Architectural Research:
Incorporating Myth and Science

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Despite an apparently common assumption that science and myth are totally incompatible approaches to architecture, especially as related to architectural design, I argue that science and myth are both explanations of phenomena, each different, but both valid. Positing the desirability of a research and design process that would take advantage of both approaches, I address the problems of existing conceptual categories and the possible productive relationship between myth and science for architecture. Anthropology is then proposed as a paradigm for an architectural research that could address both science and myth, and this is illustrated with examples of research and design studio instruction.

The field of architecture is clearly in a position of paradigm shift. We have discovered that the modern movement, while espousing the use of scientific method as a process, was instead primarily concerned with architectural representation of scientific method. Furthermore, recent attempts to create a rationalized process through computer analysis have resulted in a realization of the limitations of this approach. Jones’s radical turnabout is a rejection of scientific methods altogether. Alexander’s turn to a more intuitive approach to science also attests to the limitations of this approach. For some, this has called into question the validity of applying the scientific method to architecture. However, it would be incorrect to conclude from these observations that the scientific method itself is flawed. These criticisms of the “scientific approach” to architecture are based upon a limited understanding of what a scientific approach is and how it can contribute to design.

We practice design in an era in which the architectural profession’s reason for existence is threatened by what can be perceived as purely personal justification of a particular proposal. For a long time architects have operated on the assumption that their expertise is obvious to those outside the profession. Some even hold that architecture is a pure art, and thus primarily a form of self-expression to which client needs are subsidiary. But, to be accepted by clients other than the very rich, the architect’s expertise has to be validated, which is not possible if the proposal is seen as arbitrary. The problem, then, is not that architectural decisions are necessarily arbitrary, but that the profession needs to be able to demonstrate that they are not. The challenge becomes that of developing ways to validate decision making. This validation does not have to take the form of a reductivist “scientific” approach, but can be developed to incorporate many forms of explanation.

Kuhn points out that areas of scientific research are defined by communities of researchers who share similar beliefs that, among other things, “help to determine what will be accepted as an explanation.” Using this definition, there are presently several architectural communities that find different explanations acceptable, and whose idea of acceptable explanation do not necessarily coincide. Each community has a different “constellation of facts, theories, and methods collected in current texts.” Moreover, the explanations acceptable to these communities often do not coincide with a client’s ideas. In attempting to deal with this we must develop a new community that incorporates the various explanations and that can form a united front in communicating this to the client. This leads to a definition of architecture as a single discipline in which several types of explanation are accepted as answers to different questions.

It is the contention of this paper that while much research exists about architecture (and in this paper the term research includes scholarship), we do not yet have a unified body of truly architectural research. Architectural research will account for the traditional alliance of engineering, behavior science, and art, with art understood as incorporating the cultural mythology. While within architecture we see ourselves as a discrete discipline, from the outside we are viewed as a profession, and as an art form but, for example, are not acknowledged by the government to be a discipline fundable at the level necessary for sound research in either the humanities or the sciences. There is a measure of truth to the lack of disciplinary coherence, not when applied to the design end of architecture, but when applied to the knowledge-building end. And after all a discipline (as differentiated from a profession) is formed around the process of creating knowledge in addition to passing it on.

The considerable body of research about architecture that does exist is taking place in subdisciplines (e.g., history, structures, energy, design methods, human behavior) using research bases, both theoretical and methodological, not developed by and for the study of architecture, but taken from outside disciplines (e.g., art history, civil and mechanical engineering, cybernetics, psychology). These areas of research are contributing individually to the field, but are not framed in terms of each other, and are thus not being integrated.

There does exist, however, the beginning of a more integrated, specifically architectural approach. Some examples of this are: Broadbent’s work linking design methods and human behavior; Bonta’s work joining history and human behavior; some of Ubbelohde’s work bringing together energy, history, and human behavior; Broadbent’s work not only ties traditional ways of interpreting architecture as an expression of the architect to that of architecture as an artifact that can be objectively described and evaluated but also looks at the process of design as a subject of study. In so doing, he shows the relationship between art, technology, and architectural practice. Bonta’s work studies the development of the architectural canon as a social process, thus opening up the premises that are at the foundation of what is defined as “good architecture.” By using statistics to document the link between the creation of history and social-
ization of the historian and designer, Bonta unites mathematics, art, and social science in the study of architecture. Ubbelohde, in her study of historic plantation houses, looks at them in terms of use of energy resources. She illustrates that, in addition to the stylistic forms of the buildings, the cultural patterns of activities in the house are part of a strategy of energy conservation. Her work thus crosses the disciplinary boundaries of technology, history, and environment.

