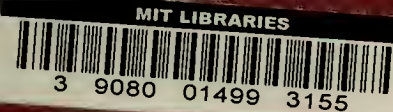


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frank hekel and robert clocker

It is useful in thinking how a thesis might contribute to your own knowledge and that of others, to make a criticism of present practice and use the thesis to answer what it is that should be done.

— *Jack Meyer*

contents

introduction	4
Mark Jarzombek A Thesis	6
Kimberly Shilland Architecture at MIT: A Brief History	9
Bruce Abbey Thesis: "As Necessary for the Health of the Institution as the Student"	14
Kenneth Frampton The Anti-Thesis Pedagogy	20
Imre Halasz Design Thinking	26
Student Thesis Work	27
Len Morse-Fortier Ruminations on the Role of the Technical Reader	41
Ákos Moravánszky Visuality and Vision in the Teaching of Architecture	47
N. Michael McKinnell Notes from the Profession	52
June Williamson Preparation for the Profession?	54
Wellington Reiter The Art and Profession of Thesis-Making	57

introduction

In the autumn of 1994, Master of Architecture thesis students presented their work in a public final review, an experiment re-introduced by the department recognizing thesis as a crowning achievement and exposing thesis work to educators and professionals from outside the Institute. With each subsequent semester, thesis has taken an increasingly formal part in the M.Arch curriculum.

This issue of Thresholds follows on the heels of the largest graduating thesis classes subject to this new exposure, a group whose work as a whole demonstrates outstanding competence. Ironically, the Department has altered the curriculum for the following thesis classes, reducing the Thesis Preparatory course to one quarter of its previous credit weighting. In light of this and other inconsistencies, we find it timely to critically re-examine the place and value of thesis within the MIT M.Arch curriculum. We have tried to solicit contributors who would elucidate the role that design thesis plays today in the education of an architect: in school, as a bridge to the profession, and within the profession itself. Surrounding this debate we have encountered strong convictions and conflicting ideologies. It is perhaps because the questions are so multifaceted that the school addresses many in isolation, allowing gradual, sometimes painful evolution within broad policy guidelines. In some instances, such free development allows for necessary interpretation. However, a lack of critical vision within the department as well as the student body can also result in ambivalence and missed opportunities. We hope herein to spark a critical discourse which will help illustrate options available to both students and teachers, allowing both to further their educational goals.

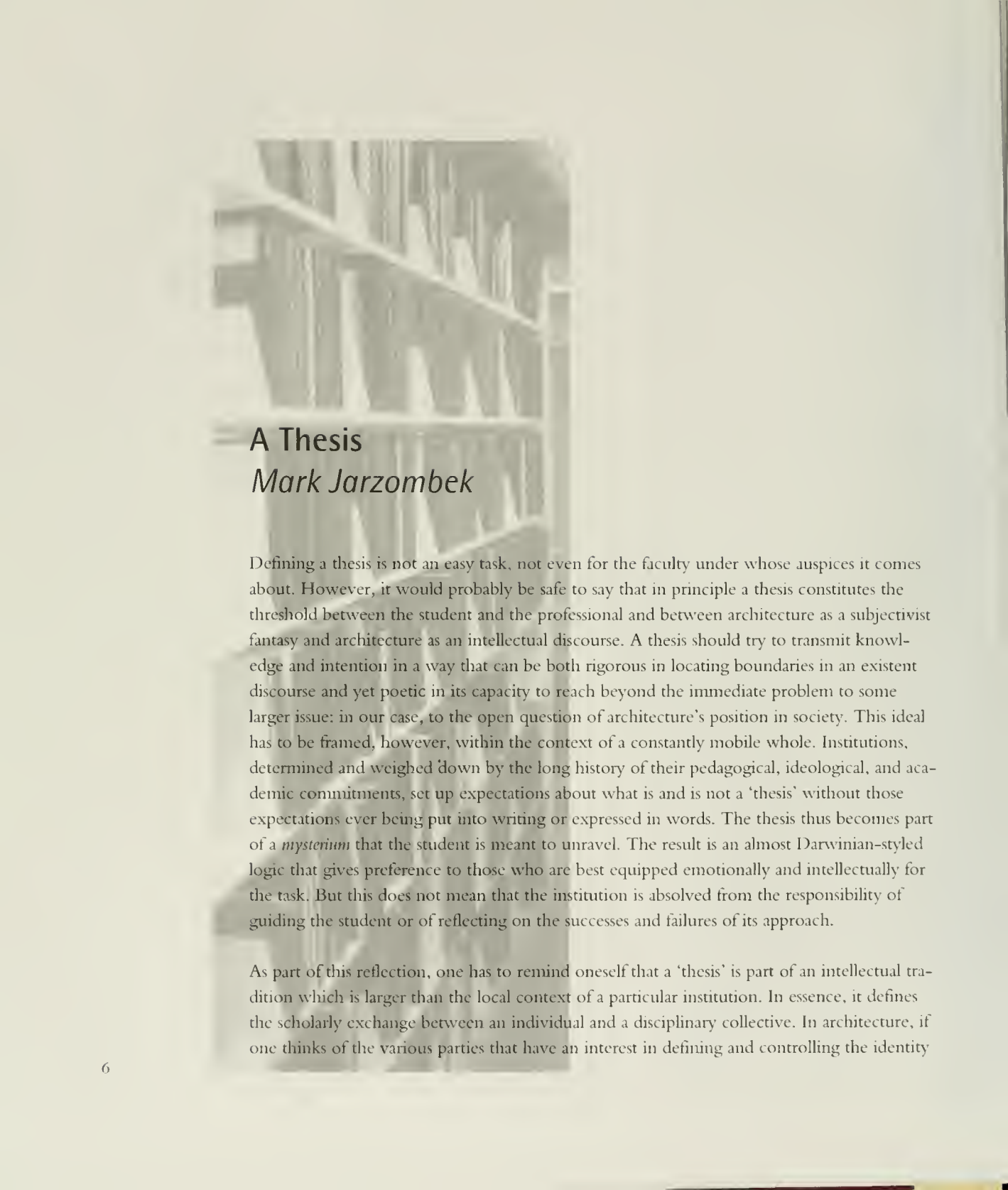
the issues

While gathering opinions and ideas we have been forced to draw somewhat artificial lines, looking first to MIT's tradition and its position relative to external issues in education, then internally to relationships within the subdisciplines of the Department of Architecture, and finally back outside to continuity with the architectural profession. Mark Jarzombek begins by exploring the thesis as a vital self-examination process within architectural education. Next Kimberly Shilland, curator to MIT's architectural archives, presents a historical frame for evaluating thesis within MIT's tradition. Bruce Abbey of Syracuse University and Kenneth Frampton of Columbia University follow with contrasting opinions representative of other universities which are also struggling with the perceived and real goals of the thesis exercise. Imre Halasz picks up where Kimberly Shilland left off, bringing the argument from ideology and the archives into the studios

where policy continually forms. Following the section of student work from the autumn 1996 thesis class we move inside the thesis process itself with articles from Len Morse-Fortier and Ákos Moravánszky, both of whom often served as thesis readers. Thereafter, we shift the topic into the profession. Michael McKinnell, FAIA presents his ideas from a well-established position in Boston practice while June Williamson presents another angle as a recent MIT graduate. Finally, Wellington Reiter reflects on the role of thesis within architectural education while opening the door to methods of continually renewing the thesis quest.

the work

Although *Thresholds* remains the Department of Architecture's critical journal, we've made the editorial decision in this issue to present student projects in order to demonstrate the importance of publishing such work. Consequently, this issue is essentially a double publication, in which the student work holds its own while grounding the debate in realized work. We have highlighted the work as a body rather than selecting individuals; as a consequence we've included abridged abstracts of every M.Arch thesis produced that semester. We chose graphic images according to diversity, ability to stand alone, and simple availability. We faced difficult choices in making some selections, but felt it necessary to limit ourselves and leave the body of the publication to writings and opinions related to the topic of thesis, for which the work provides a compelling point of reference. While MIT has a history of maintaining the importance of process over image-making, the students have also historically produced exemplary work. We hope the students as well as administration will recognize the pedagogical value of documenting thesis work and suggest that the department should create a more permanent forum for publishing student work.



A Thesis

Mark Jarzombek

Defining a thesis is not an easy task, not even for the faculty under whose auspices it comes about. However, it would probably be safe to say that in principle a thesis constitutes the threshold between the student and the professional and between architecture as a subjectivist fantasy and architecture as an intellectual discourse. A thesis should try to transmit knowledge and intention in a way that can be both rigorous in locating boundaries in an existent discourse and yet poetic in its capacity to reach beyond the immediate problem to some larger issue: in our case, to the open question of architecture's position in society. This ideal has to be framed, however, within the context of a constantly mobile whole. Institutions, determined and weighed down by the long history of their pedagogical, ideological, and academic commitments, set up expectations about what is and is not a 'thesis' without those expectations ever being put into writing or expressed in words. The thesis thus becomes part of a *mysterium* that the student is meant to unravel. The result is an almost Darwinian-styled logic that gives preference to those who are best equipped emotionally and intellectually for the task. But this does not mean that the institution is absolved from the responsibility of guiding the student or of reflecting on the successes and failures of its approach.

