houses were mud, thatch and timber copies of the castle technology and reflected the hierarchical structure of the society. This metaphor was inherited from earliest Egypt and lasted till their French Revolution (even to big New World cities like New Amsterdam). The metaphoric-castle vocabulary of the times designed the great halls, plates to eat off (since they were made of metal or plate, and *immobile* furniture.

It was during the Renaissance that Europeans finally developed movables or *moebles*. The medieval building had few movables apart from trunks which housed their belongings as they had to be ready, when raided, to escape in an instant. So they sat on these cases and soon these evolved into furniture with legs and arms, etc. All of these had metaphoric decorations of animals and trees.

In France during the so-called Gothic period, technologically the flying buttress and use of the pointed rather than the vaulted arch revolutionized large spans and building design. When considering buildings rather than tents, the Indian, Persian and Arabians also adopted this analogous pointed arch motif. For politico-religious reasons (i.e. the Crusades) like the

prohibition against the sign of the cross, the Roman vaulted domes were also banned.

The cathedrals of Chartres and Notre Dame in Paris exemplified this technology. Most famous was the “flying buttress” used to transmit the horizontal force of a vaulted ceiling through the walls and across an intervening space to a counterweight outside the building. As a result, the buttress seemingly flies through the air, and hence is known as a "flying" buttress. Thus the pointed arch (the thrust of the supports crossed each other at the apex) and the long spans within gave Gothic architecture its distinctive metaphoric image.

Renaissance architecture was all based on the rediscovery of Roman ruins and the revival of ancient literature which brought both an intellectual, political and artistic rebirth to all of Europe, but first to Florence and other Italian city states before spreading to France and elsewhere. Perspective drawing and other artistic devises flourished including building, furniture and household decorative items.

Metaphorical new representations of the horizon, evidenced in the expanses of space opened up in Renaissance painting, and helped shape new humanist thought and the way buildings were conceived and designed (Nuttgens, Patrick 1983).

Baroque architecture was characterized by free and sculptural use of the classical orders and ornament, by forms in elevation and plan suggesting movement, and by dramatic effect in which architecture, painting, sculpture, and the decorative arts often worked to combined effect (bursting, dynamic, forward) which all announced a rebirth of human culture and artist-made three-dimensional sculptural paintings.

The key to understanding its arts and architecture was that it was a metaphor of coming to life and motion. It was all extravagantly ornate, florid, and convoluted in character and style. Forms burst through their stayed forms purposefully depicting freedom, joy and vibrancy (as broken pediments and Bernini’s sculptures). The metaphor was from the parts to the whole and from the whole to the parts (Zarefsky, D, 2005).

When kingdoms created dynasty’s iconic buildings, the architect and artisans took their cues from the reigning monarch. They converted these verbal instructions into habitable iconic cognitions, places to store and represent their wealth and places to defend their domains. The referents were clearly monetarily valued as in *more is better* with *security* and *privacy*.

With the introduction of civil codes, architecture was now also concerned about the health, safety and welfare of the general public. In certain modern pluralistic societies the free reign of ideas and opinions as

to contexts and their meanings are diverse (Rumelhart, D. E. 1991). Works of architecture's whole and the parts had congruence where they shared the same architectural vocabulary with respect to their building systems, materials and design philosophy.

Maria Theresa grasped both the implicit and explicit metaphor and commissioned her palace to communicate its concern for the human scale and employed hundreds of artisans to craft furniture, games, and decorations designed to be metaphors of the color, shapes and forms of nature and technology. Furthermore, and enamored with the finding of ruins in Italy, she had them transported and some rebuilt at Schönbrunn to connect her time with the classical past. In fact Emperor Leopold got Johann Bernard Fischer von Erlach to produce a design in 1688.

Maria Theresa could only be regarded as an informed client (probably an opinionated one) and she got the "architect of the court" Nicolo Pacassi to redesign the palace and the gardens. Schönbrunn is an orchestration of metaphoric factors gathered by a variety apparently unrelated crafts and craftsman around them and subjects of the court's choosing. By so doing these crafts were emulated by the court and citizens exemplifying how human cognition is fundamentally shaped by various processes of figuration (Gibbs, R. W. Jr., 1993).

This habitable metaphor was not meant for the user to fully, continuously and forever recall all that went into its production. The palace and its grounds was one metaphor after the other including the ruins, gardens and statues. Throughout the empire, in an attempt to make the strange familiar (showing her gratitude to the Hungarians), matching, copying and emulating the design of other buildings and adapting the design of one to Schönbrunn adapted to the more familiar building in Vienna and the surrounding villages.

Following her mother's love of design, Marie Antoinette so disgusted with her exile from Paris, revived the metaphorical (picturesque) Petit Trianon. This arrangement shows the eclecticism and refinement of Marie-Antoinette, an art of living linked to free thinking, for the spirit of the Enlightenment was far from absent here.

Much earlier the roofscape of Chambord contrasts with the mass of its masonry and has often been compared with the skyline of a town: it shows eleven kinds of towers and three types of chimney, without symmetry, framed at the corners by the massive towers. The design parallels are North Italian and Leonardesque. The "town" on the roof of this palace was fully equipped with reduced size shops and boutiques where one could imagine the queen and her court could ambulate as though they were in the

city. Unlike the Arabian souk, Parisian and French shops developed architecture of display to show-off their wares.

It was no accident that when US cities began designing and building they copied the European models of retail and commercial shops. Even the metaphors of extending roof heights with false work to be taller than neighbors were adapted and still today is practiced in the international style of building design.

The Duomo in Milan is an important example of city-wide and public metaphor where many artisans were employed to carve the many statues and gargoyles on its facades. Each carving was a metaphor and the collection of them all and communicated the unity of passion and adherence to the church. This exemplified the interaction view of metaphor where metaphors work by applying to the principle (literal) subject of the metaphor to a system of "associated implications" characteristic of the metaphorical secondary subject. These implications were typically provided by the received "commonplaces" (general beliefs or values that are widely shared within a culture) about the secondary subject:

> "In this case the success of the metaphor rests on its success in conveying to the reader some quieter defined respects of similarity or analogy between the principle and secondary subject."

Milan's Duomo is only one of hundreds of examples of this unified and diverse building metaphor (Boyd, R. 1993).

Remarkably, the architectural beneficiary of free enterprise, democracy and the sovereignty of the individual was modern architecture which was metaphorically demarked by the Art Nouveau style. This style which began in Paris and Munich is exemplified by its metaphorical use of leaves, vines and nature reminiscent of the tree-like forms of the Gothic buttresses and arches.

Art Nouveau encompasses a hierarchy of scales in design; architecture; interior design; decorative arts including jewelry; furniture; textiles; household silver and other utensils, and lighting; and the range of visual arts. In some ways it was a precursor to the Bauhaus where modern architecture really got its start, which eclipsed the Beaux Arts' eclecticism. The metaphors of contemporary and modern architecture were their abstract, cubistic and plain design (lack of embellishments). They strove to be impersonal, general and metaphorically dead. Not to belabor the socio-political, design went on a competitive rampage between citizens, but within the vernacular of the available materials, technology and design theory.

Bauhaus also was committed to achieve high quality design with machine-made mass production. Modern architecture theory was applied to both public and private enterprises producing public works and privately owned public buildings. The use of structural iron and steel and steel-reinforced concrete changed the look, size and scale of building types, especially the office building which now, due to the elevator could convey people to great heights to figuratively scrape the sky. Stadia, transportation terminals and factories could be covered with long span steel beams, cables and folded plates (some derived from origami). This exercised the "analogical transfer theory" where instructive metaphors create an analogy between a-to-be-learned system (target domain) and a familiar system (Mayer, R. E. 1993).

"Functionalism", including "modern architecture" was a term given to a number of building styles with similar characteristics; primarily the simplification of form and the elimination of ornament that first arose around 1900. By the 1940s and for several decades in the twentieth century these styles had been consolidated and identified as the "International Style" and became the dominant architectural style, particularly for institutional and corporate buildings. The exact characteristics and origins of modern architecture are still open to interpretation and debate.

However, it was certainly affected by the instrumentalization/ industrialization of architecture as argued under the maxim "form follows function" (Banham, R. 1980). A disappointment to the purist was that the mainstays of ancient metaphors were still alive and well including the commonplaces of turf, identity, security, status, power, protection and shelter. In fact with the unleashing of the global real estate boom, real estate investment trusts, and free enterprise that the inordinate variety of metaphoric iconic building types dwarfed anything of the past in such historically low-key places as Dubai, Doha, Shanghai, Hong Kong, Jakarta, Manila, Tokyo, Las Vegas, Sydney, Hamburg, Singapore, and Hawaii; not to mention the historically notorious places as New York, Chicago, San Francisco, Paris, Berlin, etc.

Futurist architecture was a metaphoric term alluding to the past compared with a later period (Watkin, D. 2005). While it claimed to sever such ties and present something new, in fact it talked about the future in terms of its present. It was a metaphor which tried to make the strange (future) familiar by talking about one time in terms of the other (Gordon, W. J. J. 1971).

> "Futurist architecture began as an early 20th century form of architecture characterized by anti-historicism (where historicism is a theory that history

> is determined by immutable laws and not by human agency) and long horizontal lines suggesting speed, motion and urgency. Technology and even violence were among the themes of the Futurists."

The epic film "The Shape of Things to Come" (Wells, H. G. 1936) was one of its important achievements. All of this was eclipsed by contemporary science fiction movie making technologies and concepts using artificial intelligence, time travel, supernatural and spiritual manifestations.

Expressionist architecture style was characterized by an early-modernist adoption of novel materials, formal innovation, and very unusual massing; sometimes inspired by natural biomorphic forms or sometimes by the new technical possibilities offered by the mass production of brick, steel and especially glass. Morris Lapidus' Fontainebleau and Eden Roc Hotels are other such fine examples (Curtis, W. J. R. 1987).

Post-modern architecture was an international style whose first examples were generally cited as being from the 1950s, and which continued to influence present-day architecture (Jencks, C. 1993). Post-modernity in architecture is generally thought to be heralded by the return of "wit, ornament and reference" to architecture in response to the formalism of the international style of modernism.

As with many cultural movements, some of post-modernism's most pronounced and visible ideas can be seen in architecture (Pevsner, N. 1991). Metaphorically combining both technical and conceptual metaphors the art of building with mass produced machine technology, where the parts, fasteners and attachments are all cataloged and internationally available. Even the parts and main structural components are pre-engineered and manufactured off-site.

The metaphors of the period are combinations of mini-metaphors made into mega-metaphors. These are made relevant by social, political and cultural metaphors manifest in programs and on-site *charrettes* (any collaborative session in which a group of designers drafts a solution to a design problem). Programs include the wishes, needs and necessities of owners, users, and public authorities. The functional and formalized shapes and spaces of the modernist movement were replaced by unapologetic contrary aesthetics (as deconstructivism stimulated unpredictability and controlled chaos). Serendipitously, styles collided, forms were adopted (for their own sake), and new ways of viewing familiar styles and spaces abounded.

Classic examples of modern architecture include the Lever House (Skidmore, Owens and Merrill), the Seagram Building (Philip Johnson),

the architecture of Frank Lloyd Wright and the Bauhaus movement in it use of private or communal spaces. Other notable examples include: Libeskind's Imperial War Museum North in Manchester; DP World; Dubai's City Center; Riyadh's Kingdom Tower; King Abdullah Economic City in Jeddah; MGM Mirage; Palm Jumeirah; Milwaukee Art Museum; Guggenheim Bilbao; Beijing's Olympic Stadium (metaphoric bird's nest); MIT's anti-iconic Stata Center in Cambridge, Mass., by Gehry & Partners; The Royal Ontario Museum extension in Toronto; Melbourne Recital Centre and Melbourne Theatre Company building.

CHAPTER FIVE

STASIS:
THE HEART OF THE METAPHOR

Summary

In Chapter Four we reviewed the various periods of metaphors noting the differences between each by the metaphors' characteristics. Unlike modern times earlier metaphors were more overtly conceptual but distinct in their building technology whereas today's are abstracted and evolved with a variety of technologies and means of expression. Chapter Five will explore metaphors in further detail with examples and analogies. There are four categories of stasis (conjecture, definition, quality and place) giving examples and applications.

Scope

The [6] stasis metaphor usually refers to the condition of the state of equilibrium or inactivity caused by opposing equal forces (or a slowing or stopping of the normal flow of a bodily fluid). Cape Point in South Africa is a place where two oceans of differing water temperatures meet. Aside from this producing extraordinary underwater marine life, it also results in lush forests and sub-tropical savanna on the east coast, which gradually changes to scrub and desert on the west coast. Likewise in reasoning metaphor stasis refers to the focal point of a metaphor, the point at which contending factors meet; metaphorically it is the commonplace, fertile, thriving and prolific. In a work of architecture, once the metaphor is created the stasis is established when people negotiate the work and find the place where they meet the essence of the metaphor, a place of equipoise.

"Architecture is the making of metaphors" is the stasis to why architecture is an art. It is an art because it too makes metaphors; metaphor is the stasis between art and architecture. Stasis is determined by the choices that users make about what to stipulate and what to reject. So the

first decision to be made in confronting a metaphor is the point of stasis or its commonplace. This chapter will explain and illustrate the concept, which is drawn from ancient theories of rhetoric. It will identify four classical stasis, *conjecture, definition, quality* and *place,* and will illustrate each with examples.

Another key component of the architectural metaphor is the concept and the controversies which come from it. Finally, employing the concept of stasis will be shown to be useful for both the designer and reader. Because they are both the focal point this will be accomplished by analogously linking stasis to commonplace of the metaphor. In controversy, stasis defines the focal point and commonplace of the metaphor. The term means "point of rest" (equipoise) between opposing forces. Movement toward a goal cannot resume until the opposing is transcended. Stasis enables us to identify precisely what is the difference and invites users to perceive. The stasis is established as the meeting place or *topoi* between the creation and the perception of the metaphor. Designers may use a popular theme or style known to be acceptable to their users. In either case, sharing a consensus on the commonplace makes negotiating the metaphor feasible.

The concept of stasis was originated in classical rhetoric and originally designed for courts of law while the commonplace (Latin *locus commūnis*, translation of Greek *koinos topos*) was defined by Aristotle. The underlying premise of this is that in all polarities there is central point at which they balance and compromise or righteousness prevail. As the metaphor seeks a match linking the referents, Aristotle's status quo was a place to which extremes could be overlaid and joined. Contrarily, without having an *a priori parte* a design may evolve until a final design is achieved.

On the other hand, when Escarlata Partabella of Toledo brought me a picnic lunch and her guitar to a small mountain across from her home city I discovered this commonplace. She urged me to sketch while she serenaded. After a while I noticed her wry smile as she scanned my sketches and when I noticed how familiar they looked she confessed that she had sat me down on the very spot El Greco sat to sketch "View Of Toledo". Every time I juggle diagrams of functional spaces I find commonplaces where each may join and overlap. It is the very essence of design to know there is a way and draw till one finds the connection.

Arab "tentness" and "home-sweet-home" map basics from the "home-sweet-home" to the "Arabness" to make all the bits and pieces understood. Architects choose building elements from catalogs and in the most metaphoric circumstances designs elements from scratch. Metaphor

buildings may or may not be composed of element metaphors and buildings which are analogies may of or may not have elements designed metaphorically. However, it is less likely that an analogous design will contain metaphorical elements. Architects and clients begin their conversation by finding both the abstract and commonplace to condition, model, propose and describe the operations. Selecting an existing commonplace and choosing special designs determines which is analogous and which is absent. For example designers may resort to nature, sculpture, music and mathematics to find the commonplace.

A metaphoric work is not simply one but a combination and complex weave of dominant, sub-dominant and tertiary sub-metaphors which once created are perceived, understood and read in similar, different and opposing ways as there is a consensus of the general public, specific families and individuals. Often metaphor's shapes and forms, in and of themselves, are not only perceived in general but by their context, relevance and indigenous characteristics. Much to their disgust, design professionals will be requested to tile roofs, color facades and provide arches to conjure the imagery desired by the client and even the public. The Bedouin can tell one tribe from the other by the shape, slope, and type of tent, banners and banner designs.

Both thesis and antithesis establish stasis. Pulling apart or compression will find the breaking point; the point which achieves the maximum stress and the weakest link. [22] "In processing analogy, people implicitly focus on certain kinds of commonalities and ignore others."

They can do this intuitively or by trial and error. As an example, it may be the judgment of the designer to imbue the public work with relevant essence while in private works with yet another relevant essence. Often these choices seem capricious and inconsequential. [22] An analogy is a kind of highly selective similarity where people focus on certain commonalities and ignore others.

The commonality is not that they are both built out of bricks but that they both take in resources to operate and to generate their products. In this case it is the point of maximum strength which can support the referents of either the metaphor which by analogy has before been proven to work.

[22] On the creative architect's side: "The central idea is that an analogy is a mapping of knowledge from one domain (the base) into another (the target) such that a system of relations that holds among the base objects also holds among the target objects."

On the users' side in interpreting an analogy, people seek to put objects of the base in a one-to-one correspondence with the objects of the targets to obtain the maximum structural match.

> [22] "The corresponding objects in the base and target need not resemble each other; rather object correspondences are determined by the like roles in the matching relational structures.
>
> "Thus, an analogy is a way of aligning and focusing on rational commonalities independently of the objects in which those relationships are embedded. Central to the mapping process is the principle of "systematicity" [sic] in which people prefer to map systems of predicates (assertions) favored by higher-order relations with inferential (likely) import (the Arab tent), rather than to map isolated predicates. The systematicity principle reflects a tacit preference for coherence and inferential power in interpreting analogy.
>
> "No extraneous associations: only commonalities strengthen an analogy. Further relations and associations between the base and target, for example, thematic consecutions (logical sequence) do not contribute to the analogy."

For example, there might be only one best way to achieve stiffness in a vertical column which by analogy is chosen and made a referent in a metaphor system of columns and beams of a complex structural system. This same way may again be used over again by analogy in similar circumstances through the design. Architects often adopt a system of standard details which may be used repeatedly. Thus the reader may reads the outcome and find this common element as a familiar commonplace to inform other strange elements.

Architecturally any of the four categories of stasis (conjecture, definition, quality and place) concern making metaphors. Conjecture concerns whether either referent works; definition as to their *modus operandi*; quality as to whether the elements are right for the program; and place as to whether the elements fit to the commonplace.

[10] Uniquely, what determines the stasis is not the original design but the response to it. One may perceive a program in a variety of ways. The specific perception, together with the original program, will identify just what is at issue and, hence where the stasis lies. It will also determine which of the four categories is at issue. Therefore, an important preliminary to perception of a work of architecture is to determine where the stasis most usefully can be drawn. Knowing the building type, owner and uses are clues to the metaphor. Like a libretto in an opera having the program is very helpful. Most architects will agree that not only is design site-indicative but it is also demographically specific. Clients, users, public

and readers who can make their needs and necessities well known as the design process progresses usually find the stasis in the appropriate category. The less overt the design the more the maker observes and assumes to formulate program.

Generally speaking, stasis is progressive. Pragmatically, today's works of architecture are minimal and only by "personalizing" the program can functionally superficial non-minimal features be added. However, the architect's artistry (way of design, proportioning, arranging spaces, selections of materials, buildings systems, etc.) can be dubbed to enhance an otherwise "plain vanilla" design. In other words, since stasis in definition concedes conjecture; and stasis in quality implicitly concedes conjecture and definition, a programmer should select a stasis as close to the beginning of the chain as can be sustained. One device for artificially producing a stasis is dubbing. [23] "Dubbing" (invest with any name, character, dignity, or title; style; name; call) and "epistemic access" (relating to, or involving knowledge i.e. cognitive). "When dubbing is abandoned the link between language and the world disappears," adding a sound track to a film is the best use of the word where the picture remains but the experience of the whole is changed once we have both picture and sound. I say artificially because the stasis was not drawn from the referents but synthesized outside the context.

One of the vulgar tricks used in contemporary design to achieve this effect is LED cladding with screens that change color, sound, images and story. Examples of this can be seen in the commercial districts of cities like of Tokyo, Nagasaki, Shanghai, Dubai, Doha, etc. In Vienna such screens are combined with heating and ventilation systems to conserve energy and keep building inhabitants comfortable. LED video screens can completely cover building façades and present kaleidoscopic images that dance across the building. Also, programmable light and video shows, which represent tenants on their own building façades, answer their deepest advertising needs.

Video cladding first appeared in 1996 as a 10-story video wall on the NASDAQ Market site at the Condé Nast building. Saco Technologies Inc. (Montreal, Quebec, Canada) provided NASDAQ with its 1,000sq. meter, $37m Smartvision screen. [58]. This cladding is the latest in dubbing, making relevant metaphors and adapting abstract building shapes to a public hungry for metaphors they can understand. Some urban designers believe this is the future of the built environment. The voiceless voluminous presence of giant mass has finally been humanized and given a persona. However the reality is that many such buildings are little more

than expensively clad shrines to real estate profits and a means of stuffing thousands of strangers up to the sky.

While poets have lauded the canyons and majesty they create others have finally seen bare surfaces upon which advertisers can further exploit the buying public with larger than life icons. Like Frankenstein's monster, King Kong and Godzilla, these twisted deformed sculptures have been dubbed icons to celebrate the worship they demand but rarely get. Instead, they need to be decorated to mitigate their often ominous presence. A presence which does not speak yet is so large it demands a voice. Whilst the Rockies, Alps or Himalayas inspire man, these man-made wonders generate little feedback. Like Frank Lloyd Wright's "57 different varieties of the day" these buildings are endowed with brand identity as corporate marketing tools. Indeed, their cries for recognition have been heard by big-city-people and taxi drivers who can direct you from anywhere to find the "Seagram", "Lever House", "Sears", and other buildings in the jumble of stumps.

Thankfully, only the movies have animated these "Golem-like" mammoth towers into futuristic war machines that after destroying their high-rise kin terrify, maim and destroy innocent urbanites, armies and courageous scientists.

> [24] "The difference between literal and metaphorical description lies primarily in such pragmatic consideration as: 1) the stability, referential specificity, and general acceptance of terms and: 2) the perception, shared by those who use the terms, that the resulting description characterizes the world as it really is, rather than being a convenient way of talking about it, or a way of capturing superficial resemblances.
>
> "Metaphor induces a (partial) equivalence between two known phenomena; a literal account describes the phenomenon in authentic terms in which it is seen, where they meet is the stasis."

Describing as a designer, how to bring clients into the process [10] presenting multiple stases, is better than shifting from one to another during the course of design. I can choose what words I use, whereas I cannot, in the same sense, choose terms which represent the world. So architects and readers deal with materials, structures, systems and leave the concepts to a variety of possible outcomes.

The concept of stasis can be adapted to making metaphors. Multiple issues are in play, each with its own stasis. One popular model applies conjecture, definition, and quality to each of the four *topoi* for a resolution of metaphor. [25] Metaphor is the solution insofar as it encodes and

captures the information: transferring chunks of experience from well-known to less well-known contexts. [25] The mnemonic, or intended to assist the memory function of metaphor, as expressed by Ortony's "vividness thesis", also points to the value of metaphor as a tool for producing durable learning from un-enduring speech This tool can be the *topoi* (theme or motif) to signify a context, building-type, and occupant and thus add value to a project. Without a stasis as *topoi* we wander through a world of shadows; invisible shapes and forms which house and protect.

As a key to design metaphor failing to agree upon the stasis can have serious consequences for the design. It can hijack the design and change understanding of what it is. It can result in a failed design. Resolution may be driven by the technical or conceptual but until there is "resolution" there is no design but a dead metaphor. Designers may have to step outside of the context for inspiration. [26] Metaphors can lead to radically new knowledge that results from a change in modes of representation of knowledge; whereas a *comparative metaphor* occurs within the existing representations which serve to render the comparison sensible. The comparative level of metaphor might allow for extensions of already existing knowledge, but would not provide a new form of understanding. It can be a blight, slum, unoccupied and costly drain on a neighborhood, community and particular owner. The concept of the stasis has multiple uses. For the user, it enables one to locate the center of the program.

For the designer, it permits strategic choices about alternative means to choose design elements. It also helps PMT (Project Management Team), designers and users to avoid the tendency to "talk past each other". Preempting the user to create experience so as to determine the stasis, the *parte* is used to find the commonplace. In making a habitable *conceptual metaphor*, after assimilating the program, the very first step in the design process is to develop a *parte* (a communication directed to the merits or outcome of the design process). It is the [10] resolution of the argument supported by claims, inferences, evidence and warrants. It is a "*top-down"* approach later followed by designs which meet the *parte*. The *parte* may follow the design process and be presented to sell the product.

Of course, this *parte* would have to converse with the *parte* of the street, neighborhood and township with all the social, political and legal matters pertinent to such an undertaking. The generative metaphor is "seeing" as the "meta-pherein" or "carrying-over" of frames or perspectives from one domain of experience to another. You build one thing in terms of another where the other is the model, and what you build is the application. It is the "ideal" of the proposed design. While architects may

initially state an ideal, it most likely evolves and even radically changes by the time the design process yields an architectural configuration (building manifestation). Once achieved the stasis *parte* (concept/gestalt) manifests and can be articulated. [27]. But this is only one approach to design and enjoyment of the built metaphor whereas we can also bundle and go from parts to the whole which is the subject of our next chapter.

CHAPTER SIX

METAPHORIC BUNDLING: METAPHOR FROM PARTS TO WHOLE

Summary

In the last chapter I presented the heart of the metaphor and how the competition between the two referents and the end user operate to find the place in the metaphor that both creator and user can meet. I said that while we could wait for this pushing and pulling to locate the place between idea the designer can alternatively choose and by efficient trial and error come to an acceptable focal point. This was the metaphor's nucleus with examples and analogies, along with the four categories of stasis giving examples and applications. This assumed that the referents were apparently unrelated but with an essence common to both. In this case the commonplace stasis informed the reader about the diverse referents. What I did not explain was the means of traveling from the referent to the commonplace-stasis and back again. This chapter defines the warrant and its peculiarities as a mate to the inference as the license to create and read from parts to whole. In the case of the metaphor the design will vary with warrant and its inference so that referents can relate to each in prescribed ways. The chapter concludes that it is not the metaphor's product but the mind of the reader where the metaphor lives.

Scope

Neither metaphors nor axioms mean that design becomes automated intelligence nor prescriptive but rather the opportunity to design in a broader scope and with more opportunities. Making metaphors from parts to whole, familiarizes strange things with other things that are familiar in order to enrich old familiar things with newly made familiar things. Such *metaphoric bundling* [28] creates a new family of knowledge. It is prescriptive facilitating action without having to design the methodology but rather concentrate on design and reading.