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Each of these integrative approaches focuses on architectural questions, which have relevance simultaneously to how architecture is made, used, and understood. While at present there is no generally accepted way to relate all disciplinary approaches to each other, this body of work suggests the possibility of an architectural research that encompasses the many existing approaches to understanding architecture.

The goal set here for the discipline of architecture is to create a research base that allows for diverse views of architecture, and that sees as valid and as related a variety of answers to architectural questions, including those that address delight as well as firmness and commodity. That this goal is difficult to achieve will certainly be attested to by me, for I have found that just as I begin to describe this goal, the very vocabulary used sets up a binary opposition that tends to deny the possibility of any such thing. However, the idea of the dialectic (which sees binary oppositions as mere abstractions that when actually applied are found to be negated—a particular object is likely to be gray rather than either fully black or fully white) suggests that there is hope for such integration in actual research. Because of this problem, which seems to arise from the way the Western mind presently categorizes things, there will doubtless be certain inconsistencies in the following argument. In any case, the purpose of this paper is to propose a direction to follow and to show some examples of how this may be possible.

The Problem of the Existing Categories

One of the problems we are suffering with is the existing research paradigm as understood in architecture. A most important limitation of this research paradigm is that it has created categories that are not questioned.

The present division between the sciences and the humanities is especially detrimental to the development of an architectural research. But, conversely, the development of a truly architectural research has potentially a role to play in the discovery of a new way of thinking. We can accept the current state of affairs, and operate within it, or we can say that there is a truth to the prevailing architectural way of thinking that offers new insights into the link between science and art.

This is a difficult challenge, because we must believe it is true to embark on the quest. At the same time, we are going against the present way of doing things and will be continuously receiving a negative response to our efforts.

Another distinction that causes difficulties is that between basic and applied research, which carries over into conceptions of design that make separations between research and design. Design can be seen as one kind of research investigation in which the researcher is testing out ideas. That few designers have carried out their practices so that the findings are recorded and published does not negate this possibility.

Categories that describe how research questions are asked and investigated, such as rational and intuitive, or abstract and concrete, are taken for granted as accurate and practical. These categories have proven useful, but may also make it difficult to see things in a different way. Thinking of these categories as in a dialectical relationship (or perhaps in a “multilectical” relationship to get away from binary opposition) that is applied contingently rather than permanently allows us to see that the categories themselves may prevent the development of a more helpful way to think about research.

Western classification systems tend to create hierarchies. Rational thought is considered “higher” than intuitive thought. The abstract is considered “higher” than the concrete. The discipline of architecture, which has as one of its essential characteristics the necessity to work simultaneously with what is called rational and intuitive thinking and with modes described as abstract and concrete, has not consistently used these hierarchies in its practice, and thus creates a challenge to them as being “true.” Whereas the existing research approach would tend to discount the intuitive response altogether as untrustworthy, and give credence only to the rational response, designing architects tend to see the intuitive response as the most powerful reaction to something. Moreover, the vision of the world held by architects would not assign concrete reality a role secondary to abstract reality. Sensory experience of architecture is essential to it. Abstractions of architecture (e.g., drawings, photographs, mathematical formulas) are not “higher” than built form. Applied research is no more or less important to the development of architecture than is the development of so-called basic research; in architecture, they may in fact be undifferentiated.

Because of the nature of architecture, it challenges some of the commonly accepted research premises. Architectural research may therefore not only draw upon the existing research approach but also contribute to it by raising questions about its nature. The discipline of architecture must be sensitive to its own nature, and not allow an existing paradigm to control its theories and methods. Methods devel-
oped by other disciplines should certainly be used when appropriate, but researchers should be mindful of the biases they bring. Architectural research should address the questions relevant to it and use or devise research methods appropriate to answer them, aware that the categories used will affect the character of the knowledge gained.

Science as a Research Paradigm

Science is defined in the Oxford English Dictionary (1971) first as "the state or fact of knowing: knowledge as distinguished from ignorance or understanding" and only in the fourth definition as "a branch of study which is connected either with a connected body of demonstrated truths, or with observed facts systematically classified." If we accept the first definition of science to pertain to architecture, any form of knowledge relevant to architecture can be included.