As part of this reflection, one has to remind oneself that a 'thesis' is part of an intellectual tradition which is larger than the local context of a particular institution. In essence, it defines the scholarly exchange between an individual and a disciplinary collective. In architecture, if one thinks of the various parties that have an interest in defining and controlling the identity

of this 'collective', one would list the thesis advisor with his or her unique approach, the discipline of architecture as defined by the institution's curriculum, and finally the profession itself. Given the various scales at which these interests operate (sometimes one against the other), it is difficult to find a level of criticality that would be accepted in all places. Ultimately an architecture thesis, unlike a thesis in the sciences and even in the humanistic disciplines, works on a scale that favors the local rather than the meta-local intellectual community. This works in two directions. It gives the institution a degree of autonomy that in turn breeds diversity, but it also means that students, often possessing limited awareness of how pedagogy operates, lack the information and expertise to make a sound judgment about what direction to take their thesis.

This means that in architecture, 'a thesis' may be more open-ended in what is tolerated than in other disciplines, but it is also more dependent on the context in which it is created and evaluated. The situation is not to be lamented simply because it sounds so chaotic. But it does mean that faculty are called upon to exhibit habits of *self-examination* which are more encompassing than what one might find in a traditional studio environment. For example, as professors should ask, is a thesis simply a re-summation of the process of

schooling, or does it begin to go beyond what was taught in the studio? Is it an act of 'coming into consciousness', or is it the demonstration of institutional indoctrination? Is it the site where the institution reveals its culminating power to produce the next generation of architect-thinkers or is it the site where the limitations of the institution are masked by the rhetoric of its potentiality? These questions play themselves out in each and every thesis whether or not a student is aware of it. The thesis process, therefore, becomes important to the institution, perhaps more so than to the individual students. Each and every thesis touches on a whole range of problems having to do with the nature of architectural education, from its status as para-professional enterprise, to its status as an independent intellectual discourse, and from the compulsions to control the student's mind to the freedoms that only the institution can permit.

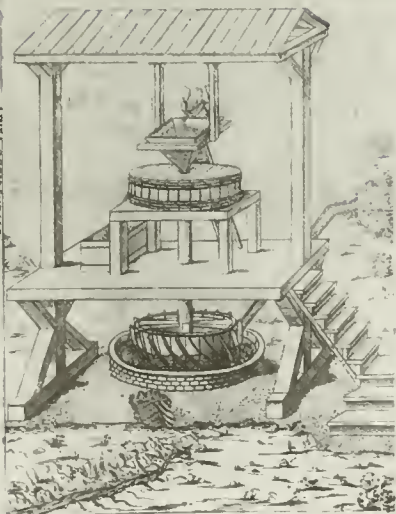
A good thesis, I would argue, will recognize the debate and position itself within the ongoing polemic that is at the heart of *everything* architectural. A good thesis will also see the design project as a means of coming to terms with that polemic in its *ambiguous* state. The thesis thus has the possibility to work within the obscure domain of identity and difference which structures other aspects of our personal, cultural, and institutional life, not simply the ones having to do

with architecture. In that sense, the work becomes less a statement about professional preparedness and more about a student's growing intellectual competency in dealing with the complexity that is intrinsic to architecture. If done well, the thesis gives something back to the institution which both legitimates it and helps guarantee its survival. It gives not only fresh perspectives on old problems, but a sense of energy and commitment that will be necessary if architecture is to maintain its relevance to our world.

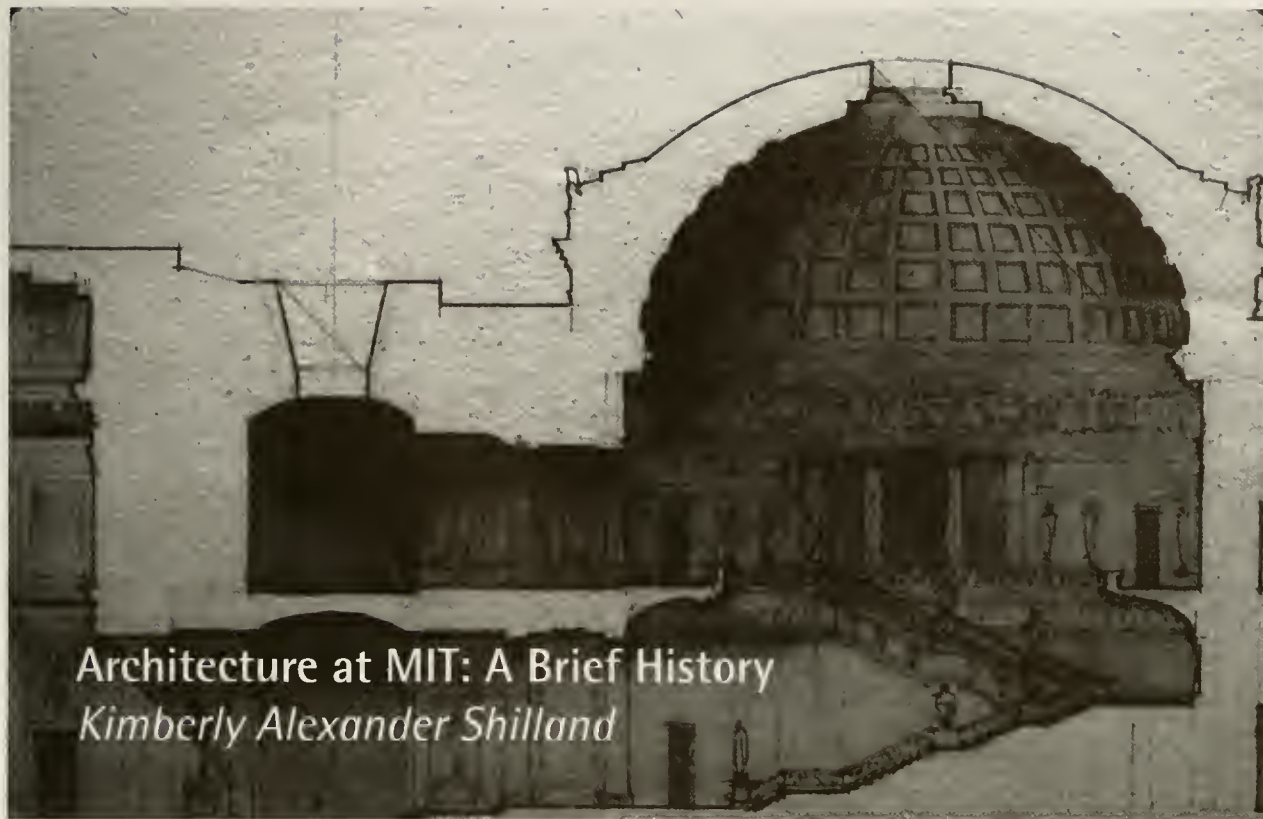
this is done in the spirit of critical openness, most theses will inevitably accommodate themselves to the dynamic situation of our modernity and can thus transcend the immediate problem that has been set out for them. They can investigate the process in which thinking and doing reflect each other and do this in a way that can make the thesis experience essential to the intellectual world of the institution. Most students see their thesis as the end of their education, and most will find little or no opportunity *ever again* to think with such freedom. But this is only half of the story. A good thesis has two lives. For the faculty, who after all *remain* in academia, it can be an inspirational experience, a true *mysterium*, that reminds them of the original purpose and mission of education. I have directed many thesis projects, too many to remember them all. But there have been some that have affected me in a profound way, and I am sure that all faculty members have had similar experiences. These theses live on in ways that their authors could hardly have imagined.

Mark Jarzombek is Associate Professor in the History of Architecture at the Massachusetts Institute of Technology. He taught at Cornell University from 1987-1995 where he was Associate Professor in the History of Architecture and Urbanism Program. He received his Ph.D. from M.I.T. in 1985, and his Diploma in architecture from the E.T.H. in 1980.

LINEA SETTENTRIONALE
Figura Ventesimaottava.



Achieving this is no easy task and not all thesis students (and thesis advisors) are equally capable. This does not mean that a thesis which fails to excel in this respect does not warrant faculty praise and honor. Some students are not served well by the thesis process, especially in a 3-year M.Arch program where a potential architect, though talented, might still lack the experience of handling the obligations that thesis work constitutes. This is all the more reason for the student and instructor to discuss and understand not only what a thesis is but what it can be. If



Architecture at MIT: A Brief History

Kimberly Alexander Shilland

Prior to the founding of MIT's course in Architecture in 1868, there was little opportunity in America for professional, academic instruction in architecture. With the exception of an apprenticeship in an architect's firm or study abroad, the aspiring architect had little opportunity to develop his craft. In 1865, when asked by MIT's president and founder, William Barton Rogers (1804-1882), to organize the country's first formal architectural course, William Robert Ware (1832-1915) began an intensive study of European architectural programs from which he would distill the first American

which he would distill the first American curriculum.