The next several chapters focus on inferences (and the warrants for them) because they are the most complex parts of the metaphor and they determine the design scheme that will be employed. Following one prescription will lead to a different outcome than if following another. It is therefore beneficial to study these to both understand making a metaphor from the part to whole as well as how the prescriptive method works. Without being pedantic most engineering, architecture, and environmental design schools teach one or other method to enable students to complete their designs. While few label their method they follow certain basics and while state exam boards do not test method, they examine the outcomes to determine that the student has a method.

In this chapter common inference patterns will be reviewed: *example*, *analogy*, *sign*, *cause*, *commonplaces*, *form* and inferences considered by example. These are used to relate specific cases to more general claims and to apply general statements to specific cases. Unless the enumerations are complete, this form of inference depends on probabilities and therefore is subject to error. This chapter will also identify some of the common errors in this pattern of inference, where inference is a mental move from program aspects to sub-design so that one accepts the design on the basis of the program and warrant, which is an authorization or license to make the inference from program to design. Warrants such as conduits, mapping, analogies, similes, parallels, etc. assure us that we can go from here to there. In addition to the stasis and the commonplace, the inference is the impetus connection and making the metaphor work. But these are not automated, reflexive nor prescriptive - but observations of the creative design process which makes an array of unknown, simultaneous and often capricious choices.

Designs are often organized according to their patterns of inference and warrant and show that the program data is a basis for the design; but they do not do so with certainty. Consequently, we need to examine two aspects of every inference. We need to know what the inference is and how it works. We need to know some of the tests to determine whether a particular situation is a strong inference. We will examine major patterns of inference, such as example, analogy, sign, cause, commonplaces and form, as well as some hybrid patterns.

The warrant from example and reasoning from parts to whole is vividly illustrated in the design of a typical high rise office building. As I said in another chapter [11] metaphor is the main mechanism through which we comprehend abstract concepts and perform abstract reasoning. Being as how contemporary architecture is wholly abstract metaphor is very useful. For example, as this is so for linguistics (spoken or written),

then I infer that it must be true for non-linguistics and give as evidence the built habitats and their architectural antecedents. What is built is first thought and conceived separately from building as thinking and conceiving is separate from the outward expression. Whether it is one or a thousand, public culture is influenced, bound and authenticated by its metaphors. The metaphors are the context of life's dramas and as our physical bodies are read by our neighbors finding evidence for inferences about social, political and philosophical claims about our culture and its place in the universe. One of many warrants is recognizing and operating the front door of a castle as we would the front door of our apartment; another warrant is the adaptive uses of obsolete buildings to new uses such as a warehouse transformed for residential use. We see the common space and structure and reason the building codes written to protect the health safety and welfare of the general public.

[11] Subject matter from the most mundane to the most abstruse scientific theories can only be comprehended via metaphor. [11] Again, metaphor is fundamentally conceptual, not linguistic, in nature.

After many years living in Saudi Arabia and Europe and away from Brooklyn, I visited Park Slope (Brooklyn). I saw the stoops ascending to their second floors, the carved wood and glass doors, the iron grilles, the four story walls, the cement surrounded and conventionally paned windows but what I saw was only what I described. I did not recognize what it was; it was all unfamiliar like a cardboard stage set. I did not have a link to their context nor the scenarios of usage and the complex culture they represented. I neither owned nor personalized what I was seeing. All of this came to me without language but a feeling of *anomie* for what I was seeing and me in their presence, years later I enthusiastically escorted my Saudi colleagues thorough Washington, DC's Georgetown, showing them the immaculately maintained townhouses. I was full of joy, perceptually excited but my colleagues laughed and were totally disinterested. These were not their metaphors and they could hardly wait to leave the area to find a good Persian restaurant to have dinner. They, like me years before, did not see what I saw and more relevantly did not "get the concept". Both of the above anti-metaphor cases were conceptualized without words as would be positive cases of metaphor.

The evidence is the site's floor to area ratio, context and restrictions, height restrictions, vertical transportations systems, heating ventilation and air conditioning systems, structural systems, curtain wall systems, electrical system coupled with the demand for office space and the type of tenants that can be expected. Each of the sub-systems involves different disciplines of engineering, design and writing. The design is that the

aggregate of the subsystems feed to form a sub-design. Metaphorical language is a surface manifestation of conceptual metaphor.

[11] As language is to speech so are buildings to architecture where each has a content and inner meaning of the whole as well as each of its parts. As each word, each attachment, plain, material, structure had first been conceived to achieve some purpose and fill some need. Hidden from the reader is the inner psychology, social background, etc. of the man when speaking and the programming design and contacting process from the reader of a building metaphor. As in completing an argument the reader perceives the inferences with its warrants and connects the evidence of the *seen* to the claims to make the resolution of the whole, all of which are surmised from the surface.

[10] The inference is that *what is true of the part is true of the whole* and is a key to making architectural metaphors. [11] Though much of our conceptual system is metaphorical; a significant part of it is non-metaphorical. Metaphorical understanding is grounded in non-metaphorical understanding. The science of the strength of materials, mathematics, structures, indeterminate beams, truss design, mechanical systems, electricity, lighting, etc. are each understood metaphorically and their precepts applied metaphorically. However, often selections, trails and feasibility are random and rather in search of the metaphor without knowing this to be the case. On the other hand we may select one or other based on non-metaphorical, empirical test and descriptions of properties. Non-metaphorical experience is carried over to metaphorical experience to find commonplace.

We then try to understand the metaphor in the selection; its commonality; how it contributes to the new application; how it has properties within itself which are alone strange and unrelated, yet when coupled with the whole or part of the created metaphor contribute to metaphor. For example, in the last 20 years shop front tempered glass has been enhanced, thickened, strengthen and is now used in large quantities as frameless curtain walls in private and public properties. This illustrates how a non-metaphorical building product which has been taken out of one context can be used in another. Our primary experiences grounded in the laws of physics, gravity, plasticity, liquids, climate etc. all contribute to our metaphorical understanding where often the conceptual commonality accepts the strange.

In Belize, faced with an unskilled workforce and the government wanting fancy houses for its government staff, I choose a plethora of pre-engineered building components from non-architectural catalogs. These included gigantic drainage pipes, sawn in half and used as roofs. In

Tennessee, I did the same by using textured plywood to achieve and replicate an indigenous country style.

The warrant is that the separated elements are potentially compatible and when combined can work together to produce a working metaphor. This presumption is based on other models and typologies expecting that what was true for these others may also be true for this metaphor.

[11] Metaphor allows us to understand a relatively abstract or inherently unstructured subject matter in terms of a more concrete or at least more highly structured subject matter. Owner-occupied specialized works of architectural metaphors may encompasses everything from long periods of research; observations; analysis; conclusions; redesign; re-thinking of existing or utility of new systems; setting our system feasibility; pricing and meeting budgets, palling and programming; diagraming and design of sub-systems and systems but when complete the metaphor is accessible, usable and compatible.

The whole of the metaphor is designed in such a way as to clarify, orient and provide reification of all the design parameters into a "highly structured" work; a work which homogenizes all these diverse and disjointed systems and operations into a well working machine. Building types such as pharmaceutical, petrochemical laboratories, data research centers, hospitals, space science centers, prisons, etc. are such relatively abstract unstructured uses which only careful assembly can order. Faced with the need to create both housing and identity the Greeks and the Romans produced the classical orders of architecture. These orders – originally derived from Egypt – are identifiable through the proportions, profiles, details and, of course, the type of columns and capitals used. Each of these styles also has its proper entablature, consisting of architrave, frieze and cornice

Generalization uses the inference from example to derive a general statement from one or more specific examples. The inference is that what is true of the part is probably true of the whole. It's like walking into a dark room to find the light switch; you know how to do that and to expect to find it in a predictable place; to anticipate finding and pulling the switch; all of which motivates ones mental and physical motion. If the enumeration were complete, this would be the case with certainty and the design would be deductive. Because the enumeration is usually incomplete, the warrant is that the sub-systems are representative of the whole.

[11] Mapping is the systematic set of correspondences that exist between constituent elements of the source and the target domain. Many elements of target concepts come from source domains and are not pre-

existing. To know a conceptual metaphor is to know the set of mappings that applies to a given source-target pairing. The target is what we try to understand governed by the principle of directionality which states that the metaphorical process typically goes from the more concrete to the more abstract. Many elements of target concepts come from source domains and are not pre-existing. Source domain is the conceptual domain from which we draw metaphorical expressions while the target domain is the conceptual domain that we try to understand; the two inform each other.

When I first encountered the eastern *hammam* (hole in the ground latrine) in Milan's underground public lavatories I referred to a lifetime of using western facilities but evoked the occasional "wilderness" experience. I drew from the "wilderness" experience to the target of using the eastern *hammam*. Usually, metaphors are not as different from our usual experiences as in Saudi Arabia where a custom is to eat from a huge platter filled with a steamed mutton and rice where one eats in a certain way with utensils. The design and use of a traditional Arab home involving *mashrabia*, separated entrances and guest areas, are metaphors which mapped from customs to a building.

Generalizations usually follow one of two patterns. A statistical generalization draws sample from a larger population and reasons that what is true of the sample is true of the whole. An anecdotal generalization cites several individual examples, and then extrapolates from that. Any generalization should be tested for the fallacy of composition (assuming that what is true for each of the parts is necessarily true of the whole). A fallacy of composition arises when one infers that something is true of the whole from the fact that it is true of some part of the whole (or even of every proper part). For example, the method used to engineer a curtain wall can be used to design the building's structural system. Each building element and physical conditions in which it is found requires different formulas and physical considerations such as flexure, bending, stress, compression, etc. the rules of which differ depending on whether they are used vertically or horizontally (e.g. as a column or a beam).

Classification uses the inference from example to derive a specific application from a general principle. Modeling from the building type; engineered structure; high-rise office buildings to mid-size office buildings, requires an understanding of the materials and generic applications that come to hand etc.[11] There is a list of over 100 schemas in many categories about basic human behavior, reactions and actions. These schemas are the realms in which the mappings takes place much the same as the inferences in arguments have warrants and link evidence to claims so do these schemas. Architects carry-over these experiences with

materials, physics, art, culture, building codes, structures, plasticity, etc. to form metaphors. Identifying conditions, operations, ideals and goals are combined to form plans, sections and elevations which are then translated into contract documents. Later the contractors map this metaphor based on their schemes of cost, schedule and quality control into schedules and control documents. It is not until equipment, laborers and materials are brought to the site that the metaphor starts to form. Once formed the only evidence for the user (reader) are the thousands of cues from every angle, outside and inside to enable use and understanding.

The latter half of each of these phrases invokes certain assumptions about concrete experience and requires the reader or listener to apply them to the preceding abstract concepts of love or organization in order to understand the sentence in which the conceptual metaphor is used. Operationally, the work's entrance is the first clue about the sequence of experiences of the metaphor taking us to the anticipated lobby, then reception followed by sequences of increasingly private (non-communal) and remote areas until reaching the terminal destination. The very size, context and location are coupled with the themes of parks, gated communities, skyscraper roof tops and cladding becoming a metaphor. The very outer edges of a metaphor portend of its most hidden content. Once we understand the metaphor and the mapping from the context to the form the mapping continues from entrance to the foyer and mapping from the context and cladding to every detail. We carry-over and map the metaphor as we delve deeper into its content and inner context always mapping the first to the current metaphor.

In linguistics and cognitive science, cognitive linguistics refers to the school of linguistics that understands language creation, learning, and usage as best explained by reference to human cognition in general. It is characterized by adherence to three central positions: first, it denies that there is an autonomous linguistic faculty in the mind; second, it understands grammar in terms of conceptualization; and third, it claims that knowledge of language arises out of language use.

Therefore the metaphor of architecture is inherent not in the media of the building's presence, parts or bits and pieces but in the mind of the reader and that the articulation of the metaphor as thinking and that our use of the metaphor increases our know ledge of the metaphor and reading metaphors comes out of practice. The inference is that what is true of the whole is probably true of the part. If the general principle were derived from complete enumeration, this would be so with certainty, and the metaphor would be deductive. Because that is seldom the case, the warrant, as with generalization, is that the sub-metaphors are

representative of the whole. As an ideal, aesthetic design is said to have this kind of integrity. Having now studied both the top-down and parts-to-whole views of metaphor we can look at them with comparisons.

CHAPTER SEVEN

METAPHOR WITH COMPARISONS

Summary

In Chapter Six we searched the means of traveling from the referent to the commonplace stasis and back again. We defined the warrant and its peculiarities as a partner to the inference. We showed that the metaphor of the design varied with warrant and the inference so that referents can relate to each in different and prescribed ways. The chapter concludes the metaphor lives not in the product but in the mind of the reader. This chapter further describes the principles upon which the designer selects and predicts the way referents lead to finding the essence of the metaphor. Without a path and mode the referents could not come to the stasis, so this is a definition of their impetus to the stasis. This chapter also shows how analogies work within metaphors.

Scope

One common form of inference is that *like things should be treated alike* which we can think of as metaphoring from analogy. Analogies can be either literal or figurative, that is, they can be direct comparisons between things or comparisons of the relationships between things. This chapter will describe the type of analogies and tests for this metaphoring with comparisons. It will consider why logicians often consider analogy the weakest type of inference, whereas rhetoricians often consider it is the strongest. Architecturally, this is most common since construction means and methods, building systems, existing and available manufactured materials, site, building codes and local ordinances are common and cannot be ignored, and they must be assimilated into the program and the design process. They must be made part of the program and each as a component in metaphor. [19] In this way design metaphor is an abbreviated simile where two unlike things are explicitly compared. The difference between the metaphor and simile is that one is implied while the other explicit.

In either case when we compare two things with regard to some characteristic that is common to both it is akin to likening a hero to a lion with courage. Architecturally it is identifying and then comparing building rooms, areas, segments, functions or systems. [19] In psychology "appreciation" (appreciating similarities and analogies) is a general term for those mental processes whereby an attached experience is brought into relation with an already acquired and familiar conceptual system. From this inference comes the architectural building-type categorized by primary goal and operation as medical, office, residence, etc. and construction type as steel, wood, concrete, etc.

[19] "Reading metaphors build an image in the mind", that is to say we "appreciate" what we already know. It is the way we make comparisons. I have always contended that we do not learn anything we don't already know. We learn in terms of already established knowledge and concepts. We converse reiterating what we presume others know, otherwise the other party would not understand. The other party understands only because he or she already knows.

The architect who assembles thousands of bits of information, resifts and converts from words to graphics and specification documents communicates the "new" in terms of the known and familiar. The first recipients are the owner, building officials and contractors who must see whether the assemblage of known elements matches expectations. After its construction the users read familiar signs, apparatus, spaces, volumes, shapes and forms. The bridge carries over from one to another what is already known. Even the strange and that which becomes familiar are both known but not in their current relationship. For example, when we apply a technology used on ships to a building or a room (e.g. associated with a tomb or bank vault etc.). Both are generally known but not in that specific context. We could not appreciate it if it were not known .It is what Weiss calls "commonalties" and is the selection between commonalties and differences that makes a metaphor. It is about understanding and discerning between what is" true in fact" and "true in the model". Miller says metaphors are, on a literal interpretation, incongruous, if not actually false; a robust sense of what is germane to the context and what is "true in fact" is necessary for the recognition of a metaphor, and hence general knowledge must be available to the reader (user, public etc.).

> [19] "We try to make the world that the author is asking us to imagine resemble the real world (as we know it) in as many respects as possible. Offices, bedrooms, lobbies, toilets, kitchens are such models which are built to specific situations in images of yet some other context. We compare the new with the old image."

A key to the metaphor is that inferences from analogy are based on comparisons and resemblances. Since metaphors and analogies are comparisons between unlike things that have some particular things in common. [30] Metaphors are generally used to describe something new by references to something familiar (Black, 1962), not just in conversation, but in such diverse areas as science and psychotherapy. Metaphors are not just nice, they are necessary. They are necessary for casting abstract concepts in terms of the comprehensible, as we do, for example, when we metaphorically extend spatial concepts and spatial terms to the realms of temporal concepts and temporal terms. In another sense when an architect creates a metaphor in a building it takes on the attributes of all buildings and if it is a work of art, as a building metaphor it takes on the attributes of all buildings which are more than a tin box but a statement of complex ideas which demands interpretation.

How do I know it is an "office building"?

- It is located in the neighborhood of other office buildings
- It does not have balconies and curtains in the windows
- It has an open and wide public plaza and unrestricted wide openings
- Its glazing, cladding and skin are hi-tech, impersonal and large scale

As an analogy the inference is that *one thing will be like another* [22] is a kind of highly selective similarity where we focus on certain commonalities and ignore others. The commonality is not that they are both built out of bricks but that they both consume resources to operate and to generate their products**.** As users, design professionals begin the design process by finding analogies from extant projects and use them with their own particular vocabulary.

For example, HOK (Helmuth, Obata and Kassabaum) Sport Venue Event Company designs stadia which encompass the community context, the history of the teams whilst delving into the future of the game and the entertainment of the fans. Being concerned that their clients make a profit, "Populous" formed a global design practice specializing in creating environments that draw people and communities together. This is a good example that metaphors are not prescriptive but a way of widening the scope of design services.

As the above example shows where the items being compared are not identical, this inference cannot be made with certainty; the inference is

always inductive (metaphoring in which the claim follows from the evidence (program of [48] COIG) only with some degree of probability and in which the metaphor contains new information not present in the program). As the designer progresses he or she selects a manufacturer who meets the conditions of the program and this selection carries with it totally new information all under the general heading of the metaphoric selection. However, its subtext must be checked and re-checked for compatibility and commonplace stasis.

With analogies the warrant is that "things that are basically alike will be alike in the respect under discussion" and with metaphors the warrant is that "*things that are basically different will be unrelated in the respect under discussion".* Literal analogies are direct comparisons of objects, events, situations, places and so on where metaphors are indirect comparisons and apparently unrelated but dependent on the essence they both share. The items compared are in the opposite sphere of reality. The inference is that the items are unlike like each other but have an essence common to both. For the metaphor the warrant is that if they are unlike in most basic respects, then they will be unlike in the respect under discussion. However, for the analogy, the warrant is that things that are basically alike will be alike in the respect under discussion. While literal analogies are used to identify parallel cases and to derive guidelines for action metaphors are used to liken one thing to the other hoping to make the strange familiar because of a shared essence common to both. Metaphors are often used to design from presumably dissimilar and unrelated contextual situations.

> [22] "Metaphor is reasoning using abstract characters whereas *reason by analogy* is a straight forward extension of the referent in commonplace reasoning."

All this to say and as if there was a choice that architects have a choice where to make a new building by analogy or by metaphor. Analogies may be the ticky-tacky (suburban box), office building, church, school building, fire station analogies to a first model versus an abstraction of a program into a new prototype. Is the analogy any less a work of architecture because of that? Or do we mean that works of architecture are works of art only when they make abstractions?

While figurative analogies are comparisons of relationships among objects, etc. rather than the things themselves metaphors are between the actual objects, events, places, situations and so on. In figurative analogy we are comparing unlike things such as the heart of the human body with the heart of a city or the heart of government. Figurative analogy has the

power to explain and the power to arouse emotions; it is hardly logical in its nature. On the other hand, literal analogy, comparing things of a like nature, may have the power of logic behind it. There cannot be a literal metaphor but there can be a figurative metaphor. Yet in architectural subset design there may be both literal and figurative analogies and figurative metaphors all composing the fabric of the inference and structure for the design supporting the final metaphor work of architecture.

> [22] "Thus, an analogy is a way of aligning and focusing on rational commonalities independently of the objects in which those relationships are embedded."

However, there may be metaphors at work as well as the user reads the tent's tension cable structure, banners and the entire assemblage in a "romantic" eclectic image of Arabness, metaphors beyond the imperial but of the realm of the abstract and inaccurate. The items likened are in different spheres of reality. The form of a figurative metaphor is as "b" (theme) as "b" is to "a" (*pharos*).

a. The theme consists of the terms to which the program relates.
b. The theme contains the better known pair of terms in the metaphor.
c. The warrant is that the likeness between the terms in the *pharos* will also characterize the likeness between the terms in the theme. They are *doppelgangers*.

> [22] "In processing analogy, people implicitly focus on certain kinds of commonalities and ignore others."

In New Haven, drafting service builders would give me a floor plan for me to redraft to build a new house: they simply wanted an analogy to the first with no changes. The Florida School Board uses and reuses both firms and plans to design new high schools based on pre-existing plans modified only to the extent of making them specific to the site. This is design by analogy. Many design professionals use standard details and standard specifications relying upon analogy to design a new building. The overall may be either metaphor or analogous. Whole professional practices are formulated and based on one or the other practice. Noting these things an industry was created called the "housing industry" churning out analogies rather than individual metaphors, leaving the metaphor to the context or theme of the development. It is famous architects who are mostly famous because they made metaphors and from them analogies were drawn. The analogous phenomenon resulted in the 19th century

Sear's mail order catalogue offering pre-designed flat-packed and ready to ship barns from Wisconsin to wherever. Pre-fabricated components or even homes are all part of the analogous scheme of reasoning the built environment. Users have access to either and are able to shift perceptions.

In commonplace examples users wanting to be fed by overt metaphorical architecture go to Disneyland or urban entertainment and recreation centers. Las Vegas thrives on what I call "metaphoric analogies" abstractions of analogous building types. It is that synapse which attracts and beguiles the visitor hungry for authenticity and reality. Living in analogous urban replicas, city dwellers migrated to the suburbs in search of the metaphor of "an Englishman's home is his castle". Today this metaphor has become an analogy as the metaphor proliferates and moves from state to state, country to country. We may be told a "*cell is like a factory"* which gives us a framework for analogy and similarity.

> [22] On the creative and architect's side: "The central idea is that an analogy is a mapping of knowledge from one domain (the base) into another (the target) such that a system of relations that holds among the base objects also holds among the target objects.
>
> "On the user's side in interpreting an analogy, people seek to put objects of the base in one-to-one correspondence with the objects of the targets as to obtain the maximum structural match."

Confronting a Bedouin village of tents a westerner, faced with apparent differences, looks for similarities.

> [22] "The corresponding objects in the base and target need not resemble each other; rather object correspondences are determined by the like roles in the matching relational structures."

Cushions for seats, carpets for flooring, stretched fabric for walls and roofs, cables for beams, columns etc. Figurative metaphors are used to make the strange familiar and talk about one thing in terms of another, while expressing an essence common to both.

Compare the historical metaphors "Richard the Lion-Heart" and Guillaume Bras-de-Fer (arm of iron) and architectural metaphors: "ticky-tack"; "sky-scraper"; "high-rise" and less famous the thousands of likenesses formed by programming so many unlike finishes, structures, electrical elements, utility, building styles, forms, volumes, operations, transportation systems, schedules, activities, etc.

Metaphors always require careful testing because their essence common to both may not overcome their apparent differences; a metaphor

can never be certain as it is always inductive. The test of metaphor with comparisons is whether the essential similarities outweigh the essential differences between the items being likened. A false metaphor, like a false analogy is one that does not satisfy the test. Like a color which is tried and doesn't fit so hardware, heating, ventilating and air-conditioning, structural, finishing material and textures and flooring may not satisfy the sub-test and test. While metaphor with comparisons help us create, recreate and enjoy built metaphors we now see further how establishing likenesses with metaphor as an inference from sign works in the next chapter.

CHAPTER EIGHT

METAPHOR AS AN INFERENCE FROM SIGN (CORRELATIONS) TO ESTABLISHING LIKENESS

Summary

In the previous chapter we learned the principles upon which the designer selects and predicts the way referents lead to finding the essence of the metaphor. Without a path and mode the referents could not come to the stasis, so this is a definition of their impetus to the stasis. This chapter also contrasted and showed how analogies work within metaphors.

Continuing this theme, this chapter will show by example and description making metaphors from signs when sign is analogous to the familiar. We learned that an inference from sign maps the structure of one domain onto the structure of another where the metaphor is conceptual not the works themselves. These mental images and words prompt us to map from one conventional image to another. We learned that without these likenesses the built metaphors would be incongruous and faulty.

Scope

Metaphor sign (conveys meaning of something it represents) inferences establish that there are relationships between two nodes (e.g. walls, floors, ceilings, metals, woods, cements, etc.), so that one can be predicted from knowledge of the other. While nodes are elements of a tree diagram that represents a constituent of a linguistic construction this relationship is called “correlation”.

[10] While metaphor states one is the other, has characteristics of the other and informs one of the other’s likeness or *gleichris* it is not apparent, is seemingly unrelated and yet has an essence (stasis and commonplace) common to both. On the contrary, with a metaphor one cannot predict the other with knowledge of the first. Unlike casual inferences, sign inferences are fallible, the inference depends on probability. However in the case of the metaphor the two factors are disparate, unrelated and predictably

dissimilar. Because the two are framed as an analogy, the presumption is that they will correlate. But how can a wall correlate to a floor, etc.? They have an essence which is common to both. What is it? They are flat hard planes, substantive and material which bound and limit space. They have weight, height and depth and are both supported. They are both dominant design elements and are opportunities to embellish. They both are potentially mediators between two spaces and domains. They both need to be identified and treated in specifications and finish schedules. Having said this an inference and its warrant should not be misunderstood as a premise for inane design but rather another way to bring control and disciple to the creative process, it is key to bringing metaphor into the program.

The parallels between effective and literary reasoning reveal the technical and conceptual metaphor's science. Using both literary and architectural cases the metaphor explains the two realities they diversely express and therefore we learn how the metaphor works when it is a sign which "correlates" and not a form which "causes". However, in an effort to correlate we seek the essence common to both and in so doing gain the knowledge of the second by the first and vice versa. Sign reasoning is used to infer the unknown from the known, to predict outcomes, to rely on the judgmental expert authorities and to make the strange familiar. However, in the metaphor this warrant brings together two apparently unrelated factors which have an essence common to both, where each segment of a metaphor is likened to the other. Not only do they tell something about each other but each is a sign.

In a metaphor or sign-inference we infer that something can be predicted from the occurrence of something else. Wide flange steel beams sections, their flanges and webs relate as the web and flange inference to form a section. The web is a sign of the flange and the flange a sign of the web and they both are a sign of the section and the section a sign of the possible web and possible flange.

> [11] "Sign inferences involve correlations-patterns, occurrences, or changes that vary in relation to each other" with "the basic inference that something can be predicted from the occurrence of something else."