Nonetheless, while many important forms of architectural investigation take place, such as historical scholarship, design studies, work on teaching methods, and experiments with media such as drawing or computers, the term research usually is understood to mean scientific research as understood by the fourth definition. The perception of science as being nonarchitectural, and furthermore the perception of research as being primarily scientific in the restricted sense, has made it difficult for the field of architecture to develop as a discipline, because the nature of architectural research has not been well understood. In this paper I explore some of the present-day biases about science, and open up a more pluralistic vision of what architectural research should address the questions relevant to it and use or devise research methods appropriate to answer them, aware that the categories used will affect the character of the knowledge gained.

It is around this time [1800] that the great obsessions of contemporary architecture were first clearly expressed. Practice was supposed to follow theory since theory now assumed that one day, through the fruits of mathematical reason, it would thoroughly control design and building. Eventually, the split between thinking and doing became a critical problem. The belief in the symbolic richness of the external world, in a Divine Nature that ultimately reveals its meaning through observation, was replaced by the notion, by now familiar, of the material world as a mere collection of inanimate objects. In such a framework, architecture could no longer be an art of imitation. Once it adopted the ideals of a positivistic science, architecture was forced to reject its traditional role as one of the fine arts. Deprived of a legitimate poetic content, architecture was reduced to either a prosaic technological theoretical problem process or mere decoration.

This position raises a number of complex points. While the general thrust of the argument makes sense, there are several problems with it. First, a scientific approach to the study of something, even in the narrow definition of science, does not necessarily fall into the trap of mathematical reductionism. The work of individuals such as Piaget or Levi-Strauss attest to that. Science can be discovery through observation and description, which is not necessarily logical in the mathematical sense. Second, mathematics is itself a metaphorical and symbolic approach to the study of something in which the equivalence is numerical, and the number becomes the symbol. Thus, while it is fair to describe a mathematical approach as reductionist, it is incorrect to say that it is nonmetaphorical and nonsymbolic. It is the problem of reductionism in design that is causing difficulties, but that is a danger of every form of abstract thinking, not only mathematical.

On the other hand, the problem accurately described above is that of seeing only theory as essential to understanding, rather than seeing understanding as a result of both theory and practice. In fact, the scientific approach to theory advocated here—a process of developing theory from action—would bond the two.

If we view science as a process of discovery through observation and description, the design process can be seen as having scientific attributes. The knowledge derived from this process is, in Polanyi's terms, tacit, knowledge learned by doing rather than from rules. As one makes, one learns. When this kind of knowledge remains tacit,
Architecture and Myth

If we define myth as a “traditional story of ostensibly historical events that serves to unfold part of a world view of a people, or to explain a practice, belief, or natural phenomenon,”14 we can see how architecture, which may serve to perpetuate a practice or belief, is allied with myth. Although traditional myth is normally assumed to be expressed in verbal form, we know that it is also represented visually in art on vases and friezes. Architecture, when understood as a medium, is unavoidably a didactic statement of how a given society ought to live, think, and/or feel (thus a cathedral explicates the presence of god or a school expresses and dictates the Western notion of what is appropriate education) and as such carries mythic content.15

Earlier we spoke of the problem of the modern movement while espousing the application of scientific method actually simply representing it. To be more explicit, the architecture that was called a machine was not in fact designed like a machine. It was not tested and redesigned, it was simply made to look as if it were designed like a machine. It achieved this through the use of materials and building techniques that were similar to those used for machines. But once built, it was never tested to see if the machine actually worked for the purposes it was designed to serve. Its appearance, nonetheless, represents the idea of the machine, and in that way stands for the mythic idea of machine, and also demonstrates a limited understanding of the reality implied by that myth.

This architectural representation is also a form of explanation, because it tells us what the architect (reflecting society) thinks a machine is. The myth, then, is elaborated and developed in the representation. Even though the myth is not articulated verbally, we can understand its character and in a way that is different from words. According to Cassirer, “The real substratum of myth is not a substratum of thought but of feeling.” And, “Mythical perception is always impregnated with . . . emotional qualities.”16 From this perspective the power of myth and the power of architecture can be seen to lie not just within the realm of explanation, but in the alliance of explanation with emotional content.