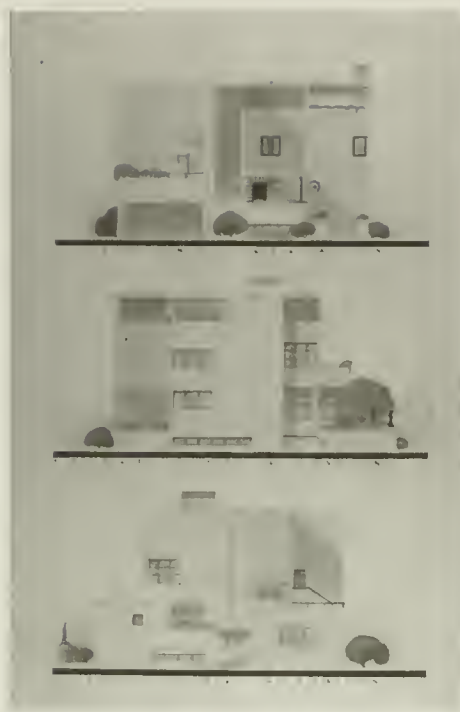
Ware was well suited for this post. He was a graduate of Harvard College, of Harvard's Lawrence Scientific School, and had worked in Richard Morris Hunt's (1828-95) office in New York. As a leader in the Boston architectural community, Ware was acutely aware of the need for a formal system of architectural education.¹ By late 1865, Ware had formulated *An Outline of a Course of Architectural Instruction* (1866). In his groundbreaking document, Ware clearly articulated the requirements

Detail from a watercolor rendering from W. G. Perry's 1907 thesis, *A Museum of War*.

1. Chewning, J. A., *William Robert Ware and the Beginnings of Architectural Education in the United States, 1861-1881* (MIT Ph.D. thesis, 1986.)

Sometimes the thesis drawings are merely reflections of what was presently happening; but frequently one finds the work to be far in advance of its time. One can easily take a building type, housing for example, and trace its development over time.

The palatial seaside "home" of the 1890s gilded age evolves into Samuel Paul's Modern Home of 1935 (*this page*) which may be contrasted with any number of suburban Colonial Revival homes found at the same time, and from that into war-time low-cost housing.



for a system of architectural education and how he believed this could best be attained. Ware writes:

"...architecture may be called the prose, as sculpture and painting are the poetry, of art. Its first principles are truthfulness, good sense, and perspicuity ... Considerations of method, order, form, clearness, precision, and sobriety are what make a good working style, both in writing and in building ..."

One of Ware's primary concerns was for the education and training of skilled draughtsmen; he noted that *"A well-selected though not necessarily a very large library, so placed as to be easily used...and portfolios of first rate architectural drawings,*

would be invaluable." Traveling abroad extensively in 1866 and 1867, Ware visited various academic institutions and architects, collecting drawings, prints, photographs, and artifacts for the future department. Thus, both the act of drawing and the final product were at the core of Ware's pedagogy.

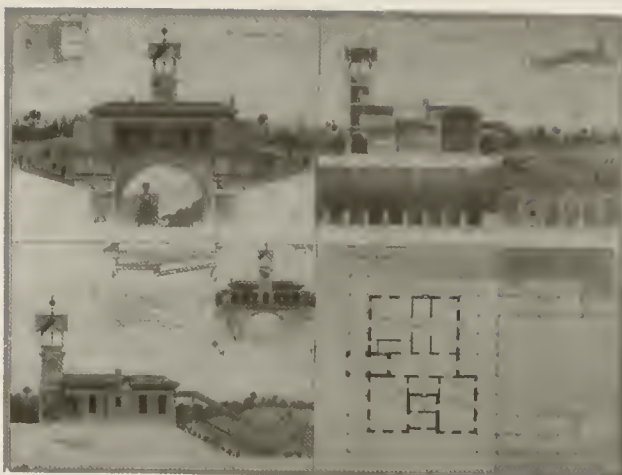
In establishing his curriculum, Ware drew from many sources. He examined curricula and professional practice in France, England and Germany, attempting to create a synthesis of what was best from each of these models. Ultimately, however, MIT's program developed largely along the lines of the École des Beaux-Arts in Paris. While the shaping of MIT's architecture department began in 1865, the Department did not begin instruction until 1868, with four full-time degree stu-



dents and twelve students in the two-year special student program.

The drawings which comprise the study collection were collected by Ware and his successors and augmented ideas advanced in the outline. As an *“essential part of the equipment of the school”* the visual collection offered students, few of whom had traveled abroad, a chance to view the grandeur of the ancient past and the wonders of the contemporary European world. The drawings, hung on the studio walls and in the library, were part of Ware’s teaching method, for it was through the eye that the architect learned.

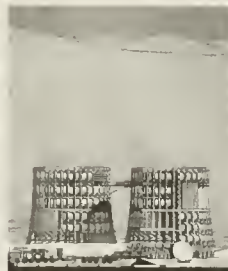
Since the founding of the Department an effort was made to retain the best examples of student work, as was the practice at the École des Beaux-Arts. The drawings were illustrations of successfully completed student projects and drawings prepared for theses. Ware stipulated that these projects should also be hung on the walls of the studio until displaced by the

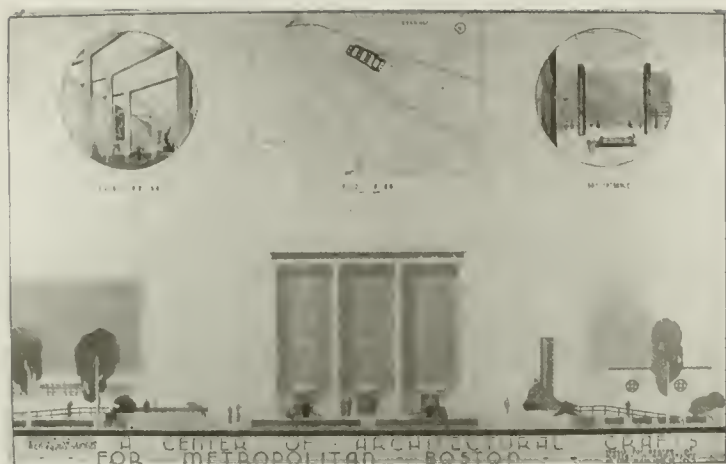


walls of the studio until displaced by the students’ work of the following year.

William Robert Ware’s lifelong work as architectural educator had an unparalleled influence on the development of the profession in America. The models he established, first at MIT and later at Columbia University, provided the foundation for numerous architectural programs throughout the country. The drawings are important documents which reflect what Ware and his successors wanted MIT students to observe and appreciate.

Alternatively, one can see the impact of technology and transportation on our landscape. Beginning with William B. Dowse’s 1874 Country Depot (*above*), revealing a tranquil picture of transportation, to Ida A. Ryan grappling with the challenges presented by the car with her Automobile Establishment, we then find dirigible and airplane hangars, and finally, lunar landing pads. (*below*) Two drawings from Jacques Binoux’s 1957 thesis: *A Study in Design of Ground Facilities for Launching and Landing of Space Ships*





Sheet from
Gordon Bunshaft's 1935
thesis: *A Center for
Architectural Crafts for
Metropolitan Boston*

One of the interesting facets of Ware's teaching style, and that of many subsequent professors, was the desire to let students select the stylistic conventions with which they felt most adept, providing the solution of the plan was correct. The plan – not the elevation – was paramount. In the 1870's one discovers that under Ware's tutelage, the prevalent Gothic Revival coexisted with the Classical. Under Désiré Despradelle in the 1890's through 1910's, there is an eclectic often bizarre mix of Classical, Beaux Arts, Mission and Romanesque details in the drawings. Despradelle was praised by his students and colleagues for never pushing a student into a method that was not his own. Lawrence Anderson was also remembered for that skill. What does this look at history mean for MIT students and faculty today? It would appear that rather than follow "fashion" or "star designers,"

MIT has chosen to produce independent but well-trained architects, just as it has done over time.

The thesis drawings may be used to document other issues as well. For example, they provide strong visual evidence which contradicts traditional explanations of how and when Modernism arrived at the various architectural schools in the 1930's. Most authors believe that until Walter Gropius arrived at Harvard University in 1937, the Modern movement had little presence in architecture and even less in the schools. In 1933 at MIT, however, a young professor named Lawrence Anderson had succeeded Jacques Carlu as design professor. While trained in the Beaux Arts tradition, Anderson was nonetheless keenly interested in the Modern movement in Europe and after traveling on a fellowship, brought back with him this knowledge and shared it in the classroom. One sees immediate changes in the problems assigned to the students by Professor Anderson – highly detailed, site and use specific, technologically oriented. The work of Gordon Bunshaft illustrates this shift aptly. In his 1933 work as an undergraduate, we see him designing a Romanesque church by the sea, using a lush palette and period graphics. By 1935, for his Master's Thesis under Anderson's direction, Bunshaft's design for a school of Arts and Crafts has

many Bauhaus overtones. Dramatic changes occur not only in design focus and planning, but also in graphic presentation. Axonometric and isometric views become common and drawings become more spare as may be seen in the work of Oleg Devorn from 1935.

In the late 1960's, the practice of collecting student thesis work – one of the cornerstones of the curriculum since the founding of the School – was abolished. A time of much ferment, issues of personal property and creative rights called into question this practice. As noted by Lawrence Anderson, students insisted on a re-examination of the policy and, for good or ill, it has remained in effect. In recent years there has been interest in again building up the collection of thesis drawings. Resuming the process would be beneficial to all. Even with our advanced methods of capturing images, there are still instances when one wants to see the original piece, for scale, for texture, for something tangible. The thesis collection as it stands now encompasses a century of design education and history, societal and technological change. No doubt the next century will produce as many changes. The drawings will remain an excellent resource for charting our evolution.