The building metaphor is the "occurrence of something else" leading the reader to seek the other leg and the essence of the metaphor. Compare a walk through a New York City street with a tour through a "ticky-tack" suburb where both metaphors lead to seek the other leg and the essence but with very different results. Each and every building in the city will have a unique and sovereign authority, author and referent, while the

suburb a single referent. In either case the building compels readers to both compare the whole of the metaphor to its apparent parts and the whole to its latent and less apparent referent.

While the technical metaphor of the whole tends to be infallible and can be asserted with certainty the conceptual metaphor of the whole metaphor is fallible and less certain. However, "the underlying warrant, therefore, is that there is a predictable relationship between variables" and these variables may be inductive or deductive, fallible or infallible and while the technical could be predictable and certain the conceptual may be inductive, fallible and uncertain. Reading the technical metaphor of a given work may be more satisfying while the conceptual more tedious.

> [10] "The prototype case of a sign relationship is a surface characteristic or property that is regarded as a sign of some deeper, underlying essence."

In a city we notice that all the buildings are tall, voluminous and individualistic whilst in a suburban context repetition of design, ornamentation and shape is often the norm.

> "This is not automatic but [11] happens when we map the structure of one domain onto the structure of another where there is a "superimposition of the image of box or tall rectangle onto the image of city building or a suburban tract house. As before the metaphor is conceptual; it is not the works themselves, but the mental images. The words are prompts for us to map from one conventional image to another.
>
> "All metaphors are invariant with respect to their cognitive topology, that is, each metaphorical mapping preserves image-schema structure."

Likewise when we look at the geometrical formal parts of an architectural metaphor we note those common elements where fit, coupling and joints occur. We remember that which exemplified the analogous match. This observation of the metaphor finds that the commonality, commonplace and similarity are the chief focus of the metaphor. As Frank Lloyd Wright designed his Prairie architecture with a dominant horizontal axis thrust through his structure as common to the horizontal axis of the land upon which the building sits. Thus the two horizontal axes, the land and then the building reflect a common horizontality.

In a city of skyscrapers architects echo the verticality, canyons and shafts of the commonplace. Similarly, the red tiled roofs of the Italian Riviera and the mission architecture of California are other examples of commonalities which express identity and a classification. We note the 90 degree angles and shapes that slide into one another. We note the way

metals, clips and angles fit; the way ceiling ducts are made to fit between structures and how ceilings hang etc. While it is less possible to imagine spontaneously the way we could relate the human form to a building, when we move through its spaces we fit ourselves into context. We can map the building structure to ours by finding one commonality amongst all the others. Very often we will hear someone say this place is "me". The common image has been located and the fit made.

In reading or interpreting buildings we jump from the particular to the general by extracting its image-schematic structure. So if the facade of a building is in one order of architecture you can presume the other parts are in a like arrangement and that the whole is of the classic order including its plan, section and details. What are involved here are mapping, channeling one idea from one level to another.

> [3] "Although inferences from sign assert a predictable relationship between variables, they do not account for it; they are thus less powerful than causal (cause and effect is the subject of the next Chapter Nine) inferences."

It is the likeness of that any one referent may have to many others of its class that works in building design; so while the designer selects one manufacturer the contractor may provide an equivalent. Perceptively when reading a work one detail may teach us to expect to see the same under similar circumstances through the same work. [11] Not withstanding "idolatry", metaphors are the contexts of life's dramas as our physical bodies are read by our neighbors so we look to read metaphors hoping to find evidence for inferences about social, political and philosophical claims about our culture and its place in the universe. We seek likenesses.

One of many warrants is recognizing and operating the front door of a castle as we would the front door of our apartment. Another warrant is the adaptive uses of obsolete buildings to new uses such as a warehouse or factory converted for residential use etc. The building codes have been re-written to protect the health, safety and welfare of the general public in accordance with the change in function. [11] As maps are the result of cartographers rendering existing knowledge into graphics, so mapping for the purpose of reading metaphors, allows readers to extrapolate from one source to another.

As the cartographer seeks lines, symbols and shading to articulate the reality, so the reader's choices of hitherto unrelated and seemingly unrelated elements are found to have a common essence. The metaphor can thus be repeated as the new vocabulary. Architects provide amorphic and seemingly disparate information in a form which is readily accessible

to those prepared to interpret it. Yet the process of mapping is no less intense as architects review the matrix of conditions, operations, ideals and goals to produce a thesis of similarities and differences. Commonalities resonate with one another to make a “resolution” in which metaphor and *parte* combine to produce a new reality.

After opening the public users has the opportunity to map any and all information from the whole to the sum and vice versa. Many enjoy reading the project while it is being constructed to understand the work and to conceptualize its final form. So the mapping of construction by onlookers and contactors is all part of the mapping process. Like a landscape artist [11] who gathers from the chaos of the nature’s beauty a discrete selection of only those items he can organize into the canvas so that the viewers will find what he saw and reconstruct, so the architect and the user map their reality into a metaphor. In this way the conception of the map is the metaphor and what is made by the cartographer is a "graphic" to simplify the chaos found in the commonality. Sifting through the program the architect seeks the “commonality” between the reality and experience to make the metaphor. Mapping is only possible when we know the “commonplace”. As the architect structures his program, design and specifications he simultaneously structures the metaphor of his work of architecture. There is a consistency to the likeness of the whole process.

Architecture consists of program specifics where the conditions, operations, goals and ideals are from otherwise unrelated and distant contexts but are themselves metaphors “mapped across conceptual domains”. The latter half of each of these phrases invokes certain assumptions about concrete experience and requires the reader or listener to apply them to the preceding abstract concepts in order to understand the sentence in which the conceptual metaphor is used.

Walk through an unlit city at night and you feel the quiet of the buildings’ voices because the readers have no visual information and without access to the closed buildings the metaphor is a potential reality. These are the signs, yet the potential for cognition does exist and is real but is not understood apart from its experience. [11] Humans interact with their environment based on their physical dimensions, capabilities and limits. The field of anthropometrics has unanswered questions, but it is still true that human physical characteristics are fairly predictable and objectively measurable. Buildings scaled to human physical attributes have steps, doorways, railings, work surfaces, seating, shelves, fixtures, walking distances, and other features that fit well to the average person. Metaphor is an inference from sign.

[11] Humans also interact (inference) with their environment (sign) based on their sensory capabilities (aesthetics). The field of human perception, like perceptual psychology and cognitive psychology, is not an exact science because humans do not process information as purely physical but as something informed by cultural factors, personal preferences, experience and expectation. Human scale in architecture can also involve sightlines, acoustic properties, task lighting, ambient lighting and spatial grammar.

One important caveat is that human perceptions are always going to be less predictable and less measurable than physical dimensions. [11] Basically the scale of habitable metaphors is the intrinsic relation between the human figure and his surroundings as measured, proportioned and sensed. Scale is the reification of the metaphoric inference from sign**.** This dramatically represented by Da Vinci's Vitruvian Man, which is based on the correlations of the ideal human form with geometry.

[49] Piranesi's vision takes on a Kafkaesque, Escher-like distortion, seemingly erecting fantastic labyrinthine structures, epic in volume, but empty of purpose. They are caprice*,* whimsical aggregates of monumental architecture and ruins. Many of my pen and ink drawings were inspired by the Piranesi metaphor. In St. Peter's the spaces are so real that they imply the potential for all mankind to occupy.

The scale of the pattern on the floor is proportional to the height and width of the enclosing the space. They overwhelm the human figure as does the Baldacchino whose height soars but is well below the dome covering the building. The metaphor is instinctively perceived, mapped and sorted by mnemonic schemas as is New York's Radio City Music Hall designed by Edward D. Stone and the entrance to the Louvre by IM Pei. The surrounds of offices and shops by Michelangelo feature window and door proportionally designed to man's scale and perfectly mitigate the [11] universal scale of the Piazza di San Marco. Recalling the plazas of Italy, Edward D. Stone designed and developed the State University of New York in Albany (SUNY) which featured metered arches, columns and pilasters on buildings to mitigate the various scales of both the large and small plazas.

It is not hard to experience a built metaphor as it is an ordinary fixture on the landscape of our visual vocabulary. It is ordinary because it has a likeness to so many others in its context and others we have seen elsewhere. It has predictable, albeit peculiar and indigenous characteristics but the generic nature of the cues are anticipated. [11] A conceptual system contains thousands of conventional metaphorical mappings which form a highly structured subsystem of the conceptual system. Over time

society, cultures, families and individuals experience and store a plethora of mapping routines which are part of our vocabulary. As a potential user when encountering a new building type such as a hi-tech manufacturing center we call upon our highly structured subsystem to find conceptual systems which will work to navigate this particular event.

Another example is as a westerner encountering a Saudi Arabian home which divides the familial domain into public and private areas. In the hi-tech building doors will not open and corridors divert visitors away from sensitive and secret areas. In the Arab home the visitor is kept in area meant only for non-family members and where the females may not be seen. In this context these layouts are like so many others and expected. There is a common conventional metaphorical mapping (inference) which uses a highly structured subsystem of the conceptual (sign) system. There is a similarity and an ability to accept the constraints. The metaphor or the work of architecture includes each and every nut and bolt, plane and volumes, space and fascia, vent and blower, beam and slab; each with their mappings parallel to operational sequences, flows representations, openings and enclosures so that they operate in tandem and complement one another. The conventions come from the experiences of doors that open, elevators that work, stairs that are strong, floors that bear our weight, buildings that don't topple, and basic experiences that prove verticality, horizontality, diagonals, weights of gravity, etc. There is an infinite chain of inference from sign. Likewise, when we look at the geometrical formal parts of an architectural metaphor, we note those common elements where fitting, coupling and joints occur, again this simultaneity of ideas and image operating in tandem where we see and know an idea simultaneously; where the convention of the architectural space and the metaphor of the conception converge.

Contrary to these conventions image mappings in architecture find schemes from a repertoire of superficial conventions except in a Japanese or Arab house where we are asked to sit on the floor or eat without knives and forks or find no room with identifiable modality of uses, or a palace with only show rooms where living is behind concealed walls. These seem superficial and are unexpected when they have been adapted to western style architecture. A hotel's grand ballroom is both a room in a palace, a place for royalty, we must be one of them, yet a congregation of guests in black ties and gowns are as contemporary as a family celebrating a wedding. Incongruities merge in continuous and seamless recollections.

[11] The invariance principle offers the hypothesis that metaphor only maps components of meaning from the source language that remain coherent in the target context. The components of meaning that remain

coherent in the target context retain their "basic structure" in some sense, so this is a form of invariance.

Architecturally, users encounter a habitable metaphor with their experience grafted onto a particular mapping inherent in their catalog of mappings. This mapping has its own language vocabulary say of the way doors, windows, floors, stairs and rooms name work and the user brings this vocabulary into the target metaphor, say a new office building. Of course, there will be all sorts of incongruities, similarities and differences. However, this guiding principle means that the office building vocabulary will retain its basic structure. This means that the vocabulary the user brings to the target from the source will be unchanged and will retain images of doors, windows, etc.

For example, when an architect designs a bank from his source in the size, décor and detail of medieval great hall, the target of banking with all its vocabulary of teller windows, manager's carols, customer areas, vaults, etc. will not change into medieval ways of serving, storing and managing the business. When I designed a precinct police station for Bedford Stuyvesant, I brought the community, park and community services onto the street and public pedestrian sidewalks while housing the police offices, muster and patrol functions to the back and under the building. While the building metaphor is now a community service police station mapping components of meaning from the source language of user and community-friendly, human scale, public access and service which remained in the target police station. The vocabulary of all the police functions remained coherent, perceived and understood and did not vary.

The problem is particularly interesting when the metaphor of a shopping mall with commercial retail shops brings its language to a target context of a hotel with service support. The front and back of the hotel, the rooms and maintenance and the transience of guests will remain coherent, overlaid with malls covered, circulation and service area. The separated spaces will face the ambulatory and be separately accessible to visitors. Such a combination you can see at work in airport terminals being open shops and passenger circulation to a common metaphor. The airport is still an airport but an airport with a mall. The Munich subway and underground shopping center are another two examples; underground subway language, structures, ventilation, circulation is sustained while being influenced but not overriding the source.

[3] "The prototype case of a sign relationship is a surface characteristic or property that is regarded as a sign of some deeper, underlying essence."

[11] Our system of conventional metaphor is “alive” in the same sense that our system of grammatical and phonological (distribution and patterning of speech sounds in a language and of the tacit rules governing pronunciation) is alive; namely it is constantly in use, automatically, and below the level of consciousness and our metaphor system is central to our understanding of experience and to the way we act on that understanding. [11] It seems that onomatopoeic words are metaphors and imitate through the sounds they create the source object or quality (e.g. “click", "clunk”, “bang”, “bunk", "buzz", "bang", "clang", “crash”, “sizzle” or animal noises such as “cuckoo”, "oink", "moo", "meow" or “woof”). In this case an assemblage instead of a sound. As a non-linguistic element it has impact beyond words and is still a metaphor. A metaphor is much more than the sum of its parts and is beyond any of its constituent constructions, parts and systems; its very existence is a metaphor. Built metaphors are replete with such seemingly irrational and capricious appurtenances likening the whole or its parts to buildings and places outside of their context.

[3] As with our mother language and other primary things we too ascribe like relations to objects and even buildings assigning them the value from which we may benefit and which may support. [3] We cannot separate these three from each other so that it follows that we may find it impossible to separate ourselves from the external metaphors. Inferences that are not yet warranted can be real even before we have the evidence.

> “Metaphors are accepted at face value and architecture is accepted at face value. It is surely desirable to make a good use of linguistic surrogates. A common language contains many usable surrogates with different ranges, all kept within the limited confines that an established convention prescribes.”

It is amazing how different people can understand one another and how we can read meaning and conduct “transactions” with non-human agencies – hence art and architecture. Architecture is such a “third party” to our experience yet understandable and in any context. Accustomed to surrogates architecture is made by assuming these connections are real and have benefit. Until they are built and used we trust that they will benefit the end user.

[3] Sign architectural metaphors infer the unknown from the known where constructs are unknowable abstractions such as intelligence, economic health and happiness. The public presumes buildings are the incarnation of the makers’ wealth, intelligence and power. Height, finishes, volume and spaces portray signs of these abstractions. The

building is a kind of multidimensional graphical story where readers can infer the nature of their own personality as well as the authors', as well the nature of a regime, company or family; as well as their own norms and policies.

[3] Like Renaissance religious artwork metaphoric buildings reify authority and expertise presuming a sign of accuracy, trustworthiness regarding the particular matters about which the expertise testifies, for example, banking, manufacturing, environment, medical, etc. While it is unlikely that building signs get tested; bankruptcy, criminal actions and scandalous behavior can change users' and readers' perceptions and consequently buildings can lose their metaphoric value and be removed and replaced by new and fresh metaphors. In contrast to the next chapter which discusses the cause and effect of metaphors in works of architecture, in this chapter we have discussed establishing likenesses where a metaphor is an inference from sign.

CHAPTER NINE

CAUSE AND EFFECT OF METAPHOR IN WORKS OF ARCHITECTURE

Summary

Chapter Eight gave us examples and descriptions of making metaphors from signs which are analogues to something familiar. We learned that an inference from sign maps the structure of one domain onto the structure of another where the metaphor is conceptual; not the works themselves, but the mental images and where again the words are prompts for us to map from one conventional image to another. We learned that without these likenesses the built metaphors would be incongruous and faulty. Having now completed description of the parts we shall move on to not only the whole but the way in which all the parts and the whole build the metaphor. We concluded that with the exception of copies and dubs we cannot with certainty map which metaphor will result in which final metaphoric outcome. There is an uncertain causal relationship but nonetheless we are certain there will be a metaphoric outcome even if we aren't certain of what it will be. We learned, therefore, the sovereignty of both the program and design may or may not be 100% consequent. We learn the difference that while literal metaphors cause mental connections, architectural metaphor causes the manifestation of a material shelter. With examples this chapter contrasts the cause and effect difference between the literal and architectural metaphor and sub-metaphors.

Scope

To widen the scope of the elements in the design process considering making architecture as making metaphors should make design more comprehensive, complete and coordinated. It is as simple as [16] Aristotle's example of *essential causality* of a "*builder building a house"*. This single event can be analyzed into the builder building (cause) and the house being built (effect or outcome). Shelter and its controlled creation

contain sensual, graphic and strategic information fulfilling shelter's performance characteristics by real-deed physical manifestation rather than ethereal words of hope and future expectations. Both the literal and architectural metaphor causes an effect but in different ways; while they both must be read, the architectural metaphor must also be used while the literal metaphor experienced when practiced. Literal metaphors cause mental connections while architectural metaphors cause the manifestation of a material shelter. The kind of habitat metaphor depends on the intention, artistry and competence of the metaphor's maker as to specifically what effect it will have. The building (process) and not its metaphor is direct while its metaphor is indirect being the "sticks and stones" (unseen substance) of its manifestation. Yet while the metaphor may be explained with language it would not accomplish the building's shelter metaphor. The shelter prototype and its incarnation is itself indirect since its referent is obscured by contextual realities (*we can't see the wood for the trees*). We instinctively know (by metaphor) a man-made built habitat can be inhabited whether we know its owner, purpose, building type, contents, etc.

To best explain the cause and effects of metaphors on works of architecture we must first explain that there is a difference [29] between the indirect uses of metaphor versus the direct use of language to explain the world. While built metaphors are involved with material, formal, efficient and final cause, it is the [16] *formal cause* (a miniature model or blueprints) that tells us what, by analogy are the plans of an artisan, the metaphor of a thing intended and planned to take place. Anything is thought to be determined by its definition, form (mold), pattern, essence, whole, synthesis, or archetype. This analysis embraces the account of causes in terms of fundamental principles or general laws, as the intended whole (macrostructure) is the cause that explains the production of its parts (the whole-part causation).

Furthermore, the quality, size and scope of the created metaphor are not proportionate to the effect but are factors in the material product. Also, metaphors may be large or small, loud or soft, simple or complex; intended or unintended but in any case metaphor has an effect. [29] "The distinctions and relationships between micro and macro metaphors and the way they can inform (affect) one another" is as the form of design may refer to its program, or a connector reflects the concept of "articulation" as a design concept.

This *articulation* is the overt expression of the joining together of two separate parts (materials or structures, etc.) in the sense of divide (vocal sounds) into distinct and significant parts or where an architect parses the

program and reifies words to graphic representations bringing together disparate and seemingly unrelated parts to join into parts and sub-parts to make a whole as when the two domains of the building and its context have analogies that relate to both as when the site and the building absorbs a high amount of pedestrian traffic. Both are ambulatories and both guide and protect the pedestrian. Like a building metaphor's common elements with an uncommon application, the common connects to the unfamiliar and the architect is able to find a way to bring them together and the user discovers their relevance. The neighborhood walkways and the access to and through the building are analogous where one affects the other.

Metaphors [31] "reference analogies that are known to have a causational relation to the two domains" where a work of architecture has integrity (undiminished, perfect whole, entire, sound) when the whole and its parts share the same patterns of building systems, materials and design philosophy. For example, in a building with dominant 90 degree cubes and squares we do not expect to find plastic, curved and circular elements (not that there aren't many successful introductions of unlike geometries). One decision causes later effects that affect the overall design and language of the metaphor. This integrity affects the aesthetic personality (not its character) of the metaphor personality (distinctive and apparent attributes), because with or without this it will still work as a metaphor.

A built metaphor with all of its metaphorical baggage calls to mind another meaning and corresponding (cause and effect) set of truths. The metaphor is not part (an essential or integral attribute) of the building but is made from those meanings (the nonlinguistic cultural correlate). The meanings of one and the meanings of another may be similar so that the other comes to mind. Cause (the producer of an effect) and effect claims do not guarantee fidelity and accuracy of created intentions designed to cause-specific effects.

There are no guarantees that if a designer does one thing to cause one effect that the very same effect will happen. However, in architectural, fashion, product and interior design, designers count on the protocols of behavioral sciences to induce specific effects with such devices as compressed spaces, color to shrink or heighten size, the scale of furniture, length of hemlines, textures, lighting volumes, etc. While the intention and the cause are designed, there may be unintended consequences, but the effect nevertheless is that the work is a metaphor. In the end it stands alone, sovereign and subject to work as icon, shelter and context. It is in this that architecture so bespeaks of human culture, period, and people with all of their determined and undetermined outcomes.

> "A [14] problem of the metaphor concerns the relations between the word and sentence meaning, on the one hand, and speaker's (designers) meaning or utterance meaning, on the other. Whenever we talk about the metaphorical meaning of a word, expression, or sentence, we are talking about what a speaker might utter it to mean, in a way that departs from what the word, expression or sentence actually means."

To some, Phillip Johnson's glass house engages its rural environment while to others it is cold and forbidding. To some Manhattan's skyscrapers represent power, strength and beauty while to others they are forbidding hostile and overbearing. The quality of the design affects the content of the metaphor. More often than not a particular building design may be favored, even though certain programmatic elements are contradicted, omitted or obscured. In this case the design process overwhelmed the program as a cause and the final effect was as the result of the talent, prior knowledge and orientation of the designer and the stasis achieved to the client.

[14] The ease with which many figurative (based on making use of figures and figurative language) utterances are comprehended is often been attributed to the constraining influence of the context including the common ground of knowledge, beliefs, and attitudes recognized as being shared by speakers and listeners, architects and users, clients and public.

As one's speech may be affected by peer pressure and the urge to communicate and adapt, so existing contextual popular building metaphor's shapes and forms cause designers to adopt them to produce similar effects. While our contemporary environments overflow with examples, Medieval German, French and Italian cities are replete with merchant buildings whose roofs configured, elongated and attenuated to be higher than others. The German city of Trier, on the Mosel, is a case in point.

Still subject to cause and effect a habitable metaphor is not meant for the user to fully, continuously and forever recall all that went into its production. Over time the intentional use of roof silhouettes to emulate the Florentine "Belvedere", windows that derived from the palaces of Siena or the stucco of the Tyrol can be lost.

Even, the design principles so astutely applied by the likes of Paul Rudolf, Richard Meier or Marcel Breuer may be unnoticed in favor of other internal focuses. These many design considerations may be the metaphor that gave the project its gestalt that enabled the preparation of the documents that in turn were faithfully interpreted by skilled contactors and craftsman. Yet at each turn it is the effect of metaphor and not necessarily its specifics that make a *good* design not a *great* work of

architecture or a working metaphor. One of contributing reasons is that [18] "a metaphor involves a non-literal use of language". A non-literal use of language means that what is said is for affect (influence, inward disposition) and not for content. At each moment in its use the metaphor may mean different things, least of which may be any intended by its authors. A building design is such a non-literal use of language that it may or may not map to program. The iconic skylines of Abu Dhabi, Dubai and Doha are replete with such discombobulated facades, structures and building forms.

How design-consciousness can inhabit good or great works and over what period of time is a challenge to any cause and effect-motivated designer. As we have seen in studying the history of architectural metaphors varying effects can be seen before democratization delegated the right to make metaphors from the governors to the governed.

This delegation of rights has overwhelmingly extended the scope for metaphors. Globally there still are exceptions in many countries. Surprisingly, countries which today have kings, dictators and feudalism, still produce pluralistic metaphors which reflect the trade-values of the West. More than most, these societies are acutely aware of the cause and effect of metaphors. They employ both the conceptual and technical aspects of metaphors as the effect they seek is dependent on technique.

Politically metaphors may have affected politics but it would be absurd to think that metaphors changed a feudal to a democratic society; yet there is no doubt that that a society dominated by capitalism and democracy has a very different effect than other political forms as conceptual metaphors are more unpredictable, individualistic, personal, conflicting and competitive. Having released the authority to individuals they are difficult to assimilate, control and regulate. For example, most western government community development agencies do not regulate the aesthetics as they do building heights, setbacks, fasteners, egress, ventilation, wind and storm protection, etc. In socialist states where the state owns the means of production and exchange etc. the prevailing concepts and images come from the top down.

Similarly, the Palace of Versailles represents a form of architecture conditioned by the divine right of kings. It is the architecture of absolutism. So, whilst the Sun King's regime may have produced things of aesthetic beauty, their metaphor was that of wealth over the blood and tears of the French people. In fact the French Revolution had at its root the resolution of a metaphoric dilemma which finally democratized not only the government but the rights and authority given to the populace to make their own metaphors after the citizens stormed the city's largest prison, the

Bastille, in pursuit of arms. In the countryside, peasants and farmers revolted against their feudal contracts by attacking the manors and estates of their landlords. Dubbed the "Great Fear", these rural attacks continued until the issuing of the August Decrees, which freed those peasants from their oppressive contracts. Shortly thereafter, the assembly released the Declaration of the Rights of Man and of the Citizen, which established a proper judicial code and the autonomy of the French people.

In corporations this is called the *"delegation of authority"* and metaphorically it is the warrant under which inferences can connect evidence to claim and arrive at resolutions. All of this is autonomously done with full authority by each sovereign owner, designer and user manifesting Aristotle's *essential causality* where architectural metaphors manifest a personalized shelter.

Some world class modern examples of the outcome of the influence of government authority was in the architecture of the rebuilding the French city of Le Havre after World War II and the architecture of the former Soviet Union. In contrast Chicago, New York, San Francisco, Tokyo, Dubai, Hong Kong and Shanghai are the opposite, places driven by "*delegation of authority"* to make metaphors for the private and corporate individual and not the (personality and themes of the) state.

In any case, in our electronic, scientific, satellite age modern architecture wants to express the truth about the building's systems, materials, open lifestyles, use of light and air and bringing nature into the building's environment, not to mention ridding building of the irrelevant and time-worn clichés of building design decoration, and traditional principles of classical architecture as professed by the Beaux-Arts [2] movement.

Contemporary architects are affected by culture which causes them to make certain decisions about what they will include or exclude from programming and design decisions. For example, equipoise, unity, symmetry and balance were replaced by asymmetrical tensional relationships between, "dominant, subdominant and tertiary" forms. The result was that the influence of science and engineering on design thus producing new metaphors. Contemporary design is about sustainability, green and ecology-friendly design minimizing use of energy, waste and pollution; maximizing energy production, natural sources of power, light, heat and cooling. Some preoccupied designers style their metaphors as appliances and environmental packages. The exceptions are single family residences still styled as miniature grand estates and palaces of feudal land lords.

In 1919 in Dessau, Germany, the Bauhaus found the metaphor in all the arts, the commonalties in making jewelry, furniture, architecture, interior design, decoration, lighting, industrial design, etc. [25] The Bauhaus applied its version of "analogical transfer theory" in which instructive metaphors create an analogy between a-to-be-learned system (target domain) and a familiar system (metaphoric domain). Metaphorical teaching strategies often lead to better and more memorable learning than do explicit strategies which explains why urbanites have "street smarts" that are missing from the suburban context.