Cassirer sees myths as essentially “physiognomic,” as “tinged with the specific color of our passions.” He elaborates: “There can scarcely be a greater contrast than between this original direction of our experience and the ideal of truth that is introduced by science. All the efforts of scientific thought are directed to the aim of obliterating every trace of the first view. . . . It is this restriction of the subjective qualities that makes the general way of science. Science delimits their objectivity but it cannot completely destroy their reality.”17 Cassirer’s view of science is identical to that expressed by most modern architects. It is this attempt to void the emotional content that characterizes its intent, although it is probably impossible to omit completely emotional content in any human endeavor. Nevertheless, much modern architecture can be characterized as emphasizing didactic content over emotional content, thereby expressing the scientific myth of objectivity. Such an understanding of science, even though pervasive, is too limited.

The role of science in design is not to make architecture, but to contribute to the making of an architecture that has desirable qualities. To the extent that in human terms the success or the failure of an architectural project can be predicted by structured investigation, this should be supported. As Dewey points out, “Empirically, things are poignant, tragic, beautiful, humorous, settled, disturbed, comfortable, annoying, barren, harsh, consoling, splendid, fearful; and are such immediately and in their own right and behalf.”18 The scientific study of architecture does not have to be limited to heat flow and light levels, but can incorporate the study of emotional and mythic content of architecture. While knowledge per se will not create better architecture, it can play a significant role in accomplishing it.

The Myth of Science and the Science of Myth

What science and myth have in common is that they are abstract descriptions of phenomena. Both deal with the delineation of truth. Both explain something metaphorically. Both are forms of knowledge. The difference between them lies not so much in the character of their content, but in their form and process. As emphasized by Feyerabend, “Ancient doctrines and ‘primitive’ myths appear strange and nonsensical only because their scientific content is either not known, or is distorted by philologists or anthropologists unfamiliar with the simplest physical, medical or astronomical knowledge.”19 Whereas mythology allows a wide range of metaphorical explanation, scientific explanation tends to be limited to analogy, that is, similarity of relations.

Both myth and science are used to explain, and are seen as a “true” explanation by their proponents. Additionally, both kinds of explanations are simply descriptions. Why is a given description accepted as an explanation? And why is a metaphorical description like...
Anthropology as a Paradigm for Architectural Research

There are several reasons why anthropology is a useful paradigm for architectural research. First, anthropologists see artifacts and places as valid subjects for study. This view is also shared by art history and engineering, but the dominant approach in existing environment-behavior research has been to see behavior as the primary focus of analysis, and to see environment as a variable that influences behavior. Second, the anthropological approach uses observation as the primary mode of study. Like a designer approaching a project, the anthropologist develops an understanding of the nature of a culture, not by imposing a theory, but by letting the understanding derive from the investigation. The sensitive observer develops theories and hypotheses during the study. Many other disciplines prescribe a research process that defines a problem and develops an hypothesis prior to entering the field. Architectural problems often do not lend themselves to this approach. The anthropological approach supports the study of natural settings and also provides a methodology that resists the application of preexisting structures of knowledge to a given set of data, so that the inherent structure of the data can emerge unconstrained. Anthropology, while certainly not limited to one approach, endorses the development of a holistic understanding gained through unconscious absorption of information, which is complemented by a more atomistic analysis (an analysis that looks at elements and their relationship).

The field of architecture is at a point where the integrative research is primarily exploratory. The anthropological methods with which a researcher takes on a complex, apparently chaotic and contradictory situation and tries to make sense out of it have much to offer scholars of architecture. The methods include the acceptance of paradox and the use of the dialectic. The methods consciously address the concerns that research be both atomistic and holistic; use inductive and deductive approaches; apply perspectives that are synchronic (at a point in time) and diachronic (across time); accept the simultaneous validity of emic explanations (native, often mythic), as well as etic explanations (professional, often statistical, and numeric). Mythological explanations are then, at least in theory, given equal weight to statistical and other mathematical explanations. Additionally, the participant observation method, in which one begins a study by observing real situations as opposed to laboratory ones, is potentially fruitful. Using this, designers may address the design process using both experience and modeling techniques. The methods themselves provide a starting point for architectural research that is inclusive.

The subdisciplines of architecture as they exist today do not integrate easily with each other because of divergent views of what architecture is. The methods taken by each area vary greatly, deriving from their discipline of origin. Art history takes an historical approach and considers architecture an art. Engineering takes a mathematical approach and looks at architecture as technology. Environment-behavior has taken a largely psychological approach, considering architecture to be one among many variables that affect human action. The design methods approach has looked at architecture as a process that can be described logically, ideally, mathematically. Providing a common ground for these divergent views is made possible, however, by the anthropological way of seeing the world.