The Architectural Collections housed at the MIT Museum provide an unparalleled resource for understanding the history of American architectural education. Comprising over 15,000 student theses and project drawings and spanning from 1868 through 1968, the collection offers not only the opportunity to study the evolution of design education but also provides revealing glimpses of American society throughout the century.

Curator of Architectural collections at the MIT Museum since 1989, Kimberly A. Shilland has organized several exhibitions during her tenure and is currently writing her Ph.D. dissertation at Boston University on William Robert Ware.



Axonometric of the 12th and 14th floor of a high-rise apartment complex from O. Devorn's 1934 thesis

Watercolor rendering of an Urban Office Tower from Roger Charles' 1928 thesis



Thesis: "As Necessary for the Health of the Institution as the Student"

Bruce Abbey

The idea of a final project as the cumulative experience to an architectural education is as old as the Beaux Arts system itself. Ever since the establishment of Blondel's Academy of Architecture in 1666 with the Prix de Rome as a goal, the conceptual basis for a final thesis has been explicit in the educational process of architects. Certainly the methodology of the École des Beaux Arts was directed towards the preparation of candidates for the Prix de Rome competition, as a form of final examination and as a method of rewarding the most promising student talent. The focus was therefore on the reiteration of the methodology of a fixed design process throughout the curriculum and the emphasis on competition for grades, advancement and awards as a measure of recognizing and rewarding talent. Today's thesis practice carries some of these original goals but it has been infused with a new set of values that reject a monolithic approach to the end result and a certain disdain for elitist recognition. Hence the current confusion about the purpose of the exercise and how to measure success, or even if that is necessary.

If, by involving a rigidly controlled system of professional education Louis XIV could control style as a means for the glorification of the realm and personage of the King, then today's often introspective thesis exploration in the name of individual freedom and personal angst can seem rather diffuse and perhaps even a meaningless exercise in a pedagogical system that appears to have no singular purpose or focus. Nevertheless, many educators continue to see value in a cumulative experience at the end of the formal period of professional education, as both a necessary rite of passage and as an exposition of the effectiveness of the values of the individual institution.

SCHOOL OF ARCHITECTURE
SYRACUSE UNIVERSITY

ARC 505

Thesis Preparation

Autumn 1995

Professor Lawrence Davis

Class Sessions: Tuesday 1:00 to 1:50

Discussion Sessions: Alternating Tuesdays 2:00 to 2:50

Office Hours:

Wednesday 11:00 -2:00

thesis

thesis (thē'sis) noun

plural **theses** (sēz)

1. A proposition that is maintained by argument.
2. A dissertation advancing an original point of view as a result of research, especially as a requirement for an academic degree.
3. A hypothetical proposition, especially one put forth without proof.
4. The first stage of the Hegelian dialectic process.
5. a. The long or accented part of a metrical foot, especially in quantitative verse. b. The unaccented or short part of a metrical foot, especially in accentual verse.
6. Music. The accented section of a measure.
[Latin, from Greek, from *tithēnai*, to put. Sense 5 and 6, Middle English, from Late Latin, lowering of the voice, from Greek, downbeat, from *tithēnai*, to put.]

The American Heritage Dictionary of the English Language, Third Edition .

Introduction:

Thesis is a required effort and product intended to demonstrate the professional student's ability to summarize and apply basic conceptual, analytical, technical and compositional aptitudes necessary to successfully create architecture. While it is impossible to review all skills in one's education, much less a single thesis project, in its most basic state, this terminal exercise is intended to be comprehensive in that use the critical elements at an architect's disposal (traditionally defined by Vitruvius as "Firmness, Commodity, and Delight") become tools for exploring a basic set of conceptual issues. These issues must stem from a position supported by a specific set of values that originates from the interests and attitudes of the thesis author.

In the School of Architecture there are two required components for completion: Thesis Preparation, Arc 505 and Thesis Studio Arc 508/607.

The function of Thesis Preparation is to provide a structure within which students pursue independent research and analysis in order to develop a coherent proposition related to the field of architecture. The process of Thesis Preparation is the production of a written and graphic document developed before and refined during the subsequent Thesis Studio. The Thesis Prep document becomes the foundation for the design investigation conducted during the second semester.

But there are problems. The pedagogy of most schools of architecture has evolved from that of a method of controlled responses in a highly centralized system to a model that eschews the normative and the obvious in favor of the idiosyncratic and personal ... a mirror of contemporary cultural, social, and political realities. What seems to have been lost is the capacity to posit solutions to problems that are both universal and personal, artistic and technical, comprehensive and speculative – using tools and skills that have been systematically learned during the course of the educational experience.

Thus the use of thesis as a necessary cumulative experience should be a demonstration by means of a design proposal to a well formulated hypothesis, but most often a problem that is indeed selected by the individual student and not the school. But a structured research component, i.e., a semester of thesis research, is absolutely necessary in order to establish the grounds for evaluation and viability of the design response. At the end of the process a convincing argument showing the connection between the research and the design proposal needs to be made by the individual student and at the very least the thesis should represent a summation of what he/she has learned and explored in the period of formal schooling.

Thesis today, when properly organized, is still as labor-intensive as ever and it calls for the ability to think clearly, write well, express one's ideas orally and above all to communicate a set of ideas graphically. It should, if possible, be more than a solution to a building program, be more than a cultural critique, be more than a feel good exercise. At Syracuse there is still the desire to see the thesis proposal as an invention within the constraints of a problem that is well formulated and to convincingly present an examination of a set of ideas rooted firmly in the culture and tradition of architecture. A fit between idea, program, formal representation and technical competence at least demonstrates a basic understanding of a workable design process and the ability to communicate effectively one's ideas. Presumably, these abilities do indeed prepare one to function effectively in a professional milieu.

How best to prepare for this experience has occupied a great deal of faculty meeting time. Not every design exercise is a thesis experience, yet no exercise is without a premise or intrinsic system of values. In the early years these values are most often supplied by the faculty writing the program, curriculum structure, etc. The real issue then is the process of weaning from the institution-supplied goals to

Thesis Studio is a graphic and modeled process and product that demonstrates the thesis proposition (idea) through an applied problem of architectural design. Requirements of the Thesis Studio include, but are not limited to, complete two dimensional and three dimensional representation sufficient to demonstrate the student's ability to solve relevant intellectual, pragmatic and aesthetic issues raised by the thesis proposition. Defining the goals and intended results of the thesis studio is a requirement of Thesis Preparation.

The two primary vehicles for defining the thesis goals are a written proposition and graphic argument in defense of one's position. As a result, research is an implied and necessary component for gathering knowledge required to develop such a defense. The quality and relevance of a particular student's research has a direct influence on the quality and relevance of the Thesis Prep Document and subsequent Thesis Studio effort and product.

Many fields in academia require a thesis as a culminating effort towards a degree. Within the school of architecture (and the profession at large) what constitutes a relevant thesis has historically been and will likely continue to be elusive. (One can argue that this is not necessarily a negative condition.) Naturally different faculty and students respond differently to defining what the boundaries and goals should be in managing the thesis experience. It is the student's responsibility to acquire the guidance from the Thesis Prep coordinator, faculty advisor, thesis committee needed to assist in the definition and refinement of a student thesis.

Thesis Prep Goals and Recommendations

1. The thesis is a speculative proposition (hypothesis) that one develops and tests during the design process (Thesis Studio).
2. A Thesis is about architectural ideas that have been identified by the student.
3. A Thesis proposal most often emerges from a body of research within a specific area of investigation.
4. The student should select a set of issues (or questions) about architecture which will sustain him/her for two semesters.
5. Within the issues identified, one needs to establish, prioritize and limit the scope of the research and analysis.
6. From the research and analysis one needs to establish a speculative proposition: i.e. a thesis statement which becomes the beginning and foundation of the Thesis Studio effort.
7. In most cases both the program and the site are selected to support issues raised in the thesis statement. This means that considerable thought should be given to finding a place and building purpose that objectively reinforces the proposed area of investigation.
8. Most students should build upon issues of previous training rather than explore areas that they have had little exposure to.
9. Since it is generally thought that a thesis is a body of speculative research that is to be shared in the community of the school and the discipline at large, it is extremely unwise to develop a thesis that is overly personal and/or can not be discussed collectively in understood terms.
10. Sketchbooks and/or binders are very useful tools for both collecting and organizing ideas, information and sketches.

those of the student. How best to encourage confidence in decision making and the setting of agendas becomes a *desideratum*, but as contemporary architectural critique becomes increasingly more complex, the need for structure to the learning process may paradoxically become more necessary. Every school by necessity con-

tinuously re-invents itself, or should, over how best to cope with these issues.