Visiting, sketching and writing about over seventy European cities I noted the character and ambience of each and the differences between them. I noticed the cause and effect one period (duration of dominantly common metaphors) had on another. Each metaphor was of the past's impact on the future with the unique design of crafts, building materials, and skills that were peculiar to their own times but were not enjoyed in the present. Resident natives and visitors are likewise affected by the remaining metaphors. In these historical contexts there are the natives who experience these very same metaphors all their lives contrasted to the visitor who first learns the lessons and experiences these metaphors. Both the visitor and the native experience these same metaphors in different ways and doubtless these are distinct from those of people who view them when they were first built. While the native knows the place and comprehends the old and the new, the knowledge domains, the visitor may view the very same metaphor seeing its non-contextual conceptual and technical elements.

The visitor may well be acquiring one of the constitutive (a thing made of its own properties) or residual metaphors of the place at the same time; same metaphor, different experiences. It is inherent that the metaphor makes the strange familiar. Because [26] radically new knowledge results from a change in modes of representation of knowledge, whereas a *comparative metaphor* occurs within the existing representations which serve to render the comparison sensible. The comparative level of metaphor might allow for extensions of already existing knowledge, but would not provide a new form of understanding. Comparative metaphors may be conducive to more than one commonplace and suggesting that referents may be replaced to achieve the same commonplace.

Many architects can make metaphors to overcome cognitive limitations and resort to graphics rather than language to explain the metaphor. Metaphor as a design act serves as a graphic tool for overcoming cognitive limitations. As most artists, their language is beyond speech and to the peculiar craft of their art of which their practice and exercise develops new

capacity and opportunity to teach and express thought outside of the linguistics but is nevertheless perhaps as valuable and worthy. The technical metaphor can complement, overwhelm or compensate for the weakness, existence or contradiction of the conceptual metaphor.

Architects both compose the program and reify its contents from words to diagrams and diagrams to two dimensional graphics and three dimensional models to reify and bring out (educate) the users' mind and fulfillment of unspoken and hidden needs. These needs, which may or may not have been programmed and intended, become resolved when a building is built and in use. Then it is subject to further tests of time, audience, markets, trends, fashions, social politics, demographic shifts, economics, and cultural changes.

Metaphors made with buildings (or buildings made with metaphors), known as architecture are not only valuable possessions, contextual features and icons, and they teach us how to communicate. Not touting the excellence of design the [16] Burj Khalifa or Dubai Tower is a super-huge skyscraper in Dubai, United Arab Emirates, and is the tallest man-made structure ever built, at 824.55 m (2,705ft). The developers are quick to highlight the buildings which it is taller than. Obviously the metaphor of size is meant to overshadow Dubai's financial woes, geographical size and relative obscurity. Metaphors have a way of extending human capacities for communications as a picture is worth a thousand words. The virtue of height remains an international metaphor for prominence and importance, even beyond one's immediate context.

> [25] "While speech is a fleeting, temporarily linear means of communicating, coupled with the fact that, as human beings, we are limited in how much information we can maintain and process at any one time in active memory, means that as speakers we can always benefit from tools for efficiently bringing information into active memory, encoding it for communication, and recording it, as listeners, in some memorable fashion."

Metaphor is the solution insofar as it encodes and captures the information: transferring chunks of experience from well-known to less well-known contexts. This cause to effect relationship is developed in [25] the *"vividness thesis"*, which maintains that metaphors permit and impress a more memorable learning due to the greater imagery or concreteness or vividness of the "full-blooded experience" (echoed by Berleant's definition of aesthetics) conjured up by the metaphorical vehicle; [25]and the "*inexpressibility thesis"*, in which it is noted that certain aspects of natural experience are never encoded in language and that metaphors carry

with them the extra meanings never encoded in language. One picture is worth a thousand words and how valuable are the arts as makers of who we are as a people, society and time. Where life and death is at issue many disciplines will confess they turn from rhetoric to example which works but without "rhyme or reason" and astronomy is filled with pictures without explanations. [25] The mnemonic (intended to assist the memory) function of metaphor as expressed by [8] Ortony's vividness thesis also points to the value of metaphor as a tool for producing durable learning from un-enduring speech. [3] In Weiss' last works he wrote about utterances and images beyond language.

Specific

[16] While an external cause is an effect to a metaphor that is not a constituent (element) of that system (metaphor) and outside of its context (commonplace) that challenge the PMT (Project Management Team) as they compose the program bringing in those elements which may affect the design but are not necessary germane to the project's context, owners, inhabitants, etc. They are guessing and presuming from their experience and research that there may be a fit. They bring what was best in other similar circumstances. We may find it impossible to separate from the external metaphors. Inferences that are not yet warranted can be real even before we have the evidence.

Architecture as metaphor is accepted at face value. [3] Accustomed to surrogates architecture is made by assuming these connections are real and have benefit. Until they are built and used we trust that they will benefit the end user. Assembling the ambulatory we assume the occupancy, frequency and destinations. We each are surrogates to one another yet fitted into one message when this passage had been used as read as had been other passages, corridors and links. Like a linguistic metaphor, the building stands, like a great, stone dagger, *emphatic[b]* [3] *against* the sky. The stair, the exit, the space calls, gives emphasis and is strongly expressive. Elegant architectural metaphors are those in which the big idea and the smallest of details echo and reinforce one another.

Contemporary architects wrapping their *parte* (design premise) in "green", "myths" and "eclectic images" are no less guilty than were their predecessors of the Bauhaus exuding asymmetry, tension and dissonance as were the classics and Renaissance insisting on unity, symmetry and balance. The architect's *parte* and the users' grasp of cliché *parte* were expected and easy "fill-in" proving the learned mappings, learned inference trail and familiarity with bridging. The very existence of a

building, however, its faithfulness to the program, users' and owner's wishes is intimidating and persuasive, engendering acceptance and enthusiastic support. Social co-dependency, idolatry, its metaphor to the originator, and conformity to neighboring or prestige buildings may also sway public opinion.

> [24] Pylyshyn asserts that: "metaphor induces (a partial) equivalence between two known phenomena; a literal account describes the phenomenon in authentic terms in which it is seen."

The architect's building will contain a plethora of resolutions between strange, unrelated and disparate clients whose perceived existence affects the reader and the end product. These metaphors will both cause the readers metaphor and the building's design.

Models

The metaphor of a reduced scale version can be the result of constructing the idea from drawings or the very medium for the design. The model is affected by the drawings and this causes the PMT to affirm and review the choices they made in two dimensions. The model then causes a redesign and reshaping of the form of the metaphor. While it aptly shows the design it is not on a human scale, the reader can compare the miniature figures to his or her own experience in similar circumstances to experience the metaphor. CAD three dimensional and animated renderings re-enacting the experience still require the reader to link his eyes to the view in three dimensions.

Miniaturization tends to diminish the effects of scale and drama of forms, spatial sequencing and relationships of one to another space and to color and context. Yet the model metaphor is itself a metaphor bridging the drawings to the final building and the user to the designer. It makes the strange familiar by showing the literary and graphic ideas in multi-dimensional forms. There is cause and effect between one scale and another and the medium and mode of presentation which results in a given metaphor.

Mapping

Metaphors cause map's effect [11] as the systematic set of correspondences that exist between constituent elements of the source and the target domain. Many elements of target concepts come from source

domains and are not pre-existing. To know a conceptual metaphor is to know the set of mappings that applies to a given source-target pairing. The same idea of mapping between source and target is used to describe analogical reasoning and inferences. For example, a reception area to receive people, doors and door frames, columns as vertical supports, parking spaces for cars, iron and stained glass design patterns, and typical design details appropriated for a given building system.

[11] To further elaborate on what I said earlier aside from articulating a program, architects carry-over their experiences with materials, physics, art, culture, building codes, structures, plasticity, etc. to form a metaphor. Identifying [46] conditions, operations, ideals and goals are combined to form plans, sections and elevations which are then translated into contract documents. The point is that this will cause the effect of the design. Later the contractors map this metaphor based on their schemes of cost, schedule and quality control into schedules and control documents. The effect of the cause is somewhat predicated on the effectiveness of the program, choice of contactors and the process of mapping from one to the other. It is not until equipment, laborers and materials are brought to the site that the metaphor starts to form. Once formed the only evidence for the user (reader) are the thousands of cues from every angle, inside and out which facilitate understanding. An informed user can read the building's history from its inception to opening day.

Copying

Matching, copying and emulating the design of other buildings or adapting the design of one to the current project is adapted to the more familiar; in fact this is a matter of replicating metaphors. The original from the past effects the proposed in the future and perpetuates a particular outcome allowing the past to affect the future. The copy causes an effect in the present not necessarily contained in the past but affecting the future in a totally different way not in the way it was in the original. The copy takes on a new role as being the case of an effect in the future as executed in the fleeting present.

In the Tyrol, offices are often housed in larger chalets with all the roof, hardware, doors and flower boxes of a more typical residence. The new building is made to appear like the others. Often the signature of the original dominates the new. There is no attempt to hide the emulation. Users will easily transfer their experience from the familiar old to the emulated new. Appreciation comes into play when a metaphor becomes an

abbreviated simile which brings together two unlike things and explicitly compares them (e.g. "she is like a rose").

The copy becomes appreciated in the future where [19] "appreciation" becomes an attached experience that has been brought into relation with an already acquired and familiar conceptual system (encoding, mapping, categorizing, inference, assimilation, accommodation and attribution, etc.). This allows a particular cause to have an anticipated effect. Such analogous use of metaphors is often disappointing as the copy lacks the political, social and cultural context of the original. We can see this in copies of antique furniture, furnishings, buildings and city plans. To counter this, the Essex Hotel in Manhattan prides itself on all of its rooms being filled with original antique furniture and most cities have landmark preservation societies revering the original rather than the copies.

> [19] "A metaphor may be regarded as a compressed simile, the comparison implied in the former being explicit in the latter. Making the comparison explicit is the work of the designer and reader. In principle, three steps, recognition, reconstruction, and interpretation, must be taken in understating metaphors, although the simplest instance the processing may occur so rapidly that all three blend into a single mental act."

When we face a new metaphor (building) a new context with its own vocabulary is presented, one which the creator must find and connect and the other which the reader must read and transfer from previous experience. Buildings in one group often have more known versions than others. In one city exposed wide flanged steel structures may be preferred to the reinforced concrete in another.

In Dubai and Qatar high rise, multi-storey and iconic are synonymous and known to represent commerce buildings. Iconic is the trigger for all the rest. High and rise used together recalls how the elevator and quest for greater real estate earnings encouraged the highest number of floors per single zoned building lot.

Conclusion

So while we can say with certainty that architecture is a metaphor and that therefore architects are the makers of metaphors we can also say that while metaphors in the making of architecture certainly causes metaphors in the work of architecture, we cannot with certainty, map which metaphor will result in which final metaphoric outcome. There is an uncertain causal relationship. Nonetheless, we are certain there will be a metaphoric outcome as a result without necessarily knowing what that outcome will

be. However, there are exceptions as with copies and dubs and so many of the details of structure, form and concepts. Metaphors will manifest in the built metaphor which the reader may or may not perceive or choose any one or another dominant or sub-dominant metaphors of any particular work.

CHAPTER TEN

AESTHETICS AS COMMONPLACE OF METAPHOR

Summary

In the previous chapter we learned the ways in which the sum and the parts build the metaphor. We concluded that with the exception of copies and dubs we cannot with certainty map which metaphor will result in which final metaphoric outcome. We learned there is an uncertain causal relationship but nonetheless we are certain there will be a metaphoric outcome even if we don't know what form it will take. We learned, therefore, the sovereignty of both the program and design may or may not be one 100% consequent. We learned, too, the difference that while literal metaphors cause mental connections, architectural metaphor causes the manifestation of a material shelter. With examples this chapter contrasted the cause and effect difference between the literal and architectural metaphor and sub-metaphors.

In this chapter we will look at the commonplace in the aesthetics of a metaphor. To do this we will examine the difference between a building which is a work of architecture, art or metaphor and one that is not. This chapter discusses the differences between deduction and induction, stasis and commonplace as equipoise, scale, relevance, representation, appreciation and analogies, education and aesthetic mnemonics such as decorum.

Scope

How does aesthetics as the *commonplace* of metaphor of architecture help us understand that architecture is the making of metaphors? This chapter considers inferences rooted in the *commonplace*-social-aesthetic mind. A mind usually cultivated from direct and personal contact in a limited context such as a home, school, campus, workplace, neighborhood, platoon, squad, etc.

While aesthetics is a guiding principle in matters of beauty and taste, metaphor is the *warrant* (evidence, proofs, manifestations) to taste and is used to form works of art and architecture. Again, it does not make automatic our relationship to the environment but sharpens our perception and understanding. Usually these contexts have an understood, common and accepted point of view as to what constitutes beauty and underlies their surroundings. It often is the *stasis* (state of equilibrium, or rather equipoise) in a particular context or the *commonality* governing the design process. Aesthetics is also concerned with understanding perceptions. Therefore it is appropriate to consider the aesthetic nature of architecture and metaphors. Aesthetics in the commonplace as a philosophical idea of what is aesthetically valid at a given time and place: as the clean lines, bare surfaces, and sense of space that bespeak of the machine-age aesthetic. We can say that we make the metaphor from form in that the look and feel of the *commonplace* prevails. Aesthetics and art are sometimes synonymous where the artistic becomes the aesthetic as opposed to “business-like”, “commercial” and “functional”. [32] William Wilson said that "a generous *Age of Aquarius* aesthetic that said that everything was [2] art.”

It was during this time that we proposed that architecture is an art [2] because it too makes metaphors and held a lecture series at Yale University to expound on this. Most definitions of aesthetics concern the appreciation of beauty or good taste including the basis for making such judgments. *Appreciation* (discussed in the last chapter) is a clear perception which judges, divides and subdivides to seek *commonalities and differences* as well as mixing and matching to find analogies and similes (to find an essence common to both).

Dividing aims at revealing both the true meaning and application to the various times and class of people with no less application of grammatical rules users seek the metaphor in design and use of the built environment. In this lies the aesthetic of the perfection of our *appreciation* in perception but also in its creation. *Aesthetics in creation* results in *aesthetics in appreciation* when both designer and user appreciate their responsibility in the respective processes.

Without a theory of metaphors these judgments mostly deal with probability and are either inductive or deductive; deductive when depending on accepted premises which is the *commonplace* (general values that are widely shared within a context) of the metaphor or inductive using logical induction.

Inductive reasoning is inductive inference from the observed to the unobserved (works like a proportion). It was given its classic formulation

by [33] David Hume, who noted that such inferences typically rely on the assumption that the future will resemble the past, or on the assumption that events of a certain type are necessarily connected, via a relation of causation, to events of another type. Part of our aesthetic experience is that we expect what we already know and assume it to be certain. In fact the aesthetics of buildings is the very difference between a building which is a work of architecture, art or metaphor and one that is not. Aesthetics is the *commonality* that makes the difference. And since commonality is the essence of the metaphor it follows that aesthetics is a metaphor. It is common sense that many buildings we observe that have been engineered to meet codes, negotiate nature and stand are *not* necessarily architectural. Yet, they are still *technically* metaphoric and have many sub-metaphors but their aesthetic is not considered and they may not meet the standards of aesthetic taste and human experience.

> Arnold Berleant's [34] writes: "Sense perception lies at the etymological (history of words) core of aesthetics (perception by senses), and is central to aesthetic theory, aesthetic experience and their applications."

Berleant finds in the aesthetic a source, a sign, and a standard of human value. It is this human value which is an essence of the metaphor and the very basis for the view that metaphor is the foundation for art, architecture and aesthetics. On the other hand, as we saw in the previous chapter, the very existence of a contextual icon can itself make it acceptable and contradict established values. Pragmatically, if we can't sense, it is not a metaphor; which emphasizes metaphor's non-rational, non-logical and non-literal experience of metaphor.

This human value is why I have spent over 40 years researching the stasis to architecture being an [2] art (because it too makes metaphors) which is the same stasis as the commonplace to the works of aesthetic thought. This coincidence or analogy between aesthetics and art confirms the intrinsic nature of this study of epistemology in architecture and aesthetics. The commonality of all arts is that they express thought in terms of their peculiar craft and thus they (all arts) are technically metaphoric, because they transfer, carry-over and express one thing (some idea) in terms of another (the craft). There is no doubt that craft itself derives from ideas and concepts and within each is a sub-metaphor. The sculptor who finds the figure as he mauls the block is where the craft and the material inform the artist.

A key to understanding metaphors in the making architecture is the "stasis" (the state of equilibrium – equipoise - or inactivity caused by opposing equal forces) of the controversy of architecture being an art; that

if architecture behaves, acts, looks and works like art then it, too, must be an art. Why? Because it, too, makes metaphors, and those metaphors are varied in depth, kind, scope and context. It is the stasis because it is where art and architecture meet. The metaphor is the conceptual focal point.

As stasis, "architecture: the making of metaphors" enables the center of the dispute to be argued with common purpose. So this is a stasis in definition which concedes conjecture. While there may be other concepts justifying the relationship between art and architecture the metaphor is the stasis, common ground and apparent commonality. It is not only apparent but with wide and broad applications to a variety of arts and architectural definitions, practices and contexts. There may have been a time when the architect was the "master builder" and the lead craftsman but for most that is only true for his skill in drawing, design and specifying and not his skill as a master carpenter.

It is an unspoken public and private expectation, included in the contract for professional services, that an architect will provide relevant, meaningful, beneficial metaphors that edify, encourage and equip society as well as provide for its health, safety and welfare. So it is critical to realize, control and accept as commonplace that the role of the architect is to do much more than build but build masterfully.

Relevance

Aesthetics mainstay is "beauty is in the eye of the beholder" where the beholder is the referent (the first element in a structure to which succeeding elements relate) of the metaphor and the necessary completion of the judgment. While there can be an aesthetic experience, without such a referent its understanding and taste would be irrelevant. With two referents, the social norm and the specific case, the experience and taste is, too, a metaphor. As metaphor carries-over, transfers and talks about one thing in terms of another; taste is at the heart of determining whether a work is art, its value, a work of architecture, etc. If there is no bridge then the work is another kind of metaphor, perhaps a technical metaphor linked to the craft of the art. If there is no bridge determining how close or far from the ideal this is it would merely be caprice.

Yet these relationships between aesthetics and metaphor, while useful, do not wholly explain the aesthetic and sensual experience of art or architecture. It only assumes these experiences as a referent to aesthetic judgment and the making of metaphors.

While contemporary aesthetics may focus on perception by means of the senses, cognitive capacity in creation and perception informs

conceptual metaphors and the two affect any one aesthetic experience, subject and individual. Transferring from previous experience is not always experiential but cognitive, where the only sense involved is the initial referent, a referent to a transfer where one talks in terms of another to make the strange familiar and find a commonality to both.

The language of metaphor is not just the floor, ceiling, walls, openings, stairs and elevators but the quality of the specific finishes and the type of windows and doors etc. which communicate the metaphor.

Metaphor and Representation

Aesthetic judgments are affected by the sense we have of both the technical and conceptual. Being or existence (Heidegger's *dasein*) contend that *awareness* makes the metaphor live. Awareness of the metaphor allows us to understand relatively abstract or inherently unstructured subject matter in terms of a more concrete or at least more highly structured subject matter [11]. Owner-occupied specialized works of architectural metaphors may begin with long periods of research, observations, and analysis; conclusions and redesign and re-thinking of existing or utility of new systems; setting our system feasibility, pricing and meeting budgets, programming, diagramming and design of sub-systems and systems but when complete the metaphor is accessible, usable and compatible.

The whole of the metaphor is designed in such a way as to clarify, orient and provide reification of all the design parameters into a "highly structured" work, a work which homogenizes all these diverse and disjointed systems and operations into a well working machine. Building types such as pharmaceutical, petrochemical laboratories, data research centers, hospitals, hotels, residences, schools, space science centers, prisons, etc. are such relatively abstract unstructured uses which only careful assembly can order. [11] As the architect structures his program, design and specifications he simultaneously structures the metaphor of his work of architecture.

Architecture consists of program specifics where the conditions, operations, goals and ideals are from heretofore unrelated and distant contexts but are themselves metaphors "mapped across conceptual domains". As the architectural program the mappings are asymmetrical and partial. The only regular pattern is their irregularity. Just as a person and be "read" or understood once one is familiar with their personality and character, vocabulary and references, and of course the context and situation of the work, the work can also be read and understood. The

regularity with which different languages employ the same metaphors, which often appear to be perceptually based, has led to the hypothesis that the mapping between conceptual domains corresponds to neural mappings in the brain.

The more we view paintings, ballets, symphonies, poetry, and architecture the better we become at their understanding and its metaphor further dwells in the reader while the building and its parts exist without being understood. As beauty is in the eye of the beholder so we learn the metaphor and the more we perceive the greater may be the beauty. Settling the aesthetic between designers and end users is the stasis and ultimately the commonplace determining the success of the metaphor.

Extrapolating: the writer of the speech is as the architect and the speaker is as the reader of the metaphor where the metaphor can only be experienced to be understood. Walk through an unlit city at night and feel the quiet of the building's voices because the readers have no visual information and with no access to the closed buildings the metaphor is potent without being real. Yet the potential for cognition does exist and is real but is not understood apart from its experience. Indeed, primary aesthetics information is received through the senses (Arnold Berleant).

There is the aesthetic of scale where humans interact with their environments based on their physical dimensions, capabilities and limits. [11] The field of anthropometrics (human measurement) has unanswered questions, but it is still true that human physical characteristics are fairly predictable and objectively measurable. Buildings scaled to human physical capabilities have steps, doorways, railings, work surfaces, seating, shelves, fixtures, walking distances, and other features that fit well to the average person. It is the basis for the commonplace and why design professionals finally interpret program into metaphor through the aesthetic of scale. Often it is the effect of scale which is the aesthetic agreement to the user.

Humans also interact with their environments based on their sensory capabilities. [11] The importance of the senses is discussed by Arnold Berleant in the field of human perception, but like perceptual psychology and cognitive psychology, are not exact sciences, because human information processing is not a purely physical act, and because perception is affected by cultural factors, personal preferences, experiences, and expectations, so human scale in architecture can also describe buildings with sightlines, acoustic properties, task lighting, ambient lighting, and spatial grammar that fit well with human senses. However, one important caveat is that human perceptions are always going to be less predictable and less measurable than physical dimensions.

However, the scale of habitable metaphors is the intrinsic relation between the human figure and his surroundings as measured, proportioned and sensed. Buildings, statues, and memorials are constructed in a scale larger than life as a social/cultural signal that the subject matter is also larger than life. Extreme examples of this include: the Statue of Liberty, the Washington Monument, Mamayev Kurgan, Volgograd (formerly Stalingrad), Christ the Redeemer, Rio de Janeiro, and the Buddhas of Bamiyan (destroyed by the Taliban) etc.

[17] It is the "filling in" wherein the synapse (a region where nerve impulses are transmitted and received, encompassing the axon terminal of a neuron that releases neurotransmitters in response to an impulse) takes place. Synapse is metaphor where two are joined together as the side-by-side association of homologous paternal and maternal chromosomes during the first prophase of meiosis (a lessening). [17] How this happens is as biblical as: "faith is the substance of things hoped for, the evidence of things not seen" where our mental associations are themselves the metaphor, the evidence of the works we do not actually see. We see the metaphor, we read its extent, we synapse, analogize and *metaphorize* (thinking) absorbing its information, contextualizing and as much as possible resurrecting its reasons for creation. The architectural metaphor only speaks through its apparent shape, form, volume, space, material, etc. that the concepts which underlie each are known to the user as they would to a painting, poem, or concerto. As most behavioral sciences we set-up, operate, measure without knowing why but conclude with the evidence of the behavior and circumstances of the behavior.

Observation, analysis and use fill in the gaps as users infer the locations of concealed rooms, passages and supports; the user infers from a typology of the type a warehouse of expectations and similes to this metaphor from others. In this way there are the perceived and the representations they perceive which when explored, evoke what we call beautiful, pleasurable and wonderful. [17] So while architecture is the making of metaphors and architects are making metaphors, their works, though metaphoric, are not themselves the metaphors but the shadow of the metaphor which exists elsewhere in the minds of both the creator and the user. [17] Architects would not be known as artists nor should their works be known as works of art were this not the case. Both their works are the "deep" while the readers deal with the "surface". The true architectural artisan has deep and underlying metaphors predicated within two and three dimensional space analysis, history, culture, class, anthropology, geography etc.

They all are often underlying the surface of the choices of lighting, material, claddings, etc. Vigorous aesthetic analysis would consider all of these axioms to realize the full enjoyment of the information contained in the work. Spatial representation in which local subspaces can be mapped into points of higher-order hyper-spaces (Euclidean space of dimension greater than three) and vice versa and that is possible because they have a common set of dimensions. [17] In these hyper-spaces many architectural elements are fitted and combine to make a unity. It can be argued that the "seen" is not at all the metaphor but the transfers, bridges and connections being made apart from the building. In filling in the terms of the analogy lies the metaphor.

There is an aesthetic to making metaphors and certain metaphors may or may not be aesthetic since metaphors work by "reference to analogies that are known to relate to the two domains" [31]. In other words there is *a priori* knowledge of these before they are designed or spoken and when perceived or heard they are immediately found. Like a building metaphor's common elements with an uncommon application, the common connects to the unfamiliar and the architect is able to find a way to bring them together so that the user discovers their relevance. These analogies are the commonplace aesthetic.

In psychology "appreciation" was a general term for those mental processes whereby an attached experience is brought into relation with an already acquired and familiar conceptual system (i.e. encoding, mapping, categorizing, inference, assimilation and accommodation, attribution, etc.). [19] (See previous chapter) Design professionals should use their aesthetic sense in programming, making selections and choosing alternatives and sub-metaphors.

The aesthetic view of beauty is not based on innate qualities, but rather on cultural specifics and individual interpretations. [19] Reading metaphors build an image in the mind, that is to say we "appreciate" that which we already know. We could not appreciate it if it were not known .It is what Weiss calls "commonalties" and is the selective process between commonalties and differences that makes a metaphor. It is about understanding and discerning between what is "true in fact" and "true in the model".

> Miller says: "Metaphors are, on a literal interpretation, incongruous, if not actually false - a robust sense of what is germane to the context and what is "true in fact" is necessary for the recognition of a metaphor and hence general knowledge must be available to the reader (user, public)."