Anthropology as a discipline has focused little attention on the built environment as a phenomenon. While anthropologists studying material culture have looked at geography and climate as factors in influencing culture, and the forms of certain buildings have been examined from time to time as factors influencing certain cultures, there has been little attempt within the mainstream discipline of anthropology to provide any comprehensive investigations into built form. Within the discipline of architecture, there are also a number of people who have been pursuing cultural research. These researchers are applying anthropological methods to the study of particular ethnic or social groups, primarily looking cross-culturally, but also examin-
ing Western culture. The value of this work for the field of architecture is not yet widely appreciated.

Lastly, and perhaps most important, the adoption of anthropological perspective takes on additional power if we accept the idea that architecture is not only a product but is also a medium for expression. Viewed in this way, architecture consists of form, that is, material reality, and content, or meaning. Architectural form can then be seen in terms of its instrumental and its symbolic purpose in a given setting, and it can be evaluated relative to these. This also defines the social role of the designer as embodying culture in form. We can study the cultural ideas communicated as well as the form of the communication. Architecture retains its coherence as a communicative discipline, but it can be evaluated relative to its communication of a cultural ideal. In this perspective architecture becomes a medium through which cultural messages are communicated and transformed. Each phase of the design, build, and study cycle becomes essential to the development of architecture as cultural medium. In addition, architecture retains its traditional role of transmitter of ideas in the context of the broader culture, as well as the additional role of transformer of culture.

This way of seeing architecture permits the evaluation of built form along many lines simultaneously. The form can be studied synchronically or diachronically for its success as a symbol and as functional and symbolic place. In this way the myths that it represents can be learned and critiqued. The validity of the myth to represent society’s ideals can also be assessed. Architectural research is in these terms the study of the cultural medium, built form.

Scientific and Design Methods Applied to Perceived Qualities of Housing

In the creation of a discipline of architecture, the Vitruvian paradigm still holds true: we define the architectural character simultaneously in terms of technology, human activity, and delight. In theory, at least we can define the first two criteria in research terms, but the category of delight is difficult to characterize. In the research in which I am presently engaged, the attempt is being made to address all three at once. It is, however, this third level that is still the most elusive.

What may be unusual about this research is that it is overtly an investigation of the culture of the investigator and thus involves introspection on the part of the researcher as well as validation by documenting environments and by questioning others. Introspection in this research, closely allied with the design education of the researcher, adopts a designer’s methodology of proposing and critiquing. The research has been conceived like a design project in that a general goal was set—understanding the architectural difference between home and institution—and an initial project was engaged in, and gradually the insights revealed new and more productive directions in which to take the research. At one point, as a way of questioning the initial premises, a design studio project was developed to explore alternative views. At the same time, for the students, the studio project became an opportunity to explore the relation between meaning and architectural form.

As the project has evolved, it has turned out to be a study of the cultural myths and cultural values that we hold and that are expressed in our architecture and in our ways of thinking about architecture. The use of scientific methods to document these ideas allows the tacit knowledge to be made explicit and thus be subjected to criticism and analysis. Their use in the studio is not unique, but many critics who are using similar methods are not aware that they are “scientific.” The exposure of the ideas does not in and of itself validate them. The ideas exposed in this process represent only the first half of the research process, in which the hypothesis is discovered. The second half, in which the hypothesis is tested, takes place in the context of a research investigation and/or a built product.

The progress of this project illustrates how research and design may be closely allied, and the subject illustrates how the qualitative aspect of architecture is amenable to study by scientific methods. This work, still incomplete, is only suggestive in terms of the impact of such study on design. Nonetheless, if the findings are eventually validated, it is not difficult to see how they might create substantive support for certain design decisions.