A critical issue in developing any thesis process is the inherent fairness of the system itself. This was a major failing of the Beaux Arts system as it aged and ultimately collapsed. Today, it is necessary to approach the problem of fairness with shared faculty responsibility and clearly expressed expectations. Committees need to be large, the projects reviewed by many – including outside professionals and educators – and the prizes voted by the entire faculty. While this will not necessarily insure fairness or quality, it will at least express the will of the majority. Unfortunately this is a very labor intensive process and not universally appreciated by all those who must be involved. The alternative, however, is to let everyone do their thesis without much faculty guidance on a pass-fail system ... not a very useful option, in my mind, and one that proves very little to anyone.

Reform to architectural education is always painful, which is why it has not changed all that much. The thesis issue plays a central role in any potential reform given the variety of possible positions to be taken by individual faculty and each school to some of the above discussion. These and other questions suggest them-

selves. Should it be required? Should it be independent study? Should it be only a reflection of the student's personal interests? Should it be a measure of the effectiveness of the value in place of a given school? Should awards and prizes based on perceived merit be made and by whom? Is an undergraduate thesis the same as a master's thesis?

It was attributed to a prominent dean many years ago that if one controlled the first year design experience and the thesis process you could make a real "school" in no time. Certainly a school of architecture without a thesis requirement and a process to support that requirement is in danger of not being able to evaluate where it has been and discuss cogently where it might go. Thesis, it would seem, is as necessary for the health of the institution as the students.

Dean and Professor of Architecture at Syracuse University since 1990, Bruce Abbey was previously Chairman of Architecture, Director of the Graduate Program in Architecture and Associate Dean of Architecture at the University of Virginia at Charlottesville, where he started his teaching career in 1974. He has practiced architecture since 1966 and is a registered architect in New Jersey, Virginia and Pennsylvania.

11. A common test to qualitatively evaluate a thesis is to seek an affirmative thesis to the following questions

- a. is there a research component to the thesis (implicit or explicit)?
- b. is the applicability of the thesis proposal beyond the specific site and program of your particular project?

Course Structure and Content

The Goals of the course are straight forward: produce a single document used to inform the effort in the Thesis Studio. Consequently the course structure has many components in order to assist in the conceptualization and production of the Thesis Prep booklet.

1. Lectures

Lectures about specific aspects of general thesis and thesis prep issues are given at the scheduled Tuesday afternoon course time. As a means to expose students to a broader spectrum of positions and expertise, a number of lectures will be given by guests from the School of Architecture faculty. The lectures are intended to stimulate thinking and discussion within the class relative to the relationship between ideas, speculation and architecture.

2. Discussion/Workshops

Approximately on alternating Tuesdays, immediately following the lectures, there will be discussion sessions specifically devoted to issues regarding the Thesis Prep document. In most cases these sessions will be conducted as student initiated question and answer sessions. Students should come prepared to participate in class. Evaluation of student work will be periodically used to direct the discussion. These sessions will be topical, in organization, covering such questions as: what constitutes a thesis? What is an annotated bibliography? What is adequate basic documentation? What is considered legitimate research in the School of Architecture? etc.

In addition to the discussion sessions, selected workshop are planned for the post-lecture time slot with University personnel reviewing important basic topics such as writing skills and library resources. Even though students may feel comfortable in these primary areas, students are strongly encouraged to attend these sessions.

3. Faculty Advisor

Assigned the third week of class, the faculty advisor should act as a mentor during both semesters of thesis work. While thesis is, by definition, independent work the advisor can and should be used as a consultant and critic throughout the two semester process.

4. Thesis Committee

The thesis committee formed before the first review, is composed of three members of the faculty including the advisor. The committee convenes during the formal review sessions scheduled during both semesters. Reviews before the committee are working sessions intended to benefit the student. The thesis committee, through consensus, determines the student grade in the Thesis Prep course based on the final submission and presentation by the student. A final grade of "C" or better is required to pass the course.

The Anti-Thesis Pedagogy
a fax from Kenneth Frampton

Along with the seeming 'anti-thesis' consensus on the part of the architectural faculty at Columbia University, I remain basically opposed to the thesis as the end qualification, so to speak, of a three year, six semester graduate education in architecture. My opposition is based on the following:

1) Given the way academic freedom generally operates in respect to studio teaching in M.Arch programs, every faculty member is typically free to give whatever studio subject he or she sees fit particularly after the first year. The net result of this is there is no guarantee of any meaningful pedagogical sequence in terms of studio exercises that in the last analysis often have no clear pedagogical aim. Under these circumstances how can one expect students to be mature enough (i.e. experienced enough) to bring an independent thesis to a successful conclusion? Students who pass through a five or six year program have more of a chance in this regard and in the case of these longer professional B.Arch curricula a thesis would seem to be justifiable at least in terms of it being an appropriate terminating exercise. It is surely obvious that three year M.Arch programs are architectural "boot camps," particularly for students who have not studied architecture before. Such students, in my view, stand to be exposed to the experiential "losses" of experimental studios without also suffering, in addition, relatively unstructured thesis exercises.

2) A further fallacy of the architectural thesis is that it is supposed to validate a supposition that has been derived from a specific piece of research. Even with the best will in the world an enormous gap usually remains between the descriptive-analytic level of the research and the postulative, synthetic character of the project, so that, more often than not, little is effectively validated. This view of the thesis still derives consciously or unconsciously from the idea of architecture as some kind of applied science which, in my view, is a fallacious proposition.

Surely students acquire craft knowledge by internalizing success rather than by repetitive partial failure. In my view, if any student was to obtain a particularly good solution in any senior studio exercise they should be given the option of carrying this exercise to another level of resolution. This would be a more productive form of exercise-in-depth and could well substitute in any graduate curriculum for the place previously occupied by the thesis.

Kenneth Frampton is Ware Professor of Architecture and Director of Advanced Studios at Columbia Graduate School of Architecture, Planning and Preservation

Design Thinking

An Interview with Imre Halasz

"Do you mind if I smoke?"... Professor Imre Halasz politely deferred to our sensibilities as we sat down with him in his office. Our meeting with Imre had coincided with the sad news that his dog of fifteen years had passed away ... "I was trying to quit."

When Imre Halasz arrived at MIT in 1958, an adaptation of the "Polytechnic" pedagogy structured the thesis process. This curriculum had evolved from the earlier Beaux-Arts tradition, and the thesis was tantamount to "jumping the hurdle." Based on what was considered demonstrated architectural competence – command of structures, construction, and program – thesis operated similarly to the professional exam taken today. An architectural project was the vehicle for this test, and was judged by a single thesis committee comprised of several faculty from diverse fields in the profession: "Design was not the major issue," Imre notes.

Imre cites numerous pressures which converged in the 1960's, inspiring change in the thesis process. "It was partly a student movement as well as a change in the administration's view of the whole program – there were a number of factors. I might be wrong, but I connect it mainly to the change from the five year professional program to the 4+2 or 0+3¹ professional program and therefore many educational issues had to be revised to adjust to the new framework." New focus on individual liberty and choice within American culture at large pressed

for decentralization within universities. Attitudes within the administration pushed for a model not “to make better draftsmen for the practice but instead to provide the kind of education which is broader or could be used in a very fast changing spectrum of the professional practice.” While this model remains the generally accepted practice today, “we are still discussing what the thesis means.”

1. Following the demise of the five year professional degree at MIT, the new M.Arch program supports two models: The 4+2, where a student with a four year bachelors degree in architecture attends a graduate program for two years plus thesis, or the 0+3 option, where a student with a four year bachelors degree in another subject studies architecture for three years plus thesis at the masters level.

“Initially, thesis [under the revised model] was a kind of intimate relationship between an advisor and a student based on a greatly decentralized position, as was everything at that time. And it was almost autonomous – there were no readers and no protocol, simply a close relationship between the student and the advisor.” Imre points out, however, that problems arose with this new model. First, because of its inward focus, the thesis became dangerously isolationist. No final review or threshold awaited the thesis student – evaluation was left entirely up to the thesis advisor. “It was one on one, as they say in basketball.” The second drawback of the new system was the transition to a one semester process. Previously, under the five year program, studios often continued over two semesters. Newly structured for more choices, “the single semester became the additive fragment of learning.” This is the root of discontinuity which will later characterize the thesis process.

“The question was raised how that could be changed, for clearly thesis (for many) was a major effort and some crowning achievement of learning.” To address this question, Imre sponsored two modifications to the M.Arch program in the late 1960’s. The first incorporated thesis readers into the process; the second modification introduced the Thesis Preparatory course. “The first definition of thesis prep was that it was supposed to be a workshop, and the model was intended to re-introduce a thesis as a two semester effort.”

While there was a constructive intent behind these modifications, their implementation created new problems. The advisor-centered methodology still dominated the process marginalizing the readers.³ The thesis prep workshop also fell short of expectations, despite great efforts by several instructors. “It was never successful in the sense of its original intent.” Imre further explained that built into the system

2. Committee members remain partially disenfranchised, with a clearly inferior role to the thesis advisor – readers do not sign and are not mentioned in the thesis document. This policy has just been changed so that future theses will bear readers’ signatures.