We try to make the world that the author (designer) is asking us to imagine resemble the real world (as we know it) in as many respects as possible. Offices, bedrooms, lobbies, toilets, kitchens are such models which are built to specific situations in images of yet some other context. We know one from the other from the perception of the smallest detail to the overall layout. Metaphors are made with the aesthetic of a particular audience and the maker's aesthetic is the other side of the metaphor. The two find a stasis in owner acceptance and public use. By analogy what Miller distinguishes between what the architect designed and what he thought is different. The architects of the Renaissance tried to resurrect the grandeur of classical buildings they discovered and resurrected. The contemporary architect faces a vernacular of design principles which are reified into conventional building types. The convention is the model while the specific application is the strange. Often new buildings are likened to the first model or the prototype. [19] The reader knows the commonplace building type and is able to recognize the new version.

[30] When an architect creates a metaphor it is a building which takes on the attributes of all buildings and if it is a work of art, as a building metaphor, it takes on the attributes of the buildings which are more than a tin box but a statement of complex ideas which demands reading and is an opportunity to be read. We may say the building has aesthetics, is aesthetically pleasing or fits the aesthetic of iconic high-rise buildings. How does one know it is an "office building"?

1. It is a place where administration, business and services are conducted
2. It is located in the neighborhood of other office buildings
3. It does not have balconies and curtains in the windows
4. It has an open and wide public plaza and unrestricted wide openings
5. Its glazing, cladding and skin are hi-tech, impersonal and large scale
6. It has access to dominant and main traffic and transportation
7. It has public utilities and spaces for larger numbers of people

In adaptive use buildings where offices are housed in the residential and the residential are housed in office buildings precisely the metaphor topic and the metaphor vehicle purposefully confuses the metaphor of its unique identity. This crossbreed is a unique metaphor. Yet there are many other aspects of metaphor that are inherent in such works.

[35] Aesthetic judgments bridge some principle or prior experience to a secondary subject. Architects design by translating concepts into two dimensional graphics which ultimately imply a multidimensional future

reality. This tests the horizontal and vertical space finding accommodation and commonality of adjacency, connectivity and inclusiveness [35].

> "The difference between literal and metaphorical description lies primarily in such pragmatic consideration as: (1) the stability, referential specificity, and general acceptance of terms: and (2) the perception, shared by those who use the terms, that the resulting description characterizes the world as it really is, rather than being a convenient way of talking about it, or a way of capturing superficial resemblances".

> [24] Pylyshyn asks: "What distinguishes a metaphor from its complete explication? (In the case of architecture the entire set of contract documents, program, etc.)."

> Pylyshyn answers: **"**In this way of all the arts, architecture is the most profound in that it combines and confirms the secular (of this time), 'how things really are' with the gestalt of personal, social, community and private importance."

If art is the making of metaphors and it has no real use then how significant is architecture with both reality and fantasy/imagination combined and confirmed by its very existence. The very real existence of a work of art that bespeaks of life and times exists and is accessible and in our contexts is itself a metaphor of great significance and satisfaction.

The metaphor expresses a value common to both; both are real and ideas at the same time. The metaphor is the bridge and confirmation of art in the world, life in the flesh and flesh becoming ideas. Architecture is an extreme reification from notion in both creator and reader of materials and idea.

> "Metaphor induces a (partial) equivalence between two known phenomena; a literal account describes the phenomenon in authentic terms in which it is seen."

What would happen if people who work in offices, dress for the office and behave in a manner appropriate to an office environment were to report for work in a warehouse? The scenario of the behavior and the metaphor would not correspond. [24] Without this consensus there is no public aesthetic.

Metaphor and Education

Not to generalize and white-wash perception and aesthetics there is an aesthetic point-of-view between "analogical transfer theory" ("instructive metaphors" create an analogy between a-to-be-learned system (target domain) and a familiar system ("metaphoric domain" [36]).

It was these counter-concerns which lay behind Frank Lloyd Wright's separation from the architecture of Louis Sullivan. It was also what spurred the collective work of the Bauhaus in Germany, specifically to not lie but to express the truth about the building's systems, materials, open lifestyles, use of light and air and bringing nature into the buildings environment. As part of this process, architects came to rid buildings of the irrelevant time-worn clichés and designs which characterized the traditional principles of classical architecture as professed by the Beaux Arts movement.

For equipoise "unity, symmetry and balance" were replaced by "asymmetrical tensional relationships" between, "dominant, sub-dominant and tertiary" forms and the results of science and engineering influence on architectural design herald a new design metaphor. The Bauhaus, in particular, applied these commonalities to jewelery, furniture, architecture, interior design, decoration, lighting, industrial design, graphics etc.

> "The mnemonic (intended to assist the memory) function of metaphor as expressed by Ortony's vividness thesis also points to the value of metaphor as a [4] tool for producing durable learning from un-enduring speech." [25]

Architects both compose the program and reify its contents from words to diagrams and diagrams to two-dimensional graphics and three dimensional models to reify and [4] bring-out (educate) the users' mind and fulfillment of unspoken and hidden needs. Needs which may or may not have been programmed and intended; the metaphor is the final resolution until it is built and used. Then it is subject to further tests of time, audience, markets, trends, fashions, social politics, demographic shifts, economics, and cultural changes. The aesthetics of the process and the product are both metaphoric and a metaphor. The following are examples of popular architectural metaphoric mnemonics:

1. [37] Decorum (politeness, manners, dignity) refers to the suitability of a building's design and was a commonplace principle of architectural theory from the Renaissance to the beginnings of modernism. It was relevant to ornament, shaping the way a building articulated its status within civic and social order. Decorum's fading was not without resistance

being part of a critical debate that emerged in the wake of the Industrial Revolution – namely, the role architecture might play in creating a cohesive environment for the modern world.

2. Less is more [38]
3. Floor to area ratio
4. Building with peaked roofs tend not to hold water
5. Setbacks
6. Building height shall not exceed the nearest church
7. Sloped roofs are preferred to flat roofs
8. Terracotta tile roofs are preferred throughout the project
9. Form follows function [39]
10. Ornamentation and gilding mean the building is owned by wealthy people
11. The larger the building the more it cost
12. Unity, symmetry and balance of the classic and Renaissance
13. Asymmetry, tension and cacophony of modern architecture.
14. The whole is greater than the sum of its parts [40]

All of the above having been described as habitable metaphors foreclose all other works of art by being shelters which can satisfy the most profound, mundane and common human needs often pre-empting cultural standards and so-called aesthetic taste and public preferences. In this sense most societies' public-mass and production-housing has its own *non-aesthetic* aesthetic which accepts ill-considered metaphors as acceptable despite their irrelevance. It is these which often turn to slums and squalor and hearken back to the medieval "outside-the-wall" serf housing for those not living inside with the citizen court. The *void* metaphor!

CHAPTER ELEVEN

WHAT MAKES A GOOD METAPHOR? VALIDITY AND FALLACIES

Summary

In Chapter Ten we found the commonplace in the aesthetics of a metaphor. To do this we examined the difference between a work of architecture, art or metaphor and one that is not. We studied the differences between deduction and induction; the equipoise of stasis and commonplace; the commonplace of scale; relevance; representation; appreciation and analogies; education and aesthetic mnemonics such as decorum. Now that we presumably know the metaphor aesthetic we turn in Chapter Eleven to the non-aesthetic and fallacious. We will study metaphoring patterns, appraising a metaphor, and fifteen different common and un-common forms of metaphor such as metonym, mixed metaphor, dead metaphor, pataphor, simple and implicit to name but a few.

Scope

Simply put, a non-aesthetic building is a fallacious metaphor as is a design which disregards its program. It may be a great design for an airline terminal but not for a hospital. It is also fallacious if the design disregards design's conceptual and technical means and methods. Like all arts one of the questions facing artists is when to stop, when is the metaphor complete and when has enough work been done? The central question of this and the next chapter is what makes a good metaphor?

Traditionally, the answer is seen to be a matter of validity; others would say "taste" or "relevance". Still more would argue that success is when you have achieved your stated objectives and others when it "feels right". In formal (technical) metaphoring, validity is purely a matter of structure and is completely unrelated to the content of the program in informal (conceptual) metaphoring patterns that experience generally has

shown to lead to good results and avoiding fallacies (metaphoring patterns that often lead people astray (i.e. there is neither no commonality or commonplace).

This chapter will examine errors specific to each particular pattern of inference, and deficiencies in clarity, which result from the use of unclear language. It then will consider general errors of vacuity (i.e. empty metaphors). We will consider how each of these misuses of metaphoring can cause a design process to go awry.

Appraising a metaphor requires that we determine whether it is valid. Validity is a concept derived from formal logic. It is a matter of form (technique), not content (concept); it has nothing to do with the truth (relevance, appropriateness, senses) of the metaphor. A metaphor is valid if, when the sources of information (observations and assumptions) are true, the program must be true. The necessity of this relationship allows us to say that the *design follows from the program*. A metaphor will be invalid if it fails to follow the follow the rules for a particular design. As we have learned in previous chapters this is sometime referred to as design integrity (a state of being whole and according to principle).

A fallacy may be validated by extending the referents of the metaphor to meet the commonplace. A literal case is when we say: "All the world's a stage and every man must play his part…" is an [41] *extended or telescoping metaphor*. This extension – "men and women are merely players" has made this an extended metaphor. Shakespeare stretched "the world" and "a stage" by introducing parts of "the world" (men and women) and "a stage" (players). Of course, it has to make sense. You can't extend it by comparing men and women to an iPod, or presuming to erect a wall without a foundation or a roof without columns and beams, or model a single family residence after a bottling plant or a children's nursery after a surgical operating room. Sounds absurd, doesn't it?

By metaphorically changing from geometry metaphorical language designers may find [11] a surface manifestation of conceptual metaphor because as language is to speech so are buildings to architecture where each has a content and inner meaning of the whole as well as each of its parts. In this way a designer may transform fallacy to validity to produce a good metaphor as each word, each attachment, plain, material, structure had first been conceived to achieve some purpose and fill some need. Hidden from the reader is the inner psychology, social background, etc. of the man when speaking and the programming design and contracting process from the reader of a building metaphor. As in completing an argument the reader perceives the inferences with its warrants and

connects the evidence of the seen to the claims to make the resolution of the whole, all of which are surmised from the surface.

To illustrate the various metaphors [16] below you will find the summary descriptions of fifteen different common and un-common forms (patterns) of metaphor. In each form of metaphor there is a potential of validity and fallacy depending on application, context and components.

Metonym [16] is a figure of speech that consists of the use of the name of one object or concept for another to which it is related, or of which it is a part, as "scepter" for "sovereignty," or "the bottle" for "strong drink," or "count heads (or noses)" for "count people." When you've grown tired of a clichéd word and are searching desperately for a word closely related to it that word is a metonym; a new word to replace an old one. For example, *the **pen** is mightier than the **sword**.* This saying in itself has become clichéd, but originally the thought was otherwise. Here, the pen stands for the freedom of expression and the sword for the power of authority. Now, if you said, freedom is greater than power, nobody would have said wow! That's why pen and sword were preferred instead of freedom and power. [11] A conceptual system contains thousands of conventional metaphorical mappings which form a highly structured subsystem of the conceptual system. Over the time society, cultures, families and individuals experience and store a plethora of mapping routines which are part of our mapping vocabulary. Their validity is sensed rather than understood as they are applied so often.

As a potential user when encountering a new building type such as a hi-tech manufacturing center we call upon our highly structured subsystem to find conceptual systems which will work to navigate this particular "event". Another example is as a westerner encountering a Saudi Arabian home which divides the family from the public areas of the house as private. In the hi-tech building doors will not open and corridors divert visitors away from sensitive and secret areas. In the Arab home the visitor is kept in an area meant only for non-family members and where the females may not be seen. There is a common conventional metaphorical mapping which uses a highly structured subsystem of the conceptual system. There is a similarity and an ability to accept this and the constraints which they impose. The metaphor or the work of architecture includes each and every nut and bolt, plane and volumes, space and fascia, vent and blower, beam and slab, each with the mappings parallel to operational sequences, flows representations, openings and enclosures so that they operate in tandem and complement one another. The conventions come from the experiences of doors that open, elevators that work, stairs

that are strong, floors that bear our weight, buildings that don't topple, and basic experiences that prove verticality, horizontality, diagonals, weights of gravity, etc.

Mixed metaphor

[16] Some of us fail to create a good metaphor; such a twisted, out of tune metaphor is called a mixed metaphor. For example, *the waves of emotion have punctured my heart.* Can waves puncture? They do in a nonsensical world, but most of us are still sane, but widely tolerable of nonsense and that is why such nonsense is given the modest term mixed metaphor. There are two kinds of mixed metaphors: permissible mixed metaphors and impermissible mixed metaphors. Never use impermissible ones, so that leaves me to explain only permissible ones.

Permissible mixed metaphors make sense even though the parts are not directly related. *Fuchias pink and glaring lights* will not meet a "serenity" commonplace. There is no connection between *weathering the storms* and *an iron will*, still it sounds right. However, they are made right by synapse which seems to negate any consequence of defining the metaphor. [17] Synapse is metaphor where two are joined together as the side-by-side association of homologous paternal and maternal chromosomes during the first prophase of meiosis. Mixed metaphors as unorthodox building design may be invalid against the program and context but still have value. A referent at one level may work with a referent at another to form a stasis common to both.

How this happens is as biblical as "faith is the substance of things hoped for, the evidence of things not seen" where our mental associations are themselves the metaphor, the evidence of the works we do not actually see. We see the metaphor, we read its extent, we synapse, make analogies and metaphorize absorbing its information, contextualizing and as much as possible resurrect its reasons for creation. The architectural metaphor only speaks through its apparent shape, form, volume, space, material, etc. that the concepts which underlie each are known to the user as they would to a painting, poem, or concerto. [17] Furthermore as observation, analysis and use fill in the gaps users' inference the locations of concealed rooms, passages and supports, the users infer from a typology of the type a warehouse of expectations and similes to this metaphor from others.

There is two types of mappings: conceptual mappings and image mappings; both obey the "*Invariance Principle"* where [11] "image metaphors are not exact "look-alikes"; many sensory mechanisms are at work, which can be characterized by Langacker's [51] focal adjustment

(selection, perspective, and abstraction); images and image-schemas are continuous; an image can be abstracted/schematized to various degrees; and image metaphors and conceptual metaphors are continuous; conceptual metaphorical mapping preserves image-schematic structure (Lakoff, G. 1990) and image metaphors often involve conceptual aspects of the source image.

> "All metaphors are [8] invariant (aspect of something that remains the same when other aspects of the thing change) with respect to their cognitive topology, that is, each metaphorical mapping preserves (does not vary) image-schema structure."

Likewise when we look at the geometrical formal parts of an architectural metaphor we note those common elements where fitting, coupling and joints occur, again this simultaneity of ideas and image operating in tandem is where we see and know an idea simultaneously; where the convention of the architectural space and the metaphor of the conception converge. Image mappings in architecture finds schemes from a repertoire of superficial conventions except in a Japanese or Arab house where we are asked to sit on the floor or eat without knives and forks or find no room with identifiable modality of uses, or a palace with only *showrooms* where actual living is conducted elsewhere.

Absolute metaphor

[16] A perfect metaphor to show craziness and confusion. In an absolute metaphor, the metaphor actually, really, truthfully, doesn't make sense where the absolute stands apart from a normal or usual syntactical relation with other words or sentence elements. This is when all the parts of the metaphor are totally (absolutely) free from mixture or the potential of admixture. They stand as a metaphor but do not operate.

She broke upon a sad piece. In today's world of indistinctness, it is reigning absolute. Confuse them with your confusion. There are two types of absolute metaphor: para-logical and anti-metaphor. This is a design which has no commonality and the components at any level do not inform or cause the strange to become familiar. It is the construction of an airline terminal without ticket counters and departure gates. It is a children's school with adult scale furniture and adult-only lavatories and hand basins. It is all possible but non-metaphoric.

In the Eden Roc hotel in Miami Beach, architect Morris Lapidus, designed a beautiful stair in the lobby that leads to a high point on the wall with no door or floor to enter. Similarly, Rene Magritte produced a design

for a house which had no point of access, or more recently, Rachel Whiteread's sculpture "House" (1993), which was the moulded interior of a house stripped of its container and rendered as a solid. Implied metaphor

[16] Implied metaphor is an indirect metaphor where an implication to the whole is made. For example, *Shut your trap or He ruffled his feathers*. No bird and no mouth, just *feathers* and *trap*. Yeah, that's implied. [31] Idioms and informal expressions such as "turn on the lights"; "kick the bucket" are similar examples. [31] Metaphors work by "reference to analogies that are known to relate to the two domains". In other words there is *a priori* knowledge of these before they are spoken and when heard they are immediately found. Like a building metaphor's common elements with an uncommon application the common connects to the unfamiliar and the architect is able to find a way to bring them together so that the user discovers their relevance. Adjacent spaces and functions such as washrooms and laundry, clothes storage and dressing rooms, driveway and parking garage are just some architectural implied metaphors.

Dead metaphor*

[16] Dead metaphors have been so overused that they have lost their individuality. For example, *face of the mountains or crowning glory.*

Dead metaphors are mostly used as phrases and not as metaphors. Their association has died. Now, they are just phrases, although their names still remain. Take off your hats. It's mourning time! Replicated salt box houses in massive subdivisions and all the manufactured building products and building parts are such metaphors. They are designed without a program or context. [29] There are inconsistencies, lack of derivatives and many unexplained changes in linguistics to explain the way metaphor is used and understood, misused and misunderstood.

Likewise, the street talk that permeated my childhood was a string of sayings, clichés, proverbs and European linguistic slang. This was contrasted by the poetry of songs and medieval literature. The architecture was the only source of my identity having consistency, reputation and allusions toward science, logic and consequence. I just knew there was something out side of this circus. Although I could not derive what I saw I could document and retain the types and details of each. My hunger and thirst to know what, why and how to make these spurred each morning waking before dawn and doing reconnaissance from the time I was three till I was in my teens. My tours were capricious and free roaming (my

version of play) but not my curiosity where the metaphors fed me with my identity and certainty of a reality.

Dormant metaphor*

[16] When the meaning of a metaphor becomes unclear because the sentence has been shortened, then it is called a dormant metaphor. It seems that onomatopoeia is metaphor and grouping of words that imitate sounds ("click", "bunk", "clang", "buzz", "bang", or animal noises such as "oink", "moo", or "meow") all point to a source. In this case an assemblage instead of a sound. As something non-linguistic it has impact beyond words and is still a metaphor. Then a metaphor is much more than the sum of its parts and is beyond any of its constituent constructions, parts and systems, its very existence is a metaphor. Gated communities, city planners, and zoning boards will often reject building proposals without their standard finishes, roof slopes, gutters and downspouts, flashing, irrigation systems, etc. It isn't always what is seen but what constitutes the standard of quality. Some require minimum size buildings and lot sizes and most will exempt uses that do not conform.

Synecdoche metaphor

[16] In synecdoche metaphor, a part of the association is used instead of the object. For example, *feathers* instead of bird or *claws* instead of crab or *sail* instead of ship. These associations are symbolic of the whole. A figure of speech in which a part is used for the whole or the whole for a part, the special for the general or the general for the special, as in *ten sail* for ten ships or *a Croesus* for a rich man and *her feet flapped like terrified wings.* [29] Micro and macro metaphors can inform one another as the form of design may refer to its program, or a connector may reflect the concept of articulation as a design concept. The way one 45 degree angle may reflect all the building's geometry. More the way the design concept, design vision drawn on a napkin can be the vision, gestalt, formulae, and "grand design" of a particular project. Such an ideal can be the seed, fountainhead and rudder guiding all other design decisions.

Root metaphor

[16] Root metaphors are named thus because from them numerous other metaphors can take flight. Also, they are generalizations:

time is money; make hay while the sun shines, etc. Building types such as "sky-scrapers", "row-houses"; "0-lot lines"; "ticky-tacky"; "single family residences"; and *door hardware; wall board; roof tile; foundation footing etc.*

Active metaphor

[16] Active metaphors are new born so you will have to introduce them to the world. They are not familiar to the reader. That's why it is better if they are explained clearly. Any new metaphor that hasn't been written before is an active metaphor, for example, *her blinking love or they mashed each other's lives.* Much of contemporary architectural design is an active metaphor without similar analogies and "look-a-likes". Even new building types or retrofitted existing building fitting new uses into outdated shells are examples.

Submerged metaphor

[16] In a submerged metaphor, the first part of the metaphor or the vehicle is implied. For example: *his **winged** dreams or her **legged** ambition*. Architecturally: *Their menacing terminal; the brilliant lamp.* Certain uses will often eclipse sub-dominant or tertiary uses in mixed-use buildings. Buildings which combine residential, commercial and retail often intentionally keep private the residential and commercial in favor of the retail and hotels will hide the back-of-the-house functions from the public.

Dying metaphor

[16] It should have been named "rising from the dead metaphor" or "the mummy metaphor" because when you take out dead metaphors from the grave and use them in your writing, then they can't be called dying. I don't know what [42] George Orwell was thinking when he coined the name. Dying metaphors are clichéd metaphors like *needle in a haystack; Achilles' heel; a different ball game etc*. Architecturally they might include: *mahogany wood; Empire State Building; high rise tower*

Conceptual metaphor

[16] Discussed at length in Chapter Three a conceptual metaphor has many metaphoric meanings in them. Their underlying meaning creates a novel thought or a universal concept. Life as a journey is an old conceptual metaphor. This metaphor has universal appeal. It is not talking about a particular situation or a person. It stands true for every man. Also, if you see life as a journey, then you can also use many other metaphors such as *my life has just halted; I have reached a crossroads; I came into this world with no luggage.* So, life is a journey is a conceptual metaphor. Architecturally it is the second part to technical metaphors and programmatically fulfills the descriptions of the [48] COIG. A good office building is one which easily accommodates office furniture, business machines while one that is fallacious does not allow for the changes and modifications due to personal and operations modifications. In the case of architecture this includes the entire set of contract documents, program, etc.

> Pylyshyn notes: "The difference between literal and metaphorical description lies primarily in such pragmatic consideration as: (1) the stability, referential specificity, and general acceptance of terms and: (2) the perception, shared by those who use the terms, that the resulting description characterizes the world as it really is, rather than being a convenient way of talking about it, or a way of capturing superficial resemblances."

In this ways of all the arts, architecture is the most profound in that it combines and confirms the secular (of this time), "how things really are" with the gestalt of personal, social, community and private importance. If art is the making of metaphors and it has no real use then how significant is architecture with both "reality" and fantasy/imagination combined and confirmed by its very existence. I mean to say that the very real existence of a work of art which bespeaks of life and times exists and is accessible and in our contexts is itself a metaphor of great significance and satisfaction. Were the building *us* it would be *me*, were *I* a building *I* would be *it*. The metaphor expresses a value common to both; both are real and ideas at the same time. The metaphor is the bridge and confirmation of art in the world, life in the flesh and flesh become ideas. Architecture is an extreme reification from notion in both creator and reader of materials and ideas.

> "Metaphor induces a (partial) equivalence between two known phenomena; a literal account describes the phenomenon in authentic terms in which it is seen." [24]

Pataphor

[16] Pataphors are metaphors that are stretched to such an extreme that they do not make sense. They are usually used to attract attention and introduce newness, for example, *he put breaks on his fear, accelerated his anger and rammed into the house.* [25] 1.19.0

Metaphor as speech acts and serves as a linguistic tool for overcoming cognitive limitations and extending our capacity for communication. For most artists their language is beyond speech and resides in the peculiar craft of their art of which their practice and exercise develops new capacities and opportunities to teach and express thought outside of linguistics in way which is equally valuable and worthy.

> [25] "Speech is a fleeting, temporarily linear means of communicating, coupled with the fact that that, as human beings, we are limited in how much information we can maintain and process at any one time in active memory, means that as speakers we can always benefit from tools for efficiently bringing information into active memory, encoding it for communication, and recording it, as listeners, in some memorable fashion."

[25] Metaphor is the solution insofar as it encodes and captures the information: transferring chunks of experience from well–known to less well–known contexts. In this way architecture provides both designer and user with a means of communicating. Eclectically the parts and the whole of a building may have motifs, insignia and design features like Tudor arches to depict Bavarian German themes, Roman ruins that Maria Theresa had imported and reconstructed in Schoenbrunn, wall paper with garden scenes, etc.

Simple or Tight metaphor

16] In a simple metaphor, the relationship between the vehicle (cool) and the tenor (it) is very intimate (tight). Usually, simple metaphors are very short. Just two or three words at most: *duck (bow) down; he is mad (crazy); and you're a dinosaur (a throwback).* Such metaphors are surrogates for a longer description.

[3] "A surrogate is a replacement that is used as a means for transmitting benefits from a context in which its user may not be a part."

Architecture's metaphors bridge from the program, designs and contractors a shelter and trusted habitat. The user enters and occupies the habitat with his having formulated but not articulated any of its characteristics. Yet it works. It makes sense, therefore, to speak of two sides to a surrogate, the user side and the context side (from which the user is absent or unable to function). Each of us uses others to achieve a benefit for ourselves. We have that ability. None of us is just a person, a lived body, or just an organism. We are all three and more. We are singulars who own and express ourselves in and through them. In my early twenties I diagramed a being as "appetite", "desire" and "mind". I defined each and described their interrelationships and support of one another. Metaphor is one and all of these and our first experiences of sharing life *within* with what or who is *without*.

Implicit metaphor

[16] Here, either the vehicle or the tenor is not specified clearly, but implied and exemplified in expressions like *shut your trap or watch your tongue.* Here "trap" and "tongue" are used instead of mouth and words. Earlier I referred to this kind of metaphor as obscure and hidden occurring in the earlier planning, programming and design stages and not necessarily revealed to the occupants, users and owners. This kind of metaphor is the backbone of most built metaphors.

Explaining *pataphor, simple and implicit* metaphoring uses coalescent metaphors where [18] "metaphor involves a non-literal use of language". A non-literal use of language means that what is said is for affect and not for specificity. A habitable metaphor is not meant for the user to fully, continuously and forever recall all that went into its production. At each moment in its use the metaphor may mean different things, least of which may be any intended by its authors. The fact that the roof silhouette was to emulate a belvedere in Florence, windows from a palace in Siena, and stucco from Tyrol is lost over time. Even, the design principles so astutely applied by the likes of Paul Rudolf, Richard Meier or Marcel Breuer may be unnoticed in favor of other internal focuses.