Architects design dwellings in the form of institutions and houses all the time. These places represent our society’s mythic structure (at the time of construction) about what are appropriate places for various individuals and/or groups to live, and as long as they continue to be used as designed, they reinforce the myths. But in the case of using institutional settings for housing sensitive populations, we have evolved a new set of civil rights values that call into question this older myth. In some fundamental way we continue to “know” what these two types of places are and can continue to design them based on our cultural expectations. But to design something different, we have to become critical and conscious of the ideas with which we are working. The cultural norm from which we design is tacit knowledge. Tacit knowledge contains assumptions that are hidden and that, therefore, are unable to be challenged. Unarticulated knowledge cannot be used as evidence to support or explain a design decision.
We can analyze the building/mythic structure to learn about the rules that created it and the ideas embedded within it so that the tacit knowledge will become transformed into explicit knowledge useful in design. The work that I have been doing for the past eight years is concerned with this transformation of tacit architectural knowledge into an articulated form.

At the most obvious level, the research is investigating the physical characteristics of 29 buildings used for housing to determine what makes them perceived as being "institutionlike" or "homelike." Embedded within such a question are numerous assumptions, some of which shall be noted. First is the attempt to make a complete description of physical characteristics. The research project used a number of different forms of physical descriptions, including slides, videotapes, measured drawings, interviews, checklists of elements hypothesized to be important, inventories of elements found in the setting, and subjective evaluations of photographic images of the setting. The intention is to compare the perceived quality of the settings to physical characteristics to find previously unobserved relationships.

A second assumption relates to how the word "perceived" is defined and how what is perceived is determined. Perception in this case is defined broadly, to encompass the process of stimuli reception, cognition, and interpretation. Perception was determined by having groups of self-selected nondesign, psychology students (depending on the investigation, group size ranged from 30–70) evaluate slides and photographs of the measured settings.

A third assumption deals with the use of the terms "institutionlike" and "homelike." The use of these terms in the research has undergone a series of transformations, from the beginning of the project, in which they were seen as representing two opposite attitudes about housing, to the present, in which their nature is a central question in the research.

If the single family house symbolizes the American myth of liberty, the institution could be seen as representing the anti-myth of subjection. The single family house may also denote independence of the individual or family unit, while the institution seems to stand for dependence upon society. Investigating the architectural forms of institution and home elucidates the way architecture represents these myths and the nature of the myths themselves. The research looks at perceived qualities of architecture using a method that ties them to the actual design of buildings.26

To illustrate this point we can turn to a small part of the research, which uses exploratory statistical techniques27 to look at the way that 38 slides of living rooms were rated by 77 students on a 5-point continuum with poles "institutionlike" and "homelike." By using a modified rotated factor matrix analysis technique, the evaluations of the living room slides were found to be related to five factors. By examining the sets of slides that were strongly associated with the factors (≥0.03) or that were negatively associated (<0.0), four of the factors were given names: "intimacy/coziness," "privateness," "spacious/empty," and "nondwellingness" (like a work place) (see Figures 1 and 2). The fifth factor was not able to be named. When a graph was made comparing the strong positive and the negative factor associations for each quality with institutional and homelike ratings, surprisingly, they were not all found to be related to the two original terms. Only "privateness" and "nondwellingness" are associated with the original poles (see Figure 3).
INTIMACY / COZINESS

FACTOR 3: SPACIOUS / EMPTY

FACTOR 4: NON-DWELLINGNESS

FACTOR 5: UNIDENTIFIED

graphs of the five living room factors compare the strong positive and the negative factor association of slides with their institutionlike and homelike evaluations. Only two factors, privateness and nondwellingness, indicated a strong relationship.

Similar analysis of the 38 slides of hallways uncovered four factors associated with their evaluation: "definition of path," "austerity," "public character," and "bright/dark contrast." Of these, "public character" and "austerity" had some association with the poles, but no factor ranked as strongly as the living room factors, "privateness" and "nondwellingness." This analysis rather than being reductive increases our appreciation of the complexity of the terms under study, raising questions about the original assumption of opposition. The process of assigning names to factors derived statistically is speculative, but raises questions about how we understand and communicate in architectural forms the cultural myths of institution and home, that could be the subject of further study. For example, according to this small data set, the myth of institution seems to share with the myth of home the potential for living rooms to be intimate/cozy and spacious/empty, while the idea of private seems to be exclusive to the homelike place.

In the design studio (a design methods studio taught by Dale Mullfinger, Lance LaVine, and myself), a similar question was examined in another way. In a problem I designed and led, students were asked to design two contrasting dormitories, one to support sociability and interaction between residents, the other to support anonymity and independence of residents. All four qualities were to be explored as positively laden terms (to help challenge the first conceptions from the research on institution and home). Both dormitories were to be desirable places in which to live.