3. In light of the shortcomings of the course, thesis prep has, over the years, devolved to its current status as a three credit course. The argument for the credit poor course has centered around the rigorous demands of the new curriculum, not around how thesis should operate. For reference, a studio is worth 18 credits and the thesis prep workshop, as mentioned, was originally worth 16 (studios at that time were 21 credits). The idea behind a "credit" is essentially a "credit hour," where a nine credit course should require nine hours of work per week.

was a discontinuity in advising, as students do not begin working with their advisors until beginning the actual thesis semester.³

Concurrent with the developments in process, the content of the thesis also underwent transformation and debate. "There was strong pressure from some faculty members that thesis could be practically any subject, that it did not have to develop the typical design of a building but anything which had intellectual merit and dealt with some didactic objectives was acceptable. The counter position was that the thesis had to be a building, a physical design of some sort." In reconciliation of these views, the current attitude in the Department of Architecture is "that design should be based on some kind of explicit view or theory, that somehow this duality of the two views converge and you see these strange theses coming out which are meta-theory as well as design."⁴

4. The contemporary document outlining thesis prep (*right*) seems to be the most definitive statement of policy on this subject.

The Thesis is more than simply a student's final project. A final project, (independent or not), is meant to demonstrate competence at integrating various building systems and materials, social, formal and urbanistic concerns into the design of a building. It is the opportunity for the student to show that they understand how architecture conventionally operates. A thesis, on the other hand, is a final project which similarly demonstrates competence in all of the above areas, but which makes a speculative proposition about what architecture could be. Based upon an informed critique of conventional models, (be they conventional models of building, understanding, or designing,) this proposition, tests a concise and specific hypothesis. The hypothesis is of two parts. The first is a declarative statement which clearly defines the author's stance for evaluating a more appropriate architectural response. The second part, clearly following from the first, takes the form of a question. Thesis Prep is focused on defining the student's hypothesis and conducting the research into conventional models necessary to framing the hypothesis question. Thesis is the student's answer to the question.

Imre also identified the problem of stating a hypothesis as a necessary component of thesis. "Hypothesis is the set of facts which one collects and then tests in some process. Borrowing that model from the hard sciences seems difficult because it is not directly applicable to architecture as a work process, so I am suggesting that it should be an exploration of that design intelligence which develops throughout the learning process and can be demonstrated through a whole variety of ways."⁵

5. An evaluation of thesis inevitably begs the comparison to how to conduct studios in general. The studio process will lead not to problem solving per se, but an investigation of issues and, in Imre's words, a "passion for making." In fact, this process of developing a sort of "design intelligence," may better be nurtured in a workshop environment. "I do believe we should have workshops instead of studios, which means there must be a clear bias stated, and described in terms of evolving that design intelligence."

In light of all these issues, Imre began to lay out a possible set of criteria for the M.Arch thesis, explicitly criticizing the notion that it become "a major contribution to the state of the art."⁶ "In the best of all possible worlds it should be the continuation of something the student has already investigated. There should be a very strong connection between the student's experience in school or maybe before school, a real exploration of personal values because studio does not, can not, do that very well." In a second point, Imre spoke of how faculty

6. Refer to the excerpt in note #4 that "A thesis ... makes a speculative proposition about what architecture could be."

research should have more relevance to thesis. “This way there is a continuity which does not exist now because we ask the students to come up with the topics. The students never ask ‘what are you doing, can I join?’ There should be a much stronger connection between research done by the faculty and the subject of thesis.” And while the architectural thesis should require the student to address “something physical,” Imre feels that the notion that “it require that it result in the design of a building is a bad one.”

Not only can the focus of thesis be questioned, but Imre also points out difficulties in continuity of education. “In studio we have this socialized learning which is very good because there is a whole set of interchanges and hopefully the teacher has a few major objectives which are designed into the problem and very deliberately become the focus of the work. After that comes the thesis where a socialized process becomes isolated and where highly directed design thinking changes to a different kind of work. We are not preparing in the curriculum for that big jump. Initially, the idea was if one had this broad smorgasbord then the thesis is the opportunity where one can ‘put it together.’ In general it sounded nice and perhaps it’s ok, but there is still a need to be more precise about what one puts together.” A lack of understanding behind the intention of thesis is a major difficulty. “It should be more clear how thesis fits the whole package and therefore how it can become an integral part of our thinking. It truly is a very difficult problem – many times it has been suggested that we get rid of thesis altogether, which wouldn’t be such a bad idea because at least that would free up more time for workshop explorations.”⁷

7. Currently, NCAARB requirements for architectural education do not include a thesis component.

In addition, Imre hopes to see another adaptation in the thesis process beyond the suggested possibilities of opening the topic to carrying previous personal investigations further or working within a professor’s research. He has also brought thesis students together in a “thesis workshop.” He conducted one such workshop while teaching at Harvard in the mid-1970’s and in another similar experiment last semester at MIT. “The connection in my workshop was simply to find a balance between the centralized idea of the studio where the master stands and tells you what’s good and bad and the total decentralized model where you have an advisor but the advisor actually is not there to teach but to save you from drowning.” Instead, the professor assembles the students and guides them in discussion. “It was my intention that they could work with each other, for example someone with perhaps more construction experience could help the others, and the group could be mutually supportive: we could meet together more often as well as individually.”

It is through his 38 years of perspective on the program that Professor Imre Halasz has developed an understanding of this evolution of the M.Arch thesis. In his view, the difficulties with our current status remain unstated and unresolved. The current practice of ultimately generat-

ing a 'building,' he feels, is not working, yet other models have not been adequately pursued. Students need less rigid options yet clearer models of how they might accomplish a transition between studio, thesis, and practice. They should be encouraged to build on their own knowledge and experience or on the work of the faculty. They should also have the option taking a final studio or of joining (or forming) a thesis workshop in a continued pursuit of their own individual design intelligence. "It is design thinking we are teaching, and we should be growing while making the whole heuristic process evolve - it is open ended but not open ended by virtue of capriciousness but as the result of layered exploration of certain selected pieces chosen in the beginning. And those [pieces] (not programs, not places, not pre-determined problem solving ideas) should come from

the willing confrontation by the student with their own values as well as those aspects of architecture which at that stage of their growth they were curious about."

... Imre stands to attend to a knock on the door. Although he has officially "retired," Imre still schedules regular meetings with current and former students. He apologizes and offers to continue our conversation at a later time.

Professor Emeritus of Architecture, Senior Lecturer in Architecture at Massachusetts Institute of Technology, Imre Halasz was appointed to the MIT faculty in 1958 and has been a visiting professor at several universities in the United States and abroad. Halasz was educated at the College of Fine and Applied Arts in Budapest; the University of Leiden; and the Polytechnical University of Budapest, from which he received a Diploma of Architecture in 1950.

MIT thesis students advised by Imre Halasz:

1996 Audrey Godwin Wendy Akemi Kameoka Carlos Mateo Ridruejo James Francis Rissling Andreas L. Savvides Alexander Peabody Stolz 1995 Albert Pui Lam Kong 1994 Radhika Bagai 1993 Zsuzsanna Gaspar 1992 Scott William Rabiet 1991 Judith N. Bookwalter John Lai Yen Louie Scott R. Pollack 1990 Chin Yuan Lin 1989 Noel Jonathan Brady Yuri Kinoshita Paul R. Ries 1988 Keith A. Campbell Belen Hermida Rodriguez Constantine Anthony Kriezis 1987 Gregory Faulkner Heidi Johnson Greta Jones Stephanie Wingfield 1986 Arto Harjunpaa Laurene Anne Hungle Kim Sammis Sandra Leigh Olson Snow 1985 James Beaudoin Colin J. Flavin Walter S. Rask Jeffrey Schantz 1984 Michael David Sorkin Albert Westley Spruill 1982 Rafael G. Olguin Jeffrey David Rhoads August G. Schaefer James A. Sobey Michael Sela 1981 Philip Dwens Belanger 1980 David George Cooper Fernando J. Lugo 1979 William Leslie Kasdon William Leete Rawn 1978 Ronald John Alex George Thomas Tremblay 1977 Constantine Nicholas Thomas Brian Hingpo Tse Robert Gregory Turner 1976 William Chalmers Agnew Claudia Miller Skylar 1975 Steven Coburn Hayes Vincent Samuel Hsu Charles Woodrow Styron 1974 Sandra Cutting Auchincloss Douglas Robert Cooney Martha Elizabeth Ondras Stokes 1973 William Edward Holland Barry Falk Zevin 1972 Robert Joseph Couch Terry Stelios Hartzides Isabel King 1971 Russ Van Vleck Bradley Mercia Elizabeth Lee David Curt Morris 1967 Scott Lee Danielson 1966 Ernst August Ibs Mazon Nicolas Manasseh-Hawa Nicholas Peter Negroponte Richard Warren Smith 1965 Jerry Gibson 1963 Richard Meredith Titus 1961 Joseph R. Blair William L. Kite Richard Ira Krauss R. A. Williamson 1960 Norman Drucker Johannes Philippe Holschneider Richard Baker Morrill Radoslav Zuk 1959 Valdis Martins Alers Neil Astle Paul R. Dermanis John M. Peterson