These many design considerations may be the metaphor that gave the project its gestalt that enabled the preparation of the documents that in turn were faithfully interpreted by skilled contactors and craftsmen. Yet at each turn it is the effect of metaphor and not necessarily its specifics that make

a good design not a great work of architecture or a working metaphor. Metaphors recognize that all parties have goals, referents and abilities to *think outside the box* and talk about one thing in terms of another. The *metaphoric way of knowing, synectics* and coalescent metaphoring uses methods and techniques that enhance commonality, truth and agreement in a goal-directed setting. Coalescent design is the model for a situation in which the designers care deeply about one another.

Making the strange familiar is applied (Gordon, William J.J; The Metaphorical Way of Learning & Knowing). [19] Metaphor as an abbreviated simile to appreciate similarities and analogies which is called "appreciation". Reading metaphors build an image in the mind. That is to say we "appreciate" what we already know. I have always contended that we do not learn anything we already do not know. We learn in terms of already established knowledge and concepts. We converse reiterating what we presume the other knows, otherwise the other party would not understand. The other party understands only because he already knows.

The architect who assembles thousands of bits of information, resifts and converts form words to graphics and specification documents communicates the newly proposed (the strange new thing) in terms of the known and familiar. The first recipients are the owner, building officials; contractors must read seeking confirmations of known and confirm its adherence to expectations. After its construction the users read familiar signs, apparatus, spaces, volumes, shapes and forms. The bridge carries over from one to another what is already known. Even the strange that becomes familiar are both known but not in the current relationship. For example when we apply a technology used on ships to a building or a room which is commonly associated with tombs as a bank, etc. Both are generally known but not in that specific context. We could not appreciate it if it were not known. It is what Weiss calls commonalties and is the selection between commonalties and differences that makes a metaphor. It is about understanding and discerning between what is "true in fact" and "true in the model".

> Miller says: "Metaphors are, on a literal interpretation, incongruous, if not actually false–are a robust sense of what is germane to the context and what is "true in fact" is necessary for the recognition of a metaphor, and hence general knowledge must be available to the reader (user, public). We try to make the world that the author is asking us to imagine resemble the real world (as we know it) in as many respects as possible. Offices, bedrooms, lobbies, toilets, and kitchens are such models which are built to specific situations in images of yet some other context."

Kitchen is a social gathering place, the toilet is the baths of Rome and the deck is the top of a ship. The architect accommodates all the realities of the goal of the room into the model of the foreign context. By analogy, Miller distinguishes between what the architect designed and what he thought and how they differ.

The contemporary architect faces a vernacular of design principles which are reified in to conventional building types. The convention is the model whiles the specific application in the strange. Often new buildings are likened to the first model or the prototype. The reader knows the building-type and is able to recognize the new permutation. The reader develops a related metaphor make two kinds of connections: between two substantive areas and between experiences and substantive materials. The reader then applies the above to the material, building system or program [48] COIGs.

Compound or Loose metaphor

[16] A compound metaphor is made of more than one similarity. In it, the writer extends a metaphor by using more than one association, for example, *he ran toward the murderer, a wild beast with a beating heart* and *the air smelt of fear, the fear of abandonment*. Mixed use buildings, multi-use building; dual purpose entrances and overlapping functional spaces are some compound building metaphors.

Complex metaphor

[16] *Let me throw some light on his character*. Here, "throw" is used for "light" that in itself is non-existent. In some circles this is referred to as tangential thinking, approaching a subject from its edges without getting to the point. Users can accept works which are vague, inane, and non-descript, evasive and disorienting. Performance specifications are occasionally used by design teams to indicate a function and its requirements without naming its manufacturer or generic description. Such a specification is fallacious if it does not provide the needed equipment, etc.

A metaphor that is invalid is fallacious. A fallacy is a deficiency in the form of a metaphor that is not immediately apparent. Applying the concept of validity beyond the metaphoric modality is tricky as the sub-design does not follow from the program with certainty, we cannot say that, if the program is true, the sub-design must be true. This function is achieved by focusing on experience rather than form. A subject-matter field will

generate its own ways of testing and weighing sub-design and program. Each system and sub-system will have its own standards and protocols. A general tendency develops over time for certain metaphor patterns to produce good or bad results. The specific project may also provide standards of metaphor.

CHAPTER TWELVE

PRIVATE AND NON-PROFESSIONAL METAPHORS OR METAPHORS BETWEEN FRIENDS

Summary

In Chapter Eleven we studied the non-aesthetic and fallacious including metaphor patterns, appraising a metaphor, and fifteen different common and un-common forms of metaphor such as metonym, mixed metaphor, dead metaphor, pataphor, simple and implicit to name a few. Now in Chapter Twelve we draw the metaphor very close in its role of making a limited and well controlled metaphor for a limited readership, users and occupants. To do this we need to study mappings, cognition and process.

Scope

[10] This very important chapter examines the practice of making metaphors in a closed and limited society. The organizing principle is the concept of spheres of metaphor, distinctive sets of expectations that provide contexts for making them. The designer and the users both have intimate experience with the parameters of the metaphor. After introducing the ideas of spheres and distinctions among the personal, technical and public spheres, this chapter will concern the personal sphere. Dialog is the mode of discourse, and participants seek to design their own building. The ideal of a critical design process is proposed, and coalescent metaphor is described in a way to approach the ideal. Practices that diverge from this ideal are noted and possibilities for redesign are considered. It is the program for a single (one sphere) user, corporation, family, institution, etc.

[10] In a pluralistic society, making architectural metaphors takes place in different spheres of activity. This decentralization is a consequence of the absence of universal standards for metaphor evaluation and the

resulting dependence on context. Spheres identify accumulated expectations that provide contexts for designing. Spheres differ along the public/private dimension. Design in the personal sphere is of concern only to the people involved, who also serve as the evaluators of one another's design. Design in the technical sphere is conditioned by background and expertise in the particular building–type and is accessible to those in the field. Making metaphors in the public sphere is concerned with matters that affect people generally in their role as citizens; in principle design in this sphere is open to all. Sifting through the program the architect seeks the "commonality" between the reality and experience to make the metaphor.

Mapping is only possible when he or she knows the "commonplace", the commonality, the characteristic common to both, the terms that both the source and the target have in common in which the mapping takes place. The architect's design agenda and the users' requirements find both their commonalities and differences. As the architect structures his program, design and specifications he simultaneously structures the metaphor of his work of architecture. Architecture consists of program specifics where the conditions, operations, goals and ideals are from heretofore unrelated and distant contexts but are themselves metaphors "mapped across conceptual domains".

Architects translate their architectural conception from philosophy, psychology, sociology, etc. into two dimensional scaled drawings and then to real life full-scale multi-dimension conventions consisting of conventional materials, building elements (doors, windows, stairs, etc.). [11] As maps are the result of cartographers rendering existing physical features into graphics for reading so is mapping to the reading of metaphors where the reader renders understanding from one source to another. As the cartographer seeks lines, symbols and shadings to articulate the world reality, so the reader's choices of hitherto unrelated and seemingly unrelated are found to have an essence common to both the reality and the rendition so that the metaphor can be repeated becoming the reader's new vocabulary. As the reader can describe the route, so he can identify the building.

Migration of making metaphors from one sphere to another is common, for example, formerly personal design, such as for a residence or place of business, can be recast as a public concern. Building codes and planning administration have often been seen as technical questions that need not engage the public. In some design and planning projects, such as a proposal for school buildings, participation and liaison between the technical and the personal (conceptual) sphere often occurs. [11] Mapping between source and target is used to describe analogical reasoning and

inferences. For example, reception areas to receive people, doors and door frames, columns as vertical supports, parking spaces for cars, iron and stained glass design patterns, and typical design details appropriated for a given building system.

[11] Aside from articulating a program architects carry-over their experiences with materials, physics, art, culture, building codes, structures, plasticity, etc. to form a metaphor. Identifying conditions, operations, ideals and goals are combined to form plans, sections and elevations which are then translated in to contract documents. Later the contractors map this metaphor based on their schemes of cost, schedule and quality control into schedules and control documents. It is not until equipment, laborers and materials are brought to the site that the metaphor starts to form. Once formed the only evidence for the user (reader) are the thousands of cues from every angle, outside and inside to enable use and understanding. An informed user can read the building's history from its inception to opening day. [11] The scale of habitable metaphors is the intrinsic relation between the human figure and his surroundings as measured, proportioned and sensed.

[11] Mappings are not arbitrary, but grounded in the body and in every day experience and knowledge. Mapping and making metaphors are synonymous. The person and not the work make the metaphor. Without the body and the experience of either the author or the reader nothing is being made. As language, craft, and skills are learned by exercise, repetition and every day application so are mappings. Mappings are not subject to individual judgment or preference: but as a result of making, seeking and finding the commonality by practice. On some building types, such as medical facilities, the heart of the metaphor is in what sphere the subject belongs.

The personal (concept) sphere of making metaphors has several dominant characteristics. Its focus is on how people conduct and seek to resolve elements of the metaphors, make choices and identifying and settling dilemmas that concern them. Such examples are: neighborhood planning boards, school boards, corporate and church building committees. [14] The basic principle of an expression with its literal meaning and corresponding truth conditions can, in various ways that are specific to the metaphor, call to mind another meaning and corresponding set of truths. In other words: "How does one thing remind us of another?"

Without apparent rhyme or reason metaphors of all arts have a way of recalling other metaphors of other times and places. In my mind I recall Brooklyn brick warehouses on Atlantic Avenue with turn-of-the-century black stick shift Ford trucks and men dressed in vests, white shirts and

bow ties loading packages from those loading docks under large green metal canopies. The streets are cobbled. I can cross to this image when seeing most old brick buildings in Leipzig, San Francisco or Boston.

The primary data construction of naturally occurring talk in which overt metaphorical factors are present focuses on dialog. Conventions, such as taking turns are learned through socialization and are applied instinctively. Someone volunteers to take notes and another to diagram the ideas. The relationship between one person and another will influence what must be said and what can be left unsaid. The exchange is private and ephemeral; the outcome is preserved only in the memory of the participants. Materials for making metaphor are drawn from what comes readily to mind, there is no advance preparation.

> [43] "Human cognition is fundamentally shaped by various processes of figuration" (as tropes: turn, twist, conceptual guises, and figurations). The ease with which many figurative utterances are comprehended are has often been attributed to the constraining influence of the context." This includes: "the common ground of knowledge, beliefs, and attitudes recognized as being shared by speakers and listeners (architects and users (clients, public)". As speakers, architects, designers and makers "can't help but employ tropes in every day conversation (design) because they conceptualize (design) much of their experience through the figurative schemes of metaphor (design)."

It explains the standard and traditional building types found in various contexts as the chalet in the Alps and the specific styles found in the villages, towns and cities in this region. Psychological processes in metaphor comprehension and memory as outlined by the research of Allan Pavia and Mary Walsh is quoted by Susanne Langer as indicating that: "Metaphor is our most striking evidence of abstract seeing, of the power the human mind to use presentational symbols." Ideally, making metaphors in the personal sphere would take the form of a structured metaphoric game, *charrettes* or design play. A critical metaphor session proceeds in stages:

1. Observations are made
2. Assumptions are made from the observations
3. Observations are mapped into a structured program of conditions, operations, ideals and goals [COIG]
4. Everyone discusses, disagrees and agrees on a final program
5. Diagrams and schematics are developed, reviewed and approved
6. Schematic designs are made, presented, reviewed and approved

7. After preliminary development the design is completed, reviewed and approved
8. Final design documents are prepared, reviewed and approved
9. Budgets, schedules, methods of letting, contracts discussed and bid package prepared

CHAPTER THIRTEEN

FRAMING THE ART VS. ARCHITECTURE ARGUMENT

Summary

In Chapter Twelve we narrowed down the metaphor to its role of making a limited and well controlled outcome for a limited readership (e.g. users and occupants). To do this we studied mappings, cognition and process. Now in Chapter Thirteen, I will lay out the entire process of reasoning for the metaphoric process and the hypothesis that architecture, too, is the making of metaphors. As a result of this we should come to understand the importance of identifying the end users and design team as well as the context of the metaphor.

As "evidence of a crisis" we will find that at the moment there is a "disconnect"(disparity) between the creative and user community to explain why there is a profusion of banality and apathy toward the built environment. We will become aware of this while learning the key features of reasoning the metaphor from its creation to use.

Scope

What's the argument? Who's arguing? How does resolving that *architecture is the making of metaphors* settle the argument? Through analogies, similes and evidence, I present arguments supporting the resolutions surrounding the way architects and urban designers make metaphors. This is done by presenting the thinking on making both natural and synthetic cities as well as the design of buildings and neighborhoods. Cited throughout are linguistic, cognitive, psychological and philosophical mechanisms of the metaphor and their applicability. All of this will come together to reify the stasis of architecture as an art by the inference that, as art [2] it, too, makes metaphors.

This argument is relevant to communicate between different people, disciplines and roles in the creative process. The relevance of this chapter

is that it provides the authoritative evidence defining the architects, planners and designers scope of services and owners conceptual basis for considering projects. For cognitive, linguists and other scientists this monograph provides the evidence for application and of theory.

What's the argument [10] and who's arguing?

Empirically, the title of this chapter posing the tensional relationship between art and architecture depends on who and where you are and whether you are apathetic or a connoisseur about your surroundings. The audience's perceptions and users' aesthetic determine the stasis and loci of this argument. On the other hand the title may express an ideal irrespective of time and place to a transcendental definition about the inherent qualities of all creation, use and perception of the material world (and man's longing to covet that world). In the end the title and the inner working of the creation have pragmatic results for science. Whether architecture is an art [2] or not is argued amongst practicing professionals, owners, architects, engineers, artists, scholars and contactors and to a much greater degree between members of society as manifest in literature, mass media and academia. It is the general public, users, real-estate markets, real estate agents, appraisers, and possibly financiers who dicker about such unpractical matters. After all, what you call something and how you may define it does not really limit practice, use and market. Government officials, practitioners, owners would never want their dissenters to be what it is that art has come to signify: irresponsible, ambiguous and unreliable.

Some argue that design, engineering and science should be predictable, manageable and efficient, all *modus operandi* seemingly antithetical to art and artists. Most artists like being artists because they enjoy their supposed characteristics: objectivity, sanctification and perspective. On the other hand, there are many architects whose practice rejects the mundane, banal and mediocrity of the "57 different varieties" approach, hack and under-funded projects only seeking and accepting commissions which seek an artistic, creative and inventive solution, creation and finished work. The architects will often present their portfolio filled with colorful renderings, models and photographs emphasizing the art of architecture, exotic forms, and brilliant design. These portfolios raise the level of excellence, accomplishments and creativity to new heights hoping to compete against other like-minded architects. In these cases they freely bandy the "art" [2] about, balancing it with the need to acknowledge the importance of responsibility to budgets, functions and corporate identity.

Underlying the social argument is a matter of rightness, social identity and the iconic value of resources, especially material matter, including precious stones, metals, antiques, cloths, etc. Social values and the quality of man-made goods identify a culture, society, families, groups, companies and individuals and lies at the heart of the argument. No one will argue about art of architecture in general but they will about the art of specific buildings. To these people others generalizing about all architects, all programs and all designs under the concept of metaphors is objectionable.

Who was the architect and was he considered an artist? Have other people valued the building and has it been traded and valued over time. Does it have unique patterns, forms, shapes, colors and what is its relative cost? Is it more expensive or in a class of expensive buildings. The issues and questions are endless but the underlying motive is the same - values are at stake. These arguments care little about the science, axioms, and reasoning of metaphors but are about metaphor's essence, that it is a man-made artifact of value, made by an artist, craftsman and manufactures resulting in a valued property. Whether real or liquid property the product is a referent which refers connects transfers and likens one thing to another.

In the case of buildings the argument of the art of the building may involve its price, quality, origins, uses, location and history of ownership. In any case, the opponents would not delve to find the metaphors, concepts, ideas but appraise the value based on its market price comparable to similar buildings. Metaphors would only be considered when the seller or the buyer, maker or user, owner or the public, had to originate their valuation. As soon as that happens, the parties to the work need a vocabulary distinct from public opinion in order to create, evaluate and judge it. While architects make a combination of conceptual and technical metaphors they do so metaphorically and by attending to scientific, material and factual matters. Yet in so doing, no matter to what degree of technical or conceptual the very process of any work translating requirements from wishes to design to construction to occupation involves metaphors, symbols and representations which carry-over and describe one thing in terms of another.

Architecture is the Making of Metaphors settles the argument [10] by establishing the stasis (focal point) between art and architecture focusing attention on the commonplace between all arts and also architecture. It does so by using supporting *topoi*, evidence, axioms and issues warrants to support the way in which architects makes metaphors whilst attending also to the practical, the scientific and the banal.

Irrespective of which one of the arguments we choose as long as the stasis has no value amongst society, scholars and the profession there cannot be a real dispute. As any argument, it needs two parties who agree to disagree, where success ultimately depends on the assent of an audience and who both agree on the stasis of the argument. Architecture as the making of metaphors cannot be used to teach or affect the practice architecture unless educators and parishioners agree to the vocabulary, the premises and practicality. As long as society does not acknowledge the degree of art in science, architecture, engineering and art then any discussion of normative, absolutes, liability and certainty is redundant. So while architecture is the making of metaphor is the truth - which would easily settle disputes - it tends to be marginalized by both sides of the argument in their search for social, cultural and contextual metaphors.

They expand their differences beyond agreeable intersections to such a large degree that they can only unreasonably agree or disagree. However, it is in this way that the metaphors are very effective as a base for both inductive and deductive reasoning as they clarify the relationships and makes them part of the argument.

In their unreasonable "non-arguments" detractors toss around superficial but socially accepted metaphors. In our argument we have claimed that art is the making of metaphors; not that architecture is art but that architecture is *an* art [2], meaning that architecture is one of the arts and has some of *its* (art's) characteristics. It is different from saying that it is art [2]. This means that all of the characteristics that distinguish any of the arts, or any other field, whilst unique and distinctive, discounts non-arts from having "artistic" characteristics – and in particular – one which is which is the dominant, most prevalent and common. It is common because it is found in all concepts of art's [2] technical and conceptual dimensions. That is to say that even the technical of art [2] has a both a technique and concept of the technique both common to all the arts and yet unique to its own medium. At the heart of these arguments is often the inability to define either art or architecture so that arguments do not have a stasis and cannot be resolved.

Urban design, urban planning and real estate development are also makers of metaphors. New towns, malls, city centers, urban renewal, alternate use, and green building designs have already shifted design from limited building, site and project design to include theme, marketing, internet, lifestyle maintenance, health and well-being, recreation and entertainment and they already use an interdisciplinary vocabulary. The built environment is being synthesized and controlled by new professionals, design tools and evolving teams. Both architectural practice

and use of its outcomes are incomplete because while it is a metaphor it is not known nor understood.

To be complete the practice and use of the built environment must be consciously designed and known as a metaphor; in this way it will be complete and relate to its use and purpose. At the moment there is a "disconnect" between the creative and user community. It may explain why there is such a profusion of banality and apathy toward the built environment. While a work of urban design may be intrinsically metaphoric, momentarily metaphoric and metaphoric to its owner and general public it may be mistaken, fallacious, accidental, and irrelevant. By a process of making, understanding and reifying metaphors of building parts and whole, the urban fabric is made relevant.

The resolution to the arguments for contemporary urban design

1.1 Is to discover the conceptual basis of the shift in design profession's paradigm ushered in by the potential to interact electronically and exchange information and input from end users, builders and manufacturers. This is not a unified language but a conceptual basis for considering one thing in terms of another which permits the transfer, bridging, carrying over and sharing of macro values and mini issues.

1.2 To identify how design professionals currently carry out the design process and what additional tools are needed to expand practice to include metaphors and metaphorical ways. Architects typically work through six phases of programming planning, schematics, preliminary final design, working drawings, bidding and (sometimes) supervision. Most other services are optional as additional services.

1.3 To acknowledge that at the moment building codes and state statutes include only registered architects, interior designers and engineers as responsible. Planners, poets, writers, artists are not included. Each has an association which promulgates policies and procedures and each teach their respective discipline in universities.

1.4 A nation perishes without vision and so it with works of architecture. Work without metaphor is irrelevant and discarded. In this regard the metaphor means that the thing has value and is valued. It is a thing not just of the moment and its present context but something for the future which has relationships to other contexts. The interdisciplinary urban design and development team would benefit from an understanding of the need for such an overview and the linkage and commonalities which could be derived from it.

Informal Reasoning

[10] Since architecture is the making of metaphors follows from the formal deductive claim that since art [2] is the making of metaphors and architecture is an art [2], therefore, it, too, makes metaphors. This formal logic achieves deductive certainty but has limited relevance to everyday affairs. Design professionals realize that there is a world of concerns outside of their professional practice which is now being absorbed by others or disregarded. Introducing metaphors into the process widens the conversation and includes other concerns. Inductive uncertainty in concerns of building and using habitable places are making the built environment reflective of the public users where the design and outcome are the intended metaphor. Making the right metaphors and then optimally using their final product is one of the contemporary social issues.

Urban planners, designers, real estate developers, architects and interior designers are well aware of this as witnessed by the surge in synthetic urban design, new urbanism, and green buildings and green building products. This example shows that there is already so much agreement in and amongst the building industry and its information technology supports. They all agree that architecture - and all that makes up the environment - is indeed related and cohesive. Yet they are each separate and sovereign disciples with their own vocabulary and budgets, codes and ordinance, engineering, etc. The reasoning that is not sponsored is the age old unifying language which will bridge and tie them so that what they produce is a cohesive work of art.

Already real estate developers of new towns, new cities have already achieved this but without a general exegesis to explain what it is they are doing. There are many exceptions as when in 1973; I wrote the development plan for Belmopan City in Belize and 1975, when I wrote Gulf Oil's real estate development policy and procedures for the non-oil-related design construction activity.

The argument for "Architecture as the Making of Metaphors"

[10] There is evidence of a crisis in architecture and town planning. The public is apathetic about their environment because it is irrelevant. People are lonely in big cities because their buildings have no individuality, identity and are impersonal. They search in vain for *topoi*. When they face a building they find no metaphor. The metaphor which confronts them is either too familiar or exemplified by ticky-tacky (i.e.

little boxes) suburbs in which they are similarly lost and disenchanted. Builders and real estate developers fill the gap where the design professionals leave off providing the romance, images and story of the built environment. Disney, Las Vegas, Hilton, etc. provide the story and enclose it with buildings and artifacts. Whether we like them or not, their architecture is a metaphor (to the bland or romantic).

Planning, design and building professionals need a new paradigm. Both architectural practice and use of its outcomes are incomplete because while it is a metaphor it is not known nor understood. To be complete the practice and use of the built environment must be consciously designed and known as a metaphor; in this way it will be complete and relate to its use and purpose.

Metaphors that define and fill the environment stand as icons. They reflect the presence or absence of relevant information despite the designer's willful intention or disregard. Seeing the built environment, buildings, parks, etc. as metaphors by placing this conversation at the center of the planning, programming and building program will return the city back to its inhabitants and engender their care and concern for its up-keep. People like Jane Jacobs and Lewis Mumford realized some of this but they focused on particular functional solutions more than aesthetics.

To begin with my claim that architecture, as art, is, too, the making of metaphors took place with an academic audience in mind, in particular architectural scholars. To this day it is only this audience which has published my monographs and entertains this argument. Knowing this may be the case my former mentor Dr. Paul Weiss guided me to first define the metaphor and link it to architecture as he did so well in our Yale lecture series.

Weiss then advised that I proceed to come up with evidence and relevant examples. To this end the lecture series presented prominent design professionals who gave examples which suggested that the claims being advanced was not universal truths but subject to the acceptance of the actual listeners. In fact most of the warrants I have listed below are derived either directly or indirectly from Dr. Paul Weiss. Since the original lecture series in 1967 and subsequent debate in many learned journals, no counter argument has been put forth that architecture is not the making of metaphors.

The closest counterclaim has been to prefer a world where architecture would not be metaphorical but something direct, instinctive and void of references; as a kind of mindless psychic impulse of creativity coupled with a likewise similarly mindless non-empirical perception of the final work. These counter arguments are fallacious because whether intended,

perceived or not, architecture is a metaphor, the process by which it is created is metaphorical and the elements from which it is composed are each metaphors. Like a sheet of music, poem, a manuscript, painting, sculpture which is in a warehouse and not seen, does not make these works of art any less metaphorical because they are not perceived. They are also not any less metaphorical because their creators did not intend them to be metaphors. As art is the making of metaphors and has intrinsic value and relationships with itself so is a work of architecture. In this sense you might say that that anything crafted, manufactured or synthesized by man demands it is composed by process analogous to the way an artist creates a work and the way a work is perceived.

In the first place we are using the term as a figure of speech in which a term or phrase is applied to something to which it is not literally applicable in order to suggest a resemblance. [44] A metaphor is something used, or regarded as being used, to represent something else; something emblematic or symbolic. This transference defines a process in literature which we claim is true for art and by extrapolation for architecture. We metaphorically transfer the definition of the nature of metaphor by a metaphor to the making works of art and from works of art to works of architecture.

In the second place without respect to the inner working of the metaphor, all forms of art, architecture and landscape and environmental works are claimed to be metaphors of man's identity, achievements, value and stature. [45] They are sometimes called monuments, historical preservation landmarks or just ordinary homes, building and public utilities. These are all read by the public and sewn into the cultural fabric and vocabulary of society. However, despite the plethora of historical and contemporary evidence we still need to explain the dynamic which exists between the perceiver and the perceived which forms the metaphor. So for any one work are there two metaphors: one seen and the other for the unseen. This, of course, is absurd, so it is evident that the same work produces the same metaphor and all that differs is the different levels, intensities and perspectives we bring to bear in analyzing it. Generally, technicians will find the hidden while the general public the superficial. With education some will appreciate the work's historical methods while others its technical metaphoric vocabulary. The original conclusion was that if art was the making of metaphors and architecture is an art then it follows that architecture is, too, the making of metaphors. However this conclusion contains no new information not already in the premises and thus to add new information one must turn to informal reasoning.

The resolution [10] that needs to be found is to show that art and architecture are both art because they work in the same way. To do so, we need to explain how they work and why they are related. Despite the fact that one is applied art and the other fine art is not necessary to prove at this point. That fact that one is habitable and utilitarian and the other has no such function is not irrelevant to the argument. While these may be the very things on which scholars disagree - they do not enter into this argument.

Some might say that a utilitarian product such as building cannot be a work of art because a work of art's sole purpose is to be perceived. It has no more utility as such – at least superficially – than that. The concomitant of this that any work which uses scientific products, engineering, manufacturing (and construction) has needs and necessities over and above mere perception. I cannot discount this argument as it may explain why after over forty years of promulgating this hypothesis the "professionals", "business" and "building law" have ignored and sidestepped the resolution and its aesthetic truth. While the resolution has gained in importance in theoretical design language and information technology, this has not been reflected in the way it has been popularly received.