The students began the design process by drawing images of places that represented any of the four ideas (sociability, interaction, anonymity, independence). The drawings were to be annotated with words showing which particular attributes of the architecture contributed to the perceived quality. The students then worked with models to explore the qualities as they related to the two types of dormitory. The models were annotated as well. Finally, architectural drawings and rough models were made of the two dormitory designs. The project was 2 1/2 weeks in length, which limited the development of the designs.

Figures 4, 5, and 6 show how one student, Michela Mahady, used the approach to explore and understand these ideas. Her final drawings and models represent the mythic structure of the ideas, while her hypotheses describe explicit relations between design choices and desired/perceived qualities. The provision of two alternate facades for the anonymous independent dormitory provides a way for the residents to hide behind the building front. The sociable interactive facade invites the passerby to see inside.

These two investigations, small pieces of a larger endeavor, are alternate ways to study ideas, in this instance, the ideas of institution and home. These illustrate the potential of the scientific and design methods to contribute mutually to the understanding of these places.
Michela Mahady’s sketches explore the sociable/interactive and anonymous/independent character of building exteriors, investigating the relationship between these elements and the feelings generated.
Axonometric studies by Michela Mahady reveal the interior design of the two dormitories.
The design manifests alternative mythic structures, proposing what we "know" tacitly; the scientific analysis (whether of data collected in the field, or in design analysis of drawn versions of mental images by naming physical attributes) allows us to critique the structures, making the tacit knowledge explicit. Inasmuch as we can be explicit about what we "know," we can verify or refute our knowledge through research. A more inclusive process of research will allow us to design places that create better myths (myths that correspond to our ideals rather than simply replicating our past models) and to develop a scientific approach that incorporates the mythic explanation.

Conclusions

We have seen that modern movement architecture, while espousing a scientific approach, actually creates buildings that express an image of science rather than buildings that are scientific, that result from a scientific process of building and testing ideas. This image of science does, however, provide an alternative to our traditional ways of making buildings and to our traditional stylistic options. The limitation of this was that in its attempt toward total innovation, it tapped little of the emotional history that was tied up in the unconscious ideas replicated in the craftsmanlike approach to buildings. By recreating the process of construction and innovating with new materials, we lost a certain kind of collective unconscious. In the postmodern period we are trying to recapture the emotional content of our historic architecture, but once again by creating images of the unconscious rather than creating buildings that really embody our myths.

The modern period was based in an intellectual, instrumental, and organistic understanding of human beings that emphasized the physicality of the body, and the arrangement of spaces to accommodate actions. In this view of the world all people seem to be alike. The pluralistic postmodern perspective emphasizes people's differences both as individuals and as societies. It accepts symbolic and emotional reality as equally (if not more) important than that of instrumentality and physicality. If the modern movement was concerned with self-consciousness, the postmodern movement is concerned with being self-conscious about being self-conscious. That is, not only being aware of what we are doing, but understanding that awareness is not a singular thing, that there are many ways of being aware, and that we must select the appropriate kind of awareness to the task at hand. If we see buildings as being representations of our culture that are also forms of explications or explanations, and if we seek to tap our emotions as well as our intellect, we must learn how to make buildings that are not only scientific explanations but that are also mythopoetic ones as well. Such buildings can tap our unconscious as well as our conscious response.
A discipline that would develop a knowledge base using scientific and mythic explanation needs a way of integrating these two modes. The activities of research and design in the architectural profession are presently largely discrete and distinct. The potential for the two processes to be closely allied is only barely envisioned, let alone realized, and one of the reasons for this is the view that science is alien to design. Additionally, the research activities take place primarily in subdisciplines that have their origins in other disciplines and tend to take their methods and questions from these. Proposed in this paper are several ideas. First is a research approach based on the architectural design process, which focuses on questions architectural in content, that is, integrating questions of form, commodity, and delight. Second is a conception of architecture as a cultural medium. This creates a set of criteria for evaluating architecture that unites the subdisciplines and validates diverse forms of explanation, including the scientific and poetic. There is, finally, the vision of architecture as a discipline with tacit knowledge that can be revealed by systematic study.