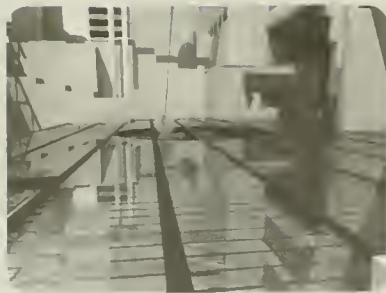
Bachelor of Arts in Architecture Studies, University of Washington, 1991
 Bachelor of Science in Architectural Studies, University of Wisconsin – Milwaukee, 1992
 Bachelor of Arts, University of Washington, 1993
 Bachelor of Science in Architectural Studies, University of Illinois, 1988
 Bachelor in Science in Architectural Studies, University of Illinois, 1993
 Bachelor of Arts, Boston College, 1999
 Bachelor of Arts, University of Florida, 1989
 Bachelor of Arts in Architectural Studies, National University of Singapore, 1991
 Bachelor of Science in Physics, Minnesota State University, 1985
 Bachelor of Arts in Architecture, Psychology, University of California, Berkeley, 1991
 Bachelor of Arts in Studio Art, Dartmouth College, 1992
 Bachelor of Arts in Architecture and History, Washington University, St. Louis, 1991
 Bachelor of Arts in Design of the Environment, University of Pennsylvania, 1991
 Bachelor of Arts in Architecture, Princeton University, 1990
 Bachelor of Arts in the Design of the Environment, University of Pennsylvania, 1989
 Bachelor of Arts in Architecture, University of California, Berkeley, 1991
 Bachelor of Arts, Cornell University, 1994
 Bachelor of Arts in Philosophy, University of Massachusetts, 1991
 Bachelor of Arts and Sciences, University of Illinois at Urbana-Champaign, 1962
 Bachelor of Arts in Plan II Honors Program, University of Texas, Austin, 1975
 Bachelor of Arts, University of California, Berkeley, 1962
 Bachelor of Arts in Architecture, University of California, Berkeley, 1992
 Bachelor of Science in Marine Technology, National Chiao-Tung University, Taiwan, 1979
 Bachelor of Science in Art and Design, Massachusetts Institute of Technology, 1963
 Bachelor of Environmental Design, University of Puerto Rico, 1992

Bernjamin Black
 James Basfine
 Wendy Kameoka
 Charlotte Williams
 Richard Samop
 Ronald Frankel
 Kathryn Archard
 Winston Liu
 Kyrie Culver
 Christopher Nutter
 Christine Pein
 Gwynne Ouden
 Alexander Seiler
 J. Christopher Paul
 Matthew O'Connell
 Andrew Savvides
 Carlos Mateo Ritzkeja
 Michael Reil
 Audrey Gadswin
 John de Valpine
 Haldane Liaw
 Lian Quan Zhen
 Chih-Jen Yeh (E.K.)
 Rukaya Davies
 Ernesto Rodriguez

student work

ben black

Physics, Construction, Experience: An Architectural Environment for Informal Science Education

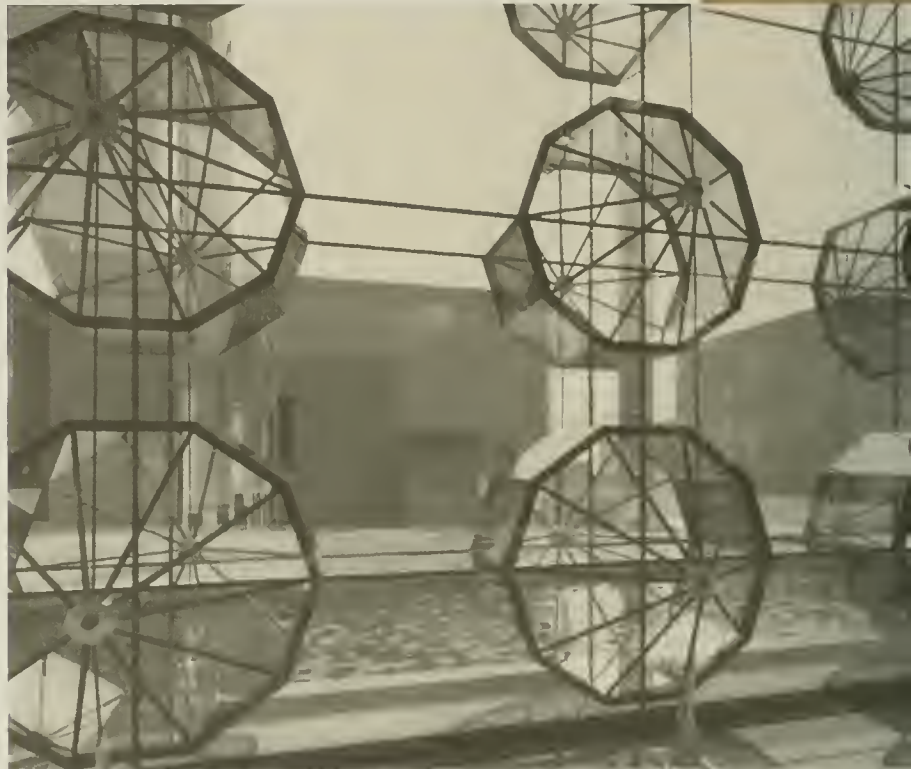


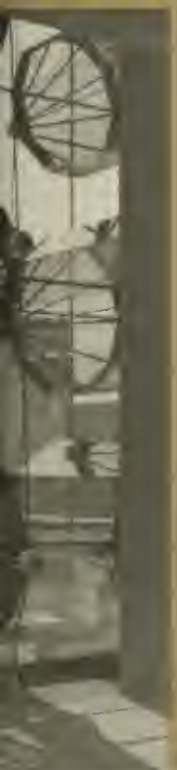
While contemporary informal science education facilities have dramatically evolved from the 17th Century room of curiosity cabinets to the modern-day container of interactive exhibits, very little has been done to incorporate architectural experience into a pedagogical mission. Architectural experiences can be constructed as integral components of an informal science learning environment. This thesis proposes a building which serves as the container of the facility and as a device to consciously establish territories of direct interaction with and passive reflection of natural phenomena, allowing the experimentation, the participation, and the critical inquiry of citizens to construct their own knowledge. It is located in Seattle on a prominent urban site associated with existing and developing cultural infrastructure.

A Building System for Active Settlement: The Development of Live-Work Dwellings in Central Square, Cambridge, MA

Advances in technology along with social and economic changes are causing the decentralization of the workplace and making it possible for more professionals to work at home. Because of the greater and varied demands on the home, people will require more control over their environments to accommodate multiple uses, including those of professional work. Architecturally, this suggests a building that may support a range of programs and ownerships. An approach to this is to provide a framework in which issues of structure,

james rissling





delivery of services, circulation, transition and context are addressed. Simple available systems mediate between built and assembled elements. The built represents the framework or more fixed elements of construction, while assembled elements can be altered with relative ease in the interest of renewal or adaptation.

wendy kameoka

A Journey to the Water's Edge: Enhancing the Experience in the Landscape



A meandering highway passes through beautiful and diverse landscapes around the island of O'ahu, Hawaii. Cliff edges drop dramatically to the water. The design of a swimming facility on the cliff proposes to enhance the connection between an existing parking lot, the cliff and the cove by nurturing the intrinsic quality of the landscape, as well as enabling a new experience down to the water. The investigation focuses on ways of intervening with built architectural form in the existing topography and materials of the site, creating a procession through the site down to the water. The purpose is to enable a new experience of engaging the site through the interaction of architecture and landscape.



Harmonious Design: An Identity with Setting – Mother Nature's Museum for Children

The concept of architecture receiving identity from its specific site, thus belonging and contributing to its setting, is the premise of my thesis. By definition, harmony implies fitting, an orderly and pleasant joining by complement. Settler's Park provides a setting for a Children's Museum where the Rocky Mountain's edge meets the city limits with large outcroppings of rock. On the same site, a hillside of rubble is exposed as a reminder of the communities mining past and offers the opportunity to

charlotte williams

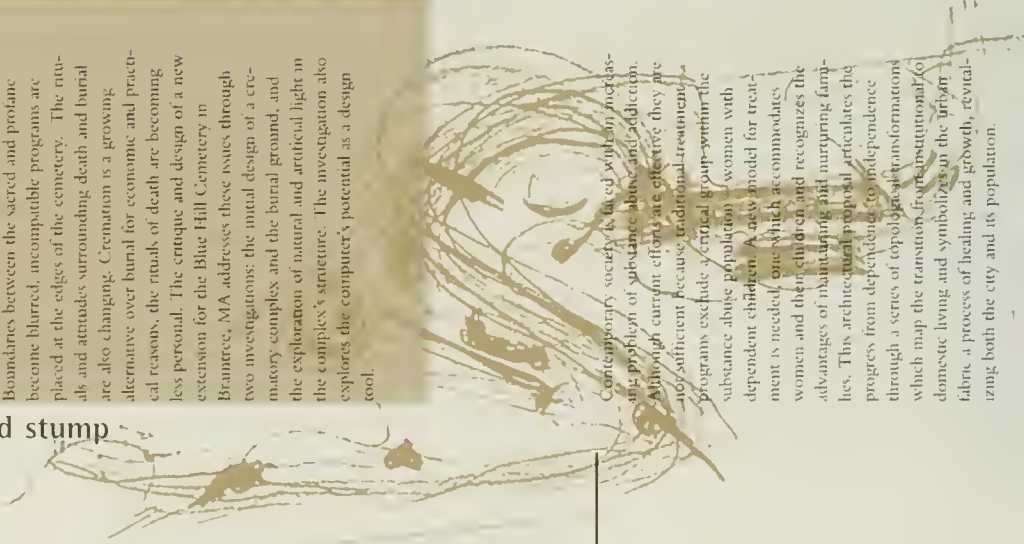
address environmental concerns. Through harmonious design, architecture reinforces a respect and cooperative relationship with nature



Siting the Cemetery: New Crematory and Burial Grounds for Braintree, MA

richard stump

The contemporary urban condition has placed stress on existing American cemeteries. Boundaries between the sacred and profane become blurred, incompatible programs are placed at the edges of the cemetery. The rituals and attitudes surrounding death and burial are also changing. Cremation is a growing alternative over burial for economic and practical reasons, the rituals of death are becoming less personal. The critique and design of a new extension for the Blue Hill Cemetery in Braintree, MA addresses these issues through two investigations: the initial design of a crematory complex and the burial ground, and the exploration of natural and artificial light in the complex's structure. The investigation also explores the computer's potential as a design tool.



ronald frankel

Levels of Dependence: A Drug Rehabilitation Facility for Mothers and Their Children



Contemporary society is faced with an increasing problem of substance abuse and addiction. Although current efforts are effective they are not sufficient because traditional treatment programs exclude a critical group within the substance abuse population: women with dependent children. A new model for treatment is needed, one which accommodates women and their children and recognizes the advantages of maintaining and nurturing families. This architectural proposal articulates the progress from dependence to independence through a series of topological transformations which map the transition from institutional to domestic living and symbolizes in the urban fabric, a process of healing and growth, revitalizing both the city and its population.



Expanded Class. Plan

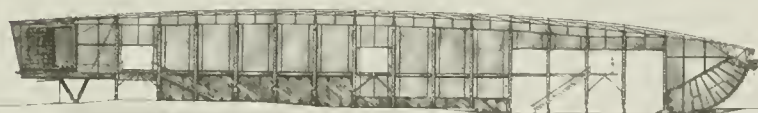
New into Old: Building Into/Onto/Around/Alongside, A School for the Art's in Boston's Theater District

kathryn archard

Architecturally and historically significant buildings pose challenges for their renewal which must be executed in such a way that they are sensitively modified, renovated, and adapted to their present urban environments. Empty and abandoned buildings lying in the heart of various historic districts in our cities could be "collaged" together as part of a newer ensemble of spaces. In this proposed School for the Arts Program in Boston's historic theater district, the traces of the old will be reinforced by the intervention of the new, thereby establishing a palimpsest of time which captures and exhibits a rich integration of new and old together.



Reassembling the Rolling Bridge: An Art Gallery in Fort Point Channel, Boston



Spanning the Fort Point Channel for nearly a century, Boston's Rolling Bridge is a familiar landmark to many railway commuters and residents of the city. As a symbol of the Industrial Age, it is also the last surviving example of its kind in the city. Unfortunately, the bridge has been targeted for demolition. The Rolling Bridge's history can be continued by re-utilizing its structural components in an alternative way. Such an approach will accomplish two tasks: first, referencing the original bridge to preserve its memory; and secondly, transforming the artifact by giving a new meaning for its purpose.

Suburban Office Space: An Exploration of Continuity and Difference

kyrre culver

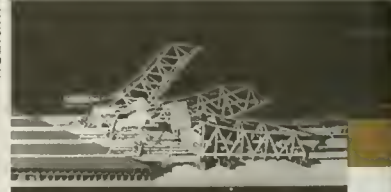
Anonymous boxes randomly scattered across fields and along freeway are images of a previous age when capital was the key corporate resource and the values of the workplace were efficiency, control and separation. In today's information society and global economy, people have become the corporation's strategic resource and workplace values have shifted to effectiveness, creativity and connectedness. Suburban office space ought to respond to these new values. The design of an office complex in Bellevue, Washington addresses effectiveness by clarifying programmatic uses; creativity by articulating differences related to context, solar orientation and program; and connectedness by allowing continuity in both building and landscape.

For Exchange: A Media Workplace in Mission Bay, California

chris nutter

A casualty of the containerization of ocean commerce, 350 acre Mission Bay in San Francisco has fallen to disuse over the last 20 to 25 years. Within the last 5 years, plans have been finalized to redevelop the area as a neighborhood. With unification and integration stated as their prime directives, planners have laid out a scheme which includes 7,000 dwelling units and more than four million square feet of office and R&D space. The thesis takes the "reality" of this site and the "base" conditions of the planners as a starting point for an exploration of what a R&D workplace could be like.

Medium



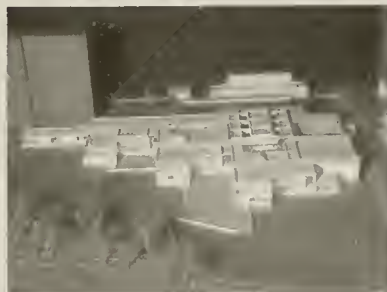
in this new utopian, post-industrial "future community". This proposed workplace aggressively pursues connections by exploiting adjacent relationships at various scales and experimental methods.

Berlin-Marzahn, Berlin's largest peripheral city, is an urban landscape of monolithic, pre-cast concrete apartment blocks which lack any ground definition and defy meaningful human habitation. In order to creatively infill and improve the left-over space lying between the mass housing blocks, it is the task of urban planners and architects to retroactively devise urban strategies and develop architectural projects. A campus within the already existing "dormitories" of a specific site in Berlin-Marzahn can inhabit the left-over spaces of this site and introduce order into the environment. A campus is a place – like a town – that physically and psychologically integrates people. In this case, a focus on learning provides a forum for interaction and communication, both in and outside the classroom.

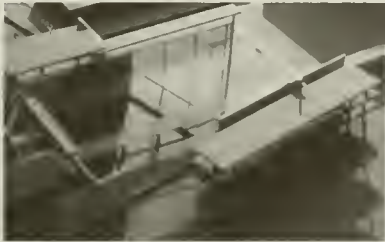
Front/Back/Side: Design of Outdoor Spaces for Multi-family Residences

gwynne darden

The current, unsatisfactory situation of detached, privately owned, multi-family residences calls for alternative solutions at both the broad scale of the block and at the scale of the spaces directly adjacent to the interiors. What alternative block arrangement will foster community interaction and provide the framework for the layout and design of these outdoor spaces? How should outdoor sitting areas, parking spots, entrances, entry paths, etc., be designed to reinforce and provide for these different requirements? A set of design principles for these types of spaces can be derived through a combination of analysis of "successful" spaces, and the redesign of an existing neighborhood/block in Cambridge, MA.



Redefining Order in the Urban Landscape: A Place of Interchange in Portland, Maine



This thesis explores how a modern public space may be built in a discontinuous and sparse industrial urban environment by claiming marginal spaces and ordering them. The area I have chosen for this investigation is on the outskirts of Portland, ME, at a point of adjacency defined by railroad tracks, streets, the regional bus station and a body of wetlands leading into the bay. I am proposing a place of interchange at a vital threshold to the city which will incorporate a train station, an exhibit space for railroad and Portland history, an auditorium, a shopping area and parking facilities.



Town of Airfield: A New Transit Oriented Community for the Former Naval Air Station in South Weymouth, MA

Some of the projected growth for the South Shore area may be accommodated in a new mixed use development on the grounds of the former Air Station. The proposed Town of Airfield houses up to 10,000 in a pedestrian friendly environment featuring a variety of housing options. An expansion of the existing Naval Air Station industrial facilities accommodates office as well as research and development buildings. Retail and additional office space are located in the vicinity of the train station, the town center of Airfield. The spatial organization of this area caters to both the automobile and to the pedestrian near the train station. It does so through site planning strategies that assemble traditional suburban building in new ways.

j. christoph panfil



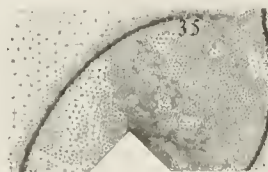
A Bioclimatic Approach to Integrated Design: Form, Technology and Architectural Knowledge

By incorporating concepts and methods from the study of non-linear dynamics and a broad base of scientific knowledge aimed at understanding physical behavior in nature, I propose a synthetic relationship between architectural elements, their physical performance in the context of natural phenomena, and their contribution to a coherent spatial structure. The contemporary urban office building, under economic pretenses, exhibits a particular over-dependence on external machinery for light, ventilation and thermal comfort. The use of advanced technology and scientific knowledge in the early process of design, with the use of computer tools as an aid to professional collaboration attempts to integrate the manifestation of physical energy – light, air, heat – in the building's final form.

An Urban Infill: A Residual Site in Boston

The passage of the Massachusetts Turnpike through the city of Boston, crossing the city from east to west at a level approximately twenty feet below the established datum, has resulted in deep perforations of the city's skin and in discontinuity of the urban fabric. The result is the formation of "leftover" sites in the city which are devoid of life. This solution proposes spanning over the highway with a structure and re-integrating this once residual site back to the surrounding community. This is accomplished through the connection and the formation of public pathways and plazas, within the surrounding context, and proposed development. The design