As a practicing professional I can only attribute this to yet another commonplace that while those who market to consumers and users overlay built works with artistic rhetoric, the societies of the creators consisting of manufacturers, builders, engineers, contactors pride themselves on being scientific, controlling cost, schedule and quality they do not want to let the uncertainty implied in art be part of their *modus operandi*. To the extent that architects are regarded as artists, government, corporate, business , and non-architectural and interior design professionals regard architects as a service which must be managed and limited despite and because architecture, too, is an art.

The business community is faced with the seeming paradox of both wanting buildings that are high quality, imaginative and beautiful (i.e. art) while holding in disdain the persons and processes which bring about these results. It is for this reason that in 1896 the American Institute of Architects (AIA) created AIA 201 the "Standard Form of the General Conditions for Construction Contracts" which mainly puts the architect between the owner and the contactor. So this argument [10] is not about the pre-eminence between design professionals and others among project participants as that argument is settled elsewhere and through other instruments. Our aim is to elevate the architect's creative process above technique, construction and even formal art to include social, psychological,

political and economic considerations all of which are included in users' decisions to create a work of architecture and should therefore be included in its creation. If architecture is the making of metaphors and it is an art then it must also be the sum and summation of all that it selects to realize its product. The purpose of this is to elevate and widen the scope of practice beyond current limits.

Other than the controversies I have just stated there is no active controversy as whether architects make or do not make metaphors. What is at odds is whether a building not made by an architect going through the metaphoric process is a metaphor and if so what kind? Or is there a metaphoric knowledge necessary to further add onto the education and practice of architecture? The reason architects are not taught that they are making metaphors is that it seems too complex and uncontrollable. It is for this reason that non-architects are taking control because architects refuse to include making metaphors into their processes.

So the argument is with the profession of architecture. To regain your rightful place in the creation of the built environment you must include what is at its end – metaphor. To do so you must both know what the metaphor is at the end and then know how to build it into the making of the work of architecture. Architecture the making of metaphors introduces a paradigm for the creation of habitable metaphors including: one that serves as a pattern or model. This requires a set or list of all the inflectional forms of a word or of one of its grammatical categories (e.g. the paradigm of an irregular verb).

A paradigm is one that serves as a pattern or model; a set of assumptions, concepts, values, and practices that constitutes a way of viewing reality for the community that shares them, especially in an intellectual discipline. *Architecture as the making of metaphors* is that inclusive set shared by both creator and user. The paradigm of shapers of built metaphors includes and has included people like Donald Trump, the Rockefellers, Astors, emirs, princes, and kings, whose wealth, influence and power not unlike the royalty of old Europe.

No one disputes the claim that architecture is the making of metaphors *but* there is an essence of illumination, description and detailed evidence as to why this is so. This is a claim of definition which requires interpretation. As such it needs to place concepts into categories and provide perspective; and, the interpretation is important because definitions are not neutral. In a simple argument the warrant is the proof of the authenticity or truth of the inference which links the evidence to the claim; it is self-authenticating. The metaphor carries over from one to another proving that the building's steel structure and curtain wall are metaphoric

in that they make the metaphor of the high-rise office building. Remove either and the metaphor would no longer exist. Another warrant is that they transfer and the curtain wall depends on the structure while the structure supports the curtain wall they each tell something about each other. They are both linked by bolts and clips which are attached to each other. The connection is itself a metaphor transferring structure to the curtain wall and vice versa. By analogy, the metaphor of each building connector, hardware, structure and cladding is a metaphor for the next and is similarly warranted and to make the inference between evidence and claim. “It is important to understand the components of an argument, in addition to the claim.” A warrant [10] may need a separate argument to back it up.

The claim that architecture is making of metaphors and that buildings are therefore metaphors and the makers are therefore responsible for making the metaphor should be believed and followed by action. The opinions and agreements about historical and contemporary works are the evidence which represents the grounds for making the claim. What is not believed and acted is the inference between the metaphor and the claim and the warrants of the inference are necessary to argue the claim.

CHAPTER FOURTEEN

THE SIX WAYS IN WHICH ARCHITECTURE WORKS AS A METAPHOR WITH WARRANTS TO THE INFERENCE

Summary

In Chapter Thirteen I laid out the entire process of reasoning the metaphoric process as well as architecture as the making of metaphors. We studied the importance of identifying the end users and design team as well as the context of the metaphor. We found that today there is a "disconnect" (disparity) between the creative and user community to explain why there is a profusion of banality and apathy toward the built environment.

This enumerates ten warrants to the metaphors' inferences. These metaphors point beyond each of their members to articulate a symphony of dominant, subdominant and tertiary architectural metaphors. We will also find six ways in which architecture works as a metaphor and conclude by looking at the way all of this gets translated into drawings and specifications.

Scope

It is as simple as the question: If a tree falls in the forest and there is no one there to hear it does it still make a sound? [16] Technically, if the energy vibrations that would cause sound never reach the ears, then no, it does not make a sound. Yet, if a metaphor exists and there is no one there to perceive it is it still metaphor. In the matter of arguments the evidence is presented to support the claim but it may not justify the claim and therefore warrants are provided for the inference from the claim. The warrants are licenses to make the inference. The warrant [10] that a *metaphor talks about one thing in terms of another* [4] supports the claim that the evidence of whole cities, estates, buildings, rooms, building

systems, materials, forms, and styles supports architecture as the making of metaphors.

A New York City sky-scraper shows that by shear height, volume and shape a building can be a "sign" of New York's pre-eminence in its location, for the city and the state: the building is not only habitable and utilitarian but its size magnifies the size and scope of the city it represents. We are many and many are great. We are the tallest and therefore the strongest we even scrape the sky. As the tower of Babel, we and our city are "deity-like" and this is the symbol of our accomplishment. This particular claim merely uses only one of the ten warrants I have cited and does not at all deal with the many subdominant and tertiary metaphors with analogous warrants for the same building but of its various parts and their relationships since *architecture is the making of metaphors* follows from the formal deductive claim that since art is the making of metaphors and architecture is an art therefore, it, too, makes metaphors. It is the warrant to the inference that shifts attention from the micro to the macro in any one given metaphoric encounter. It is the reason why appreciation of metaphors usually dwells with the macro, gestalt, general and historic aspects of the work than to its many minor metaphors.

The 10 warrants [10] to the inference

1. Metaphors allow us to express two truths at the same time about two times, the past and future; the past can illuminate the future or the future the past. They are interactive. Both ideas converge on the idea of some activity, vision or idea. The metaphor points beyond each of its members to the reality by articulating a power common to both, telling us that both have an intrinsic nature. In the case of certain building types the original prototype or model may illuminate the proposed and the proposed the original model.

2. Metaphors make the strange familiar and talk about one thing in terms of another expressing a truth common to both.

3. The metaphor contains our identity, signs and signals.

4. Architecture blends certain programmatic specifics with concerns implicit to its own medium.

5. Metaphor is a literary term which means "carrying-over"; it associates meanings, emotions, things, times and places which otherwise

would not have been related. It is a two-way process where the metaphor points beyond each of its members to the reality they diversely express, articulating a characteristic common to both, telling us that they both have an intrinsic nature. Weiss uses such metaphors as “Richard the Lion-Hearted” as an example.

6. Strictly speaking, a metaphor involves the carrying over of material ordinarily employed in a rather well-defined context into a wholly different situation. If there is not initial separation between the two elements, there is no metaphor.

The metaphor involves the intrusion not of neighbors but of aliens. It brings together elements which seem to be radically different in nature. This is the heart and secret of great art and of great architecture.

7. The metaphor brings together components which hitherto have characterized other uses, operations and goals; it expresses the physical, social, intellectual and spiritual requirements of human beings; it is an organic whole, wherein each element within the work explains the existence and meaning of the others; it is a catalyst which fuses memories, experiences and other modes of existence; it embodies within its own distinctiveness certain universal symbols and concepts common to mankind and to a specific culture, context, society, political and geographic environment (urban, suburban & rural).

8. Times and places (or any essence thereof) known to have a preferential, specific or localized use in one context are explicitly employed in another. One familiar and one strange term are usually composed into a single form where one term normally used in one context is brought over into another with the object of illuminating; making more evident something in the second domain which would otherwise remain obscure.

9. The design of a work of architecture may be constant but is only part of the conception. It is the user who will ultimately perceive and experience the personalized ideas of the designer. Habitable, structural, volumetric, useable metaphors like music are composed, assembled, and conjured. Reified and created by technique from experiences with the elements of the metaphor. The designer has experienced the metamorphosis of the elements. The designer has "seen" the commonalities, the differences and the essence common to both. In any case the building’s architect is a variable in the experience of the metaphor

and depending on his choices, decisions, faith, discipline, conditioning, skill, and commitment and language skills will he participate. But he is part of the metaphor.

10. Architecture is not only the making of metaphors and is a metaphor but architecture is a symphony of dominant, subdominant and tertiary metaphors. Each differently conceived and perceived by different players, creators, users, buyers, owners, etc. There is the overall building, its different systems and subsystems and its various elements.

Reading prompts

A. Does the work make the strange familiar?

i) What are the commonalities?

ii) What are their differences?

B. Are the elements apparently unrelated?

C. What kind of metaphor is it?

i) Analogies

ii) Symbols

If inference [10] is the main proof leading from evidence to the claim then *architecture is the making of metaphors* is an inference. If evidence represent the grounds for making a claim it must be accepted by the audience, or a separate argument will be required to establish its truth.

Building types, building components, design tools, and a variety of user types can be cited as evidence to prove that *architecture is the making of metaphors.* That is it brings together components which hitherto have characterized other uses, operations and goals while it expresses the physical, social, intellectual and spiritual requirements of human beings. Even building types with less historical, apparent and obvious public acclaim are evidence as hospitals, police stations, public toilets, subway stations, bus terminals, garages, parking structures, etc. Each has an overall image, disassociated materials and building systems, shapes and forms from one or another context, spaces, volumes and styles formerly

associated with other contexts, a context and users, owners and creators for a variety of associated and disparate contexts.

In a complex argument, the resolution is a statement capturing the substance of the controversy. Both architectural practice and use of its outcomes are incomplete because while it is a metaphor it is not known nor understood. To be complete the practice and use of the built environment must be consciously designed and known as a metaphor; in this way it will be complete and relate to its use and purpose.

When we use a building we don't immediately correlate it to the linguistic metaphor of its structure yet we might relate the condition of the building and inference that if the building is dilapidated, old and falling apart it must have been poorly built and maintained which is like one's life and the value of everything else associated with one's life. The building tells us something about ourselves as we relate ourselves to the building.

On the other hand if we visit a glamorous public building we assume its identity and covet it to our own identity. We carry over from the public to the personal domain and identify with what the building says about us and our place in society. Buildings are more than symbols but objects of identity as we perceive our environment.

The difference between architect and non-architect construction lies in the fact that the former requires the combination of thought, design and planning whilst the latter is dependent on copying, engineering, tradition or manufacture (i.e. it is not bespoke but off-the-peg). It is thought that makes architecture and the process of building metaphoric.

The Six Ways in Which Architecture Works as a Metaphor

1. Between the parts itself
2. Between it and its users
3. Between it and its creator(s)
4. Between it and other metaphors
5. Between it and the world
6. Between its design documents

Descriptions of six examples

The characteristics of the applicable warrants are:

a. They are interactive. Both ideas converge on the idea of some activity, vision or idea. No one element can act independently of the other. They are interactive.

b. The metaphor points beyond each of its members to the reality before articulating a power common to both, telling us that both have an intrinsic nature.

c. Architecture blends certain programmatic specifics with concerns implicit to its own medium.

d. Metaphor involves the carrying over of material ordinarily employed in a rather well-defined context into a wholly different situation

e. The metaphor brings together components which heretofore have characterized other uses, operations and goals

Examples

1.0 Between the parts of itself:

1.1 Structural components transfer stress, loads and are tied together with connectors common to both. These connectors share the burden to load imposed by the elements and transfer them from the roof to the ground. The beam does not become a column or the column a beam but they both have a commonality; they are both supports and both form the building's support structure. In classical architecture they were called the "post and lintel" etc.

1.2 Circulation system and areas for people, materials and vehicles reify the described operations from descriptions to flow diagrams to be limited and bound by walls and allowable areas.

1.3 The work's conditions, operations, ideals and goals work independently and correlate so they are matched and made to work together. For example, a building code about circulation and egress is related to the areas, circulation and construction materials.

1.4 The selection of materials, systems, products is often not identified with one or another building type and has to be adapted for use

2.0 Between it and its users

2.1 The work becomes an icon, sign and symbol of the person's values as a dwelling is converted from a mere shelter to becoming home. A similar process is involved when an ambulatory is faced with shops, users and attractions which fill it with social, cultural and commercial activity.

2.2 Because of their size, volume, scale, decoration, location public building types such as church, theatre, commercial shops, malls, stadia, etc. allow for individual as well social and collective use. The individual's sense of rightness, belonging and identity is facilitated by engagement with something outside of self and their own private space (e.g. dwelling). The private dwelling and the public place interact and take on the characteristics of the context. This is why developments, cities, towns and villages town centers offset the often banal dwelling.

2.3 The user looks to the metaphor for clues about their own authenticity judging the reality of the habitat to be a reflection of his true self and the belief that the habitat is what he would build were he its creator. The building reflects the user in its scale, openings, protective roof and supporting floor and the limits and bounds that afford privacy and limit the area and overall space.

2.4 The user perceives the building types as part of his vocabulary of conventions separating cultural and societal functions as residential, industrial, and commercial, government, utility etc. The commonalities and differences manifest in its contents, finishes, cladding, scale and service systems. Hospitals, police stations and fire stations are all public service buildings with roofs, floors and walls but with an array of special and unique performance areas and equipment. The best fire station exhibits its hose tower, giant garage doors to the street while the hospital has a complex set of specialty performance areas, pedestrian circulation (patient, staff, and visitors) entrances and access, etc.

3. Between it and its creator(s)

The applicable warrants: reified and created by technique from experiences with the elements of the metaphor. The designer has experienced the metamorphosis of the elements. He has "seen" the commonalities, the differences and the essence common to both. In any case the building is a variable in the experience of the metaphor and depending on his choices, decisions, faith, discipline, conditioning, skill,

and commitment and language skills will he participate. But he is part of the metaphor.

3.1 Throughout the design process the choices, analysis, conclusions and program and design are all a reflection of the designer(s), teams, equipment, experience and history they each and collectively bring to the process.

3.2 The product tells something about its designer and the designer is reflected in the product. Both are separate but they share common ideas, experiences, knowledge selections, etc.

4.0. Between its design documents

The metaphor points from the particular to the general expressing the power common to both but informing us of their intrinsic nature.

4.1 Two dimensional (drawings and specifications) and multidimensional design tools (models). [43] Drawings; plans, sections and elevations. What is imagined from these documents is the multidimensional future reality. The plan is a horizontal slice through the elevations and sections while the section a vertical slice through the plan. The elevation is the outer edge of all the possible horizontal slices where all intersect and share the common imagination of the multi-dimensional reality. [43] Models [44] specifications of materials, building systems and conditions of the contract.

CHAPTER FIFTEEN

DESIGN CONSTRUCTION REQUIREMENTS AND OPTIONS

Summary

Chapter Fourteen laid out ten warrants to the metaphors' inferences from which they point beyond each of their members to the reality then diversely express, articulating a power common to both, telling us that both have an intrinsic nature to architecture is a symphony of dominant, subdominant and tertiary metaphors. We also found six ways in which architecture works as a metaphor and how this is translated through drawings and specifications. This chapter discusses program, design, choices of referents to compose the metaphor and present design options to clients.

Scope

The complex structure of a "program" (itself a metaphor) can be regarded as metaphoric architecture as the program of design is used to compose a metaphor; the design and the program have a metaphoric relationship. In assembling metaphoric architecture the Project Management Team (PMT) must be sure to address all the issues raised by the program in the particular project. An aid to identifying the issues is the concept of the *topoi*, meaning" places", which are the programmatic elements that recur with given building types. Addressing the issues (of the program) will satisfy an initial test of the metaphor to both the technical and conceptual metaphor to the design professionals and the general public. In meeting these requirements, designers, have choices about what designs to use and how to arrange them (first, second and third etc.). In individual design projects, choices are made about which evidence (components/factors) to use and how to arrange and place them.

This chapter will identify the key choices and the factors that go into making them. A work of metaphoric architecture is composing the

structure of subsidiary designs and programmatic factors selected for supporting or opposing a resolution (design) for a special audience (building department, users, general public, planning board etc.).

Constructing a final design involves choices from a broader range of systems and building components that are potentially available. Choices are made regarding which systems, materials, and layouts to use. Within each system and subsystem, choices are made regarding which metaphorical factors to use. Choices are made regarding how to document design decisions - and within each design of each element - how to arrange the original program information. Architectural metaphors are all about names, titles and the access that the work provides for the reader to learn and develop. At its best the vocabulary of the parts and whole of the work is an encyclopedia and cultural building block. The work incorporates (is imbued with) the current state of man's culture and society which is an open book for the reader. The freedom of both the creator and reader to dub and show is all part of the learning experience of the metaphor.

However objective, thorough and scientific the designer and the design tools, the work gets dubbed with information we may call style, personality, and identity above and beyond the program and its basic design. It is additional information engrafted into the form not necessarily overtly and expressly required. [23] Dubbing (imbuing) may occur in the making of metaphors as a way in which the design itself is conceived and brought together. Dubbing may in fact be the process which created the work as an intuitive act.

Imbuing is often what distinguishes the famous from the ordinary architect and the way the architect dubs is what critics sometime calls the art [2] of architecture where dubbing invests a thing with name, character, dignity, title or style. [23] "When dubbing is abandoned the link between language and the world disappears", adding a sound track to a film is the best use of the word where the picture remains but the experience of the whole is changed. Now we have both picture and sound. Today's works of architecture are minimal and only by dubbing the program can functionally superficial non-minimal features be added. However, the architect's artistry way of design, proportioning, arranging spaces, selections of materials, buildings systems, etc. can be dubbed to enhance an otherwise "plain vanilla" solution.

Choices are user/audience-specific (keeping in mind there are both technical and conceptual aspects to the metaphor). They adapt to a particular audience the design that was formed with a broader public in mind. Design metaphor should be contextual, indigenous and site specific. They combine creativity with constraint. The principle constraint on

architectural metaphor construction is the need to address the issues of the program (resolution). *Topoi* ("stock issues") offer a shortcut to location issues in a given project. *Topoi* (literally "places") are issues always raised when addressing programs of a given type. Time saver standards, architectural graphic standards, architectural journals, libraries, manufacturer's catalogs, newspapers and media offer a wide range of standardized building type information. They are recurrent patterns of analysis as noted above and by classifying the program into a certain building type (medical, school, university, residential, manufacturing, retail, etc.) we can determine the *topoi* for it. Elegant architectural metaphors are those in which the big idea and the smallest of details echo and reinforce one another. Contemporary architects who wrap their *parte* in "green", "myths" and "eclectic images" are no less guilty than were their predecessors of the Bauhaus exuding asymmetry, tension and dissonance as were the classics and Renaissance insisting on unity, symmetry and balance. The architect's *parte* and the users' grasp of cliché *parte* were an expected and easy "shoe-in" proving the learned mappings, learned inference trail and familiarity with bridging.

[17] People ascertain the deep metaphor that underlies one or more surface metaphors by filling in terms of an implicit analogy. A unique building metaphor may be reckoned by its apparent similarity to another from a previous experience. As a grain silo is to a methane gas tank and an oil storage drum, what may be implicit are the shapes, appurtenances, and locations. [17] We see the architectural metaphor, we read its extent, we synapse, analogize and metaphorize absorbing its information, contextualizing and as much as possible resurrecting its reasons for creation.

The architectural metaphor only speaks through its apparent shape, form, volume, space, material, etc. that the concepts which underlie each are known to the user as they would be to a painting, poem, or concerto. [17] Architecture is often more suggestive and trusting rather than being pedantic; it leads and directs circulation, uses recognition while abstracting shapes and forms hitherto unknown but ergonometric. Upon entering a traditional church in any culture we anticipate finding a common vocabulary of vestibule, baptistery, pews, nave, chancel, and choir area including transepts, chapels, statuary, altar, apse, sacristy, ambulatory and side altars.

Ideally, if I design my own house, decorate my own room there will likely be that commonality. If an architect is selected from a particular neighborhood his metaphor will likely be sympathetic (common) to the culture of the area, or, a concerted effort on the part of the design team to

assemble the relevant and commonplace information. [17] Architects make a spatial representation in which local sub-spaces can be mapped into points of higher-order hyper-spaces and vice versa is possible because they have a common set of dimensions.

Architects organize broad categories of operations and their subsets seeing that they are different from each other so as to warrant a separate group and that their subsets fit because they have common operational, functional conditions, operations, models and object is.

For resolutions of fact, the *topoi* can be identified. What are the criteria for assessing truth, applicability, relevance, influence, importance? Have the criteria be satisfied? Addressing the issues will meet the programmers initial burden of proof (clear and convincing evidence is evidence that establishes the truth of a disputed fact by a high probability). [22] Much of architectural making of metaphors is a matter of mapping, diagramming and combining to validate combining and matching unlike materials, shapes and systems. In this way any one of the metaphors and the whole system of bridging and carrying over is metaphoric. [22] Metaphor is reasoning using abstract characters whereas reason by analogy is a straight forward extension of its use in commonplace reasoning.

> [22] "In processing analogy, people implicitly focus on certain kinds of commonalities and ignore others."

[22] An analogy is a kind of highly selective similarity where we focus on certain commonalities and ignore others. The commonality is not that they are both built out of bricks but that they both take in resources to operate and to generate their products.

> 1.13.5 On the creative architect's side: "The central idea is that an analogy is a mapping of knowledge from one domain (the base) into another (the target) such that a system of relations that holds among the base objects also holds among the target objects."

On the users' side in interpreting an analogy, people seek to put objects of the base in one-to-one correspondence with the objects of the targets as to obtain the maximum structural match.

> [22] "The corresponding objects in the base and target need not resemble each other; rather object correspondences are determined by the like roles in the matching relational structures. Thus, an analogy is a way of aligning and focusing on rational commonalities independently of the objects in which those relationships are embedded. Central to the mapping process is the principle of systematicity: people prefer to map systems of predicates

> favored by higher-order relations with inferential import (the Arab tent), rather than to map isolated predicates. The systematicity principle reflects a tacit preference for coherence and inferential power in interpreting analogy. No extraneous associations: only commonalities strengthen an analogy. Further relations and associations between the base and target- for example, thematic consecutions- do not contribute to the analogy."

The clients must present a case for it that would be compelling in the absence of any response to government officials, lending institutions, community boards, etc. The burden is met by satisfactorily answering the issues raised by the final design and this meets the burden of rejoinder (i.e. codes and local ordinances and has been approved by authorities). There is a responsibility to keep the discussion going, analogous to the production burden in law (i.e. sufficient evidence to have the issue merit consideration). As a general contractor will not bid on documents not approved by the building department, a designer will not proceed unless the client approves the program and agrees to all the metaphors and metaphorical inflation contained in the documents including letters, diagrams, etc. This burden shifts back and forth between PMT and the client. Once these are met by a supporter of the project the onus is on any opponents to respond. This often occurs when a project is brought before the town elders, planning and zoning boards, school boards, community planning boards, neighborhood resident groups, etc. More often than not designers are more influenced by the existence of similar types than they are to plan from scratch. Architects design by translating concepts into two dimensional graphics that which ultimately imply a multidimensional future reality. He or she tests the horizontal and vertical space finding accommodation and commonality of adjacency, connectivity and inclusiveness.

It is the commonplace and not the abstract necessity that communicates more readily. The architect is challenged to imbue in the design a more subtle analogy than the obvious. [35] The "interaction view" of metaphor where metaphors work by applying to the principle (literal) subject of the metaphor a system of "associated implications" characteristic of the metaphorical secondary subject. These implications are typically provided by the received "commonplaces" (ordinary; undistinguished or uninteresting; without individuality: a commonplace person); about the secondary subject: "The success of the metaphor rests on its success in conveying to the listener (reader) some quieter defined respects of similarity or analogy between the principle and secondary subject." [35] Metaphors simply impart their commonplace not necessity to their similarity or analogous.

The burden of rejoinder prevents the design from being stopped; the project has the authority to proceed and be dealt with. For example, the

Barwa city project in Doha actually was being built without a final building permit but with only the acceptance of the preliminary design documents and client approval. All the other approvals leading to the building permit were not approved and so the PMT challenged the metaphor of the design and the design. It also prevents PMT and client from just repeating their previous positions without extending them to answer subsequent challenges.

Regarding the selection of the alterative design schemes for the design process, the key considerations are whether the schemes are strong enough and sufficient to include. Strength is a function of two main factors. It is a function of the client, public, and users prior to adherence to the evidence (COIG, especially C) or the likelihood that adherence can be obtained. It is a function of the relevance of the claim (program to the final design). Each of these factors is affected by other variables, such as the degree of probability, the time frame of the argument, and the design's consistency with common sense and generally accepted values. The Doha project proceeded despite no formal approval by the EPA and DOT etc. because the government client signed off on a simplistic design which met their minimum standards.

Determining the amplitude (number and range of design schemes) is affected by more factors than just the amount of time available. For example, in the case of English Mountain Mark Services, a project to build second homes for a *people's protective*, many schemes were tested for amnesties, prices and compatibility with local customs. Amplitude can be increased to offset the inconclusiveness of individual designs or to hedge against the heterogeneity of the audience (i.e. public clients, committees, general public) as on such projects as the New York World Trade Center design competition after 9/11.

Increasing amplitude has risks, however: A poor design reflects badly on all choices and on the designer's credibility, and piling up designs may seem overly defensive. Many architects can make metaphors to overcome cognitive limitations and resort to graphics rather than language to explain the metaphor. Metaphor as a design act serves as a graphic tool for overcoming cognitive limitations. As with most artists the architect's language is beyond speech and is peculiar to their art. Practice and exercise, however, help develop new capacities and offers the opportunity to teach and express thoughts which are valuable and worthy despite their non-verbal origin.

Architects both compose the program and reify its contents from words to diagrams and diagrams to two dimensional graphics and three dimensional models to reify and bring-out (educate) the users' mind and

fulfillment of unspoken and hidden needs. These needs, which many or may not have been programmed and intended, facilitate the metaphoric process up to the point that the project is built and used. Then it is subject to further tests of time, audience, markets, trends, fashions, social politics, demographic shifts, economics, and cultural changes. [25] Metaphors have a way of extending our capacities for communications.

> [25] "Speech is a fleeting, temporarily linear means of communicating, coupled with the fact that, as human beings, we are limited in how much information we can maintain and process at any one time in active memory, means that as speakers we can always benefit from tools for efficiently bringing information into active memory, encoding it for communication, and recording it, as listeners, in some memorable fashion."

[25] Metaphor is the solution insofar as it encodes and captures the information: transferring chunks of experience from well–known to less well–known contexts. [25] The vividness thesis, which maintains that metaphors permit and impress a more memorable learning due to the greater imagery or concreteness or vividness of the "full-blooded experience" conjured up by the metaphorical vehicle; [25] and the inexpressibility thesis, in which it is noted that certain aspects of natural experience are never encoded in language and that metaphors carry with them the extra meanings never encoded in language. One picture is worth a thousand words and how valuable are the arts as makers of who we are as a people, society and time. [25] The mnemonic (intended to assist the memory) function of metaphor as expressed by Ortony's vividness thesis also points to the value of metaphor as a tool for producing durable learning from un-enduring speech. With appropriate care in framing designs, some of the dangers of increasing amplitude can be minimized. Keep in mind while design is the most important part of the making of metaphor it is given the least time and budget in most agreements for professional services.

Choices are also made regarding the organization of individual designs. Once the overall organizational structure is determined, within a parallel or convergent structure, there are additional choices to be made. One choice is to put the strongest design first or last, another might anticipate and answer possible objections before they are made and further choice might be to proceed from the familiar to the unfamiliar. The choices are matters of logical indifference but rhetorical (art of using words effectively, a study of the ways messages influence people; the

faculty of discovering the available means of persuasion in a given project) significance.

These many design considerations may be the metaphor that gave the project its gestalt that enabled the preparation of the documents that in turn were faithfully interpreted by skilled contactors and craftsman. Yet at each turn it is the effect of metaphor and not necessarily its specifics that make a good design not a great work of architecture or a working metaphor. At each moment in its use the metaphor may mean different things, least of which may be unintended by its authors. Independent designs follow several common organizational patterns.

a. They can be arranged in chronological order
b. They can be arranged in spatial order
c. They can be arranged in categories
d. They can use a cause-effect or a problem-solution structure
e. They can be arranged as comparisons or contrasts

They can rely on the method of residues. “If two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which alone all the instances agree, is the cause (or effect) of the given phenomenon.” [47] For example, by presenting two exact schemes with only one item missing and seeing which is selected can tell us which item is objectionable or desired. Matching, copying and emulating the design of other buildings or adapting the design of one to the current project is adapted to the more familiar.

CHAPTER SIXTEEN

REIFICATION

Summary

Chapter Fifteen's discussion of the program, design, choices of referents and design options has laid the ground to explain the way the words of the program are ultimately translated into final graphics. In this regard we once again discuss metaphor from cause to effect, design analysis, diagramming, and complex structures of metaphor: the program, and an illustrated *proforma* project metaphor.

Scope

This chapter describes how the metaphor works by first giving credence to the *cause and effect* of words and then providing graphic tools of the metaphor. The consequence of the words is manifest in the diagram, drawings, final design and construction. Reification describes the three parts to the life of a typical project after describing the way linguistic metaphor [29] causes an architectural metaphor and more.

After researching the many conceptual and technical qualities of metaphor it still remained to reason the process by which metaphors impact actual buildings, professional practice, design, perception and actual use. Was there a cause and effect relationship between the making and the reading of metaphors – and in particular – architectural metaphors? After introducing the general cause and effect of ideas and metaphors, I present specific cause and effect relationships between the technical architectural tools such as programs, drawings, models and contracts as well as the conceptual metaphoric tools of analogies, ideas, and culture. Then I describe how designs begin and how the processes of designing result in individual designs. Later I will explore the basic ways - multiple, coordinated and subordinate - that metaphors are joined in more complex structures. I end with project proformas to illustrate how to design a metaphor using metaphors. As reification is the act of

materializing, this final chapter will try to show how metaphor is not just an instrument but is the very essence of creative thought.

Metaphor from cause to effect

Because it is no accident that architecture is a metaphor it is possible to find its cause. Otherwise it would only be a correlation[a] [10] where architecture was a metaphor without any consequent cause and would then be unreliable and inconsistent. Architecture is the result of both technical and conceptual metaphors. The challenge is to articulate metaphors into the design process so they achieve the goal of the product for the end user. Since cause is an inference that one factor somehow exerts influence on another; the inference not only asserts a predictable relationship between the factors but also accounts for it. There can be a parallel between the users' and makers' metaphors. The design process can include user metaphors thus causing a predictable end result. The cause and effect relationship between design and use can be metaphorically created by commonplace. Metaphor not only precedes programming, it is implicit in the process. All design products and architecture's buildings are themselves metaphors (intended or unintended). Metaphor is an influence which must be inferred because it cannot be observed directly. Causal inferences[a] [10] follow with probability, not certainty, there can be many causes for one effect and there can be effects which are not intended.

There is a consequent mapping between project teams' observations, analysis, and program (condition, operation, ideal and goals) and the design diagrams, schematics, preliminary and final design documents and the built metaphor. The more the metaphor is incorporated and tracked throughout the process the greater the fidelity to end users assuming that their requirements have been made part of the initial metaphor.

Metaphors allow seeming unrelated and disparate issues to be likened and assimilated. As causal inferences both identify and explain relationships the architectural metaphor can be both perceived and read revealing the readers' own authenticity and the roots of the design. The inference [10] is that by making metaphors not only will there be a design, but a work of architecture and shelter to be used and read.

However, the claim would follow certainly, and the argument would be deductive, only if all other possible influences could be controlled, which is highly unlikely. Hence the metaphoric cause and effect argument relies on the warrant that one phenomenon has influence on another since this influence cannot be observed but is inferred.

This is an inductive inference which warrants that if any one of the metaphoric axioms is true then it is with certainty it will affect design, where design is an intentional, controlled and planned effort which seeks to reconcile commonalities and differences and find a dimension common to both. By very definition design is a metaphor. It is one thing to research, observe, analyze and program but another to compose these findings into metaphors and finally a single metaphor called a work of architecture.

Ideally the general metaphor of the end user begets the metaphor which initializes the design process while during the design process one metaphor begets another. The process is triangulated from both the top down and the bottom up. The way metaphors are charted and combined horizontally and vertically are metaphoric insofar as each metaphor makes the strange familiar and maps one metaphor in terms of another. The seven illustrations below portray the horizontal and vertical design process of a typical project.

Metaphor/Design Analysis and Diagramming

How do designs begin and how does the process of designing "result" in individual designs. The metaphor is the most basic part of the design and there are different types of metaphors, I present the basic *proformas* of an individual design, consisting of a metaphor, conditions/context to the metaphor, evidence for the metaphor, an inference linking the evidence to the metaphor and a warrant justifying the inference. These components are not always apparent in actual designs, but they can be extracted and diagrammed for purposes of design and appraisal. People make metaphors - that is they engage in reason giving - when certain conditions are met. Some need for shelter arises to build or occupy and they engage a designer or encounter a building, the encounter is non-trivial; [22] as metaphors are the mechanisms whereby meanings are conveyed.

Linguistic idioms and informal expressions such as "turn on the lights;" kick the bucket" [22] show how metaphors work by "reference to analogies that are known to relate to the two domains". In other words there is *a priori* knowledge of these before they are spoken and when heard they are immediately understood. Like a building metaphor's common elements with an uncommon application the common connects to the unfamiliar and the architect is able to find a way to bring them together and the user discovers their relevance. The metaphor for this process where heat flows from hot to cold (the first statement of the 2nd law of thermodynamics) where the unfamiliar flows to the familiar in search of a common temperature.

The assent of the other party is desired and client and designer must engage one cannot simply abandon the situation. Assent between designer and client is desired only if it is freely given and between user and building only if it is legible and accessible. It is a particularly egalitarian, civil and diplomatic encounter between artist and user, design provider and design recipient. Respect for the other party makes this criterion essential; designer and client and designer and user must respect each other's ability to make metaphors, perceive, vocabulary, commonalities and differences. It is for this reason that the American Institute of Architects and the Professional Engineering Society promulgate owner and design professional agreements procedures which stress the surrogate and good faith relationship. Our desire for confidence in the result also requires this condition. No easier means exists for making the metaphor; we cannot use empirical methods; we cannot consult a universally recognized authority and we cannot deduce the metaphor with certainty from what we already know. In short, we design when there is a need that is inherently uncertain; we design looking for alternates and other configurations.

How does making metaphors begin? It depends on the building type. A single family residence, a program for a commercial building for commercial client and a manufacturing facility all rely on the dynamic between the client and the designer/architect to create metaphors. For each there is a different program which ultimately includes: observations, perceptions of the superficial and obvious elements which relate to existing lifestyles, operations, circulation, contexts, nature of the client and client facilities.

Assumptions: From the observations note obvious deficits, assists, needs and necessities, conditions of overcrowding, hazards, missing and needed, as well as broken and harmful.

Program: once these are sorted and formalized and perhaps even shared with that client the designer should building the design program. The program may include conditions which are those things which will affect and limit the metaphor and may be required by government codes, laws and ordinances; the site and its limitations; adjacent uses and traffic and access to and from the site as well as possible structural systems, HVA/C systems (heating, ventilation and air conditioning); electrical, plumbing and lighting systems as well as any preferred finished wall systems. It will also include a description of the operations about the circulation, destinations, sizes and adjacencies as well as the frequency and volume of convenient goals of the operations. It should delineate the ideals about models and preferred images. Finally the project's goals about

what the metaphor should communicate and resolve; if the building is the residence for particular family it should say something about the goal of the family's use of the home. For example, will it stress entertainment, inner family, a combination, business and other uses, etc.?

To accomplish the program the maker of the metaphor should research the building type using his or her designer's historical records, professional books, catalogs, documents; research the client type, research building systems, preferred materials, etc.

[10] It is important to understand the components of the program in addition to the stated need. Not all these components may be stated explicitly, but they are implicit in the design and can be filled in by the designer or program specialist. A designer advances a design solution (schematic or diagram) of the program, which may not be accepted immediately. If it is accepted, the accepted design goes to the next level of detail. Referred to as schematics if it is not accepted, the designer will need to produce metaphoric evidence to support the design. If the metaphor is not immediately accepted, then one of two things will happen. If the commonality of the metaphor is in dispute, then a separate design will be advanced to establish it. If the commonality is accepted but it is not seen as justifying the metaphor, then a warrant is provided for the inference to the design. If the warrant is not accepted, then there will be a separate design to back it up. Exceptions may be noted and the metaphor may need to be qualified. This process continues until the PMT reach consensus.

[10] We have identified the major component in a model of making metaphors metaphorically adapted from the writing of the contemporary philosopher Stephen Toulmin and cited in David Zarefsky's book "Argumentation". Metaphors are the statements that we want listeners to believe and on which we want them to act (i.e. approve the program and design or appreciate the use of the built facility). Existing conditions and clients' inventory represents the grounds for making the metaphors. It is not identical to the metaphor but is used to support it. It must be accepted by the readers/clients/users to establish its truth. The inference (metaphor) is the main proof line leading from the factors to the metaphor. It is the two apparently unrelated factors that had a commonplace. The warrant (commonplace) is a license to make the inference (because of this commonplace you can connect one to the other). Like the evidence (the realities they both diversely express), it either must be accepted by the readers, or else it must be established by separate design. It is a general rule that recognizes the possibility of exceptions. Exceptions to the warrant (commonplace) require qualification of the metaphor. An example

will illustrate how this model captures the essential components of the design.

Proformas Project Metaphor: Program Illustrated

The purpose of the *proformas* is as a teaching tool to explain how to design a metaphor using metaphors. The *proformas* assume a company that manufactures widgets wants to relocate its current headquarters to a new and larger location. It has not selected the site, nor defined its budget nor timetable and method of beholding. It has approached one of the most famous architectural firms looking to benefit from its complete and comprehensive services involving technical and conceptual (implicit and explicit; obscure vs. conspicuous; communicates vs. reticent; and introvert vs. extrovert) metaphors.

A. Feasibility: The essence of the feasibility study is to determine the cost benefit of building including identifying the current venue, site and faculty costs and deficits giving rise to the need to relocate, remodel or expand. This is the document in which the value of the proposed is identified in financial, physical and human terms. The feasibly may give value to the identity, consolidation and public image which requires enhancement and what value the proposed would be to the family, company or institution. It is here the commonplace, stasis and the legs of the conceptual metaphor will be described as needed and necessary and to what degree.

B. Site selection: Assuming the current venue site does not lend itself to renovation and a new site will be needed site selection criteria will be described including transportation access, availability of utilities, human, medical and recreation resources. Each building type and user group will have differing site selection criteria. A family with children will require access to good schools and other family-orientated facilities. Depending on the population and expansion plans of the occupants the size of the site will vary.

If the proposed is an investment building then the cost per square foot and the location for marketing will be of interest. All of these things will assist and guide the search for a new site. Once the criteria are articulated and agreed the metaphors of neighborhood, zoning, and social status will come into play. The scope of the metaphor will greatly depend on the type of project, budget, type of proposed occupants, users and needs and necessities of the owner and occupant.

C. Observations will be made from the above as well as from the current occupants' use of their existing facility and/or other similar facilities, factories, office building, hospitals, residences, retail shops, hotels, etc. Particular attention will be giving to the state of the art equipment, operations, contents, building systems, competitors' locations and building types.

D. Assumptions are really pre-program resolution, claims, inferences and warrants based on the evidence of the observations, feasibility and site. The assumptions include presumptions and potentials of the proposed and the importance of owner-client communication on the subject.

E. [48] Program:

1. Conditions: [48] This part of the making of metaphors is the pre-metaphor stage borrowing from empirical experience and learned routines. These are somewhat analogous routines used to develop the evidence for the claims and the substance for the inference to link into program.

1.1 Site analysis involves all the bio-climatic, orientation, adjacent uses and sites, topography, existing site improvements (even underground pipelines, electrical service, gas, sewers, water, wells, etc.) particularly noting wind, sun, angle of light, views and overhead air flight and all easements. These will be particularly useful in the metaphor to locate the uses and, access, entry particularly dealing with the issues of community and privacy as letting certain uses relate or hide from the public as well as keep private and away from traffic lights, noise, etc. certain site uses such as sleeping, meeting and child play areas.

1.2 Identifying local and available building materials, crafts, structural systems as well as over-critical lighting, heating and ventilation systems and all utilities which are available and which many be evaluated for cost, availability and delivery.

1.3 Local codes and ordinances including FEMA flood and hurricane information as well as local and applicable planning and zoning regulations and allowances. Variances may be required depending on the use and compliance to the regulations. Metaphors connecting this site and uses to adjacent sites and uses in this zone may weigh heavily in planning board hearings and zoning variances as to precedence and allowed uses. Usually this is one of the early programming, feasibility and design activities to assure that the site chosen will meet local zoning regulations. In certain instances zoning regulations will regulate floor-to-area ratios determining how much coverage would be permitted. Also site set-backs and easements will yield the total allowable sizes of the project including

the overall maximum allowable square footage allowed for this use in the zone for this building type. All of these factors weigh to make the sub-metaphor of the conditions, the site plan and building envelope.

2. [48] Operations:

2.1 Footages: Identify, label and approximate area and sizes of all storage, maintenance, functionalities as tables, chairs, cabinets, files, equipment, autos, trucks, circulation, etc.

2.2 Identify vehicle, pedestrian, delivery, maintenance access, patterns of movement nodes and terminals graphically and describing origins, connections and the need for function adjacencies:

2.3 Identify and describe specific rooms and functional areas, levels of connection, interrelations with each other as to levels of connections and attachment prioritizing their interrelationships by frequency and volume of use and need.

3. [48] Ideals:

3.1 Users' commonsensical patterns for use and relationship of this building with other buildings in the neighborhood. Describe its social, political and neighborhood importance and the value of the building to the company. Also, prioritize the importance of space as it applies to the office's main lobby, reception, conference, public areas as well as it desired public image.

3.2 Service maintenance administrative aspects as hotels back-of-house functions and need for separating such facilities for the general public.

3.3 Describe the building's formal characteristics as dynamic, static, open, closed, accessible or private nature for the whole building or certain parts of it. Evaluate the need for plastic, rigid, square, conformity to or relief from neighborhood and adjacent faculties. Ascertain the metaphors' relationships to other metaphors of a similar type and the commonplace and stasis of the building and its spaces.

4. [48] Goals

4.1 Number of people in each space and kinds of people such as hospital patients, doctors, nurses, technicians, etc.; of residences, adults, children, guests, visitors, servants, etc., theatre staff, attendees, etc. Identify services and independent activities.

4.2 Purpose and use of the facility to the owners, community, clientele, city, business community, etc.

4.3 Relationship to the existing and proposed environment such as landscape, site features and neighborhood. Ascertain whether there is a

relationship between the facility to others in the community such as library or community center for local residents etc.

A metaphoric project

As the architect of record for People's Protective in Jackson, Tennessee and loosely interpreting all my metaphoric protocols and axioms, I proceeded to design the Black Bear Inn for English Mountain Tennessee. I have chosen this one of many I designed because it began and ended as a conceptual metaphor. It began as a metaphor because the owner Bob Smith III commissioned me to design all the houses and other facilities on English Mountain with a particular Tennessee-inspired design.

He therefore welcomed my passionate curiosity and scholarly approach so with his guidance and before I began I visited many barns, houses and agricultural properties throughout the state making photographs and drawings capturing the proportions, forms, materials and details of what Bob meant by "Tennessee". My reports resonated with him, his staff and marketing department. The most famous place we visited was Rugby, Tennessee, where I noted the way late 1800s English buildings were recreated with local materials and design features. You won't remember but right at this time "Hee Haw" was on network television and further put me in the mood.

Working together with the company's marketing director I was able to design a whole line of Tennessee-style houses which the marketing department called the "*Mark Collection"*. By that point I knew well the images, details and materials that worked. Bob's idea for the restaurant was to remodel a Tennessee pole barn that stood on a hill on the property. The property, now a city called "*English Mountain"*, straddles both Sevier and Walker counties, which if you don't know is the place where the so-called Hillbillies live and where *Dolly Parton* built "*Dollyville*". Fortunately all of our construction laborers were from the local counties and they adopted me and with patience taught me about their local friendly and family ways. The reason Bob so named the restaurant was after the one animal most revered in the county and which he felt bespoke of the nature of the mountains. The Smoky Mountains are so named because most evening sunsets the mist and moisture combines with the setting sun to produce a kind of smoky aura. Finally, I was able to design all the banquet seating and open tables, counters and food preparation areas into the pole barn which I clad in the same T-1-11 from US Plywood.

Many of the principles discussed above were at work such as mapping, dubbing, inference, warrants, stasis, commonplace, referents, COIG, etc. I

kept the profile of the gabled building and the poles were kept free and clear inside and outside of the building to remind visitors of its history as a pole barn. In the end the building was an ideal metaphor for an ideal client in and ideal setting. My design made the strange familiar to visitors who were "Snowbirds" from "up-north" where the company markets the sale of its lots. Its form was about the restaurant in terms of the pole barn and exuded the commonplace of rural Tennessee, country and country food.

For the *People's Protective*, in addition to this project, I also designed "*Sugar Tree Resort"* on the Tennessee River and Belmopan city in Belize. I have been fortunate to design and build in many locations including Puerto Rico, where I designed buildings in La Perla with many Caribbean colors, in Saudi Arabia and my native New York City. I will leave these descriptions for another time.

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v. The Six Principles of Interior Design's Technical and Conceptual Metaphors, 2009.
w. Metaphor Cause and Effect, 2009.

7. LME (Laboratories for Metaphoric Environments), founded by both Christa and Barie Fez-Barringten, New York, 1970, was a not-for-profit corporation to research and educate on the make-up and applications of metaphors as both product and process in the built environment.

It was housed in a loft at 318 East 65th Street (over a bakery) between First and Second Avenues in Manhattan. The space was 4000 square foot. It was a beauty with skylights and giant floor to ceiling casement windows. During this time we visited Germany and toured the Ruhergebeit seeing how Germany deals with water, waste and air pollution. I made many photographs of one plant that cleans the water and provides power to a village on the river. This was published in Progressive Architecture in 1971.

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53. Weinand and Buri: Ecole Polytechnique Federal de Lausanne (Switzerland,) Timber Construction Department.
54. Community and Privacy: Alexander, C. & Chermayeff, S.
55. King-lui Wu; architect and Yale University professor of architecture. Wu was born on March 25, 1918, in Canton, China. He earned both his bachelor (1944) and master (1945) degrees at Harvard, where he was a student of Walter Gropius. I was his student. His buildings made use of natural and artificial light in novel and distinct ways which were lessons in good architecture. He was very disappointed when I announced to him that I was not returning to Manhattan after my graduation.
56. Vincent Joseph Scully, Jr. (born 1920) is Sterling Professor Emeritus of the History of Art in Architecture at Yale University, and the author of several books on the subject. Architect Philip Johnson once described Scully as the most influential architectural teacher ever. At Yale, Scully was my student-advisor and thesis juror. Philip Johnson was also one of my jurors and later we associated on a project in Puerto Rico.

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49. Giovanni Battista Piranesi (also Giambattista Piranesi (4 October 1720 – 9 November 1778) was an Italian artist famous for his etchings of Rome and of fictitious and atmospheric prisons (Carceri d'Invenzione).
50. da Vinci, Leonardo: Leonardo di ser Piero da Vinci April 15, 1452-May 2, 1519): Italian polymath, scientist, mathematician, engineer, inventor, anatomist, painter, sculptor, architect, botanist, musician and writer.

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51. Ronald Wayne Langacker (born December 27, 1942) is an American linguist and Professor Emeritus at the University of California, San Diego. He is best

known as one of the founders of the cognitive linguistics movement and the creator of cognitive grammar.

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2. Art is the intentional and skillful act and/or product applying a technique and differs from natural but pleasing behaviors and useful or decorative products in their intent and application of a developed technique and skill with that technique. Art is not limited to fields, persons or institutions as science, government, security, architecture, engineering, administration, construction, design, decorating, sports, etc. On the other hand in each there are both natural and artistic where metaphors (conceptual and/technical) make the difference, art is something perfected and well done in that field. For example, the difference between an artistic copy and the original is the art of originality and authorship in that it documents a creative process lacking in the copy.
17. Metaphor, Induction, and Social Policy: The Convergence of Macroscopic and Microscopic Views by Robert J. Sternberg, Roger Tourangeau, and Georgia Nigro.
18. Interpretation of Novel Metaphors by Bruce Fraser.
19. Images and Models, Similes and Metaphors by George A. Miller.
20. From Caves to Co-Ops: Evolution of the House: by Stephen Gardner MacMillan Publishing Co. New York, 1974; my review was published in the Jackson Sun in 1974.
22. The Shift from Metaphor to Analogy in Western Science by Dedre Gentner and Michael Jeziorski.
23. Metaphor in Science by Thomas S. Kuhn.
25. Educational uses of metaphor by Thomas G. Sticht.
35. Metaphor and Theory Change: What is metaphor a metaphor for? By Richard Boyd.
46. Project Management's Metaphoric Axioms by Barie Fez-Barringten: Unpublished, 2009.
47. John Stuart Mill in his 1843 book A System of Logic.

Chapter Sixteen

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Watkin, David [16h]
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Wigley, Mark [16a]

Wilson, William [32]
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Footnotes and References

10. The form of the argument is based on the methodology used by Professor David Zarefsky at Northwestern University.
22. The Shift from Metaphor to Analogy in Western Science by Dedre Gentner and Michael Jeziorski.
23. Metaphor in Science by Thomas S. Kuhn.
29. Figurative Speech and Linguistics by Jerrold M. Sadock.
46. Project Management's Metaphoric Axioms by Barie Fez-Barringten: Unpublished, 2009.
48. Peter Millard, architect and professor of architecture at Yale University was greatly influenced by both the architect Louis Kahn and the philosopher Paul Weiss. Millard was born in New York City (Richmond) on May 2, 1924. He grew up on Staten Island and studied architecture at Dartmouth College (B.A. 1946). His Central Headquarters Building (Fire) shows deft combination of romanticizing form and a ruthlessly thought out integration of function, structure and space (derived from Kahn's notions of servant and served). He was my teacher for all my years at Yale.

References

a. The first lectures Architecture as the Making of Metaphors[43] were organized and conducted near the Art and Architecture building at the Museum of Fine Arts Yale University 11/02/67 until 12/04/67. The guest speakers were: Paul Weiss, William J. Gordon, Christopher Tunnard, Vincent Scully, Turan Onat, Kent Bloomer, Peter Millard, Robert Venturi, Charles Moore, Forrest Wilson, and John Cage.

During the series of colloquia at Yale on art, Irving Kriesberg [44] had spoken about the characteristics of painting as a metaphor. It seemed at once that this observation was applicable to architecture, to the design of habitable forms. An appeal to Paul Weiss drew from him the suggestion that we turn to English language and literature in order to develop a comprehensive, specific, and therefore usable definition of metaphor. But it soon became evident that the term was being defined through examples without explaining the phenomenon of the metaphor; for our purposes it would be essential to have evidence of the practical utility of the idea embodies in the metaphor as well as obvious physical examples.

Out of this concern grew the proposal for a lecture series wherein professionals and scholars would not only bring forward the uses of metaphor but would also produce arguments against its use. Thus developed the symposium, which was presented by the Department of Architecture at Yale in the same year, 1967, with the intent to illuminate, in order to refine and develop, the idea because it makes metaphors; that a work of architecture is a metaphor because it too blends certain programmatic specifics with concerns implicit to its own medium.

b. Argument's contextual forms.
Three levels of axioms matching three levels of disciplines.
Multi-discipline: macro most general where the metaphors and axioms and metaphors used by the widest and diverse disciplines, users and societies. All of society, crossing culture, disciplines, professions, industrialist arts and fields as mathematics and interdisciplinary vocabulary.
Interdisciplinary axioms are between fields of art [2] whereas metaphors in general inhabit all these axioms drive a wide variety and aid in associations, interdisciplinary contributions and conversations about board fields not necessary involved with a particular project but if about a project about all context including city plan, land use, institutions, culture and site selection, site planning and potential neighborhood and institutional involvement.
Micro-discipline: Between architects all involved in making the built environment particularly on single projects in voting relevant arts [2], crafts, manufactures, engineers, sub-con tractors and contactors. As well as owners, users, neighbors, governments agencies, planning boards and town councils.