This paper illustrates that scientific methods are not necessarily alien to the study of the mythical side of architecture and that these can be used in research, in studio teaching, and indeed in the reflective practice of architecture, not just as a way to create new knowledge, but also as a way to make tacit knowledge explicit and a more powerful tool for explaining and verifying the validity of designs. The discipline of architecture must develop out of its roots. The already existing tacit knowledge is a sound basis for action, but, if supplemented by the development of explicit architectural knowledge, both scientific and mythopoetic, it will be far more powerful. The methods for doing this, however, cannot be transplanted from other fields; they must become specifically architectural. As Stringer says, "If verification is to be a part of architectural creativity, it must be carried out by the architect himself."30

Notes

5. Ibid., p. 1.
6. Certainly one of the greatest difficulties faced by the discipline of architecture is the long history of defining architecture as a profession. That is not to say that architecture is not a profession, but that architecture should be understood to be both a discipline and a profession.
12. Ibid., pp. 11-12.
14. This definition of myth is from Webster's Ninth New Collegiate Dictionary. I prefer the Webster's definition to that of the Oxford English Dictionary, because it reflects the 20th-century awareness of world views other than that of the Western tradition. The OED's first definition of the noun "myth"—"a purely fictitious narrative usually involving supernatural persons, actions, or events, and embodying some popular ideas concerning natural or historical phenomena"—fails to address the explanatory nature of myth. However, the OED's first definition of myth as a verb is simply "to show," which is much closer to what I understand to be the purpose of myth, explanation, or instruction.
15. This perspective is also suggested by Stringer, p. 635.
17. Ibid., p. 77.
20. This is mentioned as a distinguishing feature of myth in a discussion by J. Burton in which he relates myth and architecture, bringing together the work of a number of writers such as Cassirer, Heidegger, Langer, Levi-Strauss ("The Architectural Hieroglyphics of Louis I. Kahn: The Physiognomy of Myths and Logos," manuscript, January 1990).

22. It should be pointed out that while this paper came out of an interest in Levi-Strauss’s book *Myth and Meaning* (Schocken Books, New York, 1979) and reflects his general interest in the convergence of myth and science, the tack taken here is very different. Levi-Strauss sees science as beginning to “integrate the qualitative aspects of reality as well [as the quantitative aspects],” and believes that this “undoubtedly will enable us to understand a great many things present in mythological thinking which we were in the past prone to dismiss as meaningless and absurd.” But that statement is prefaced with a position different from this article. “Now, I would not like you to think that I am putting scientific explanation and mythical explanation on an equal footing. What I would say is that the greatness and the superiority of scientific explanation lies not only in the practical and intellectual achievement of science, but in the fact, which we are witnessing more and more, that science is becoming able to explain not only its own validity, but also what was to some extent valid in mythological thinking.” Here we are arguing that the mythological explanation is not superior or inferior to the scientific, but simply offers a different kind of insight.


26. This research includes detailed documentation of physical attributes (materials, hardware, furniture, lighting, window type) and, in part, studies the relationship between these details of a place and its perceived qualities. This ongoing work, described in several publications including J.W. Robinson, “Exploring the Ordinary: Institution and Home in a Midwestern City” (Project Report to the National Endowment for the Arts, 1986), and J.W. Robinson, “Institution and Home: Lending Physical Characteristics to Perceived Qualities of Housing,” in H. van Hoogdalem, N. Prak, T.J.M. van der Voordt, H.B.R. van Wegen, *IAPS 10/1988 Looking Back to the Future/Se Retourner Vers L’Avenir. Volume 2: Symposia and Papers* (The Netherlands: Department of Architecture, Technical University, Delft, 1988), was carried out with assistance from Julio Bermudez and Michelle Johannes, among others.

27. The techniques are exploratory because the number of variables used to study this was too small to be statistically valid. Nevertheless, the process of creating groups of slides from those found to be associated, and the questioning of why these particular slides were linked or not, raises issues that are intriguing, regardless of whether the groupings were statistically correct.


29. While I do not really like the term “postmodern,” I find it the best one available to describe a way of seeing the world that contrasts with “modern.” What is problematic is that in tying the term modern to a particular time, we lose the neutral use of modern as a perfectly good word to describe the present time. The way that I am using postmodernism here is based on texts such as H. Foster (ed.), *The Anti-Aesthetic: Essays on Postmodern Culture* (Bay Press, Port Townsend, WA, 1983); D. Ghirardo, “Past or Post Modernism,” *Telos*, 62 (Winter, 1984):187–196; and J. Lyotard, *The Postmodern Condition: A Report on Knowledge* (University of Minnesota Press, Minneapolis, 1988).

30. Stringer, p. 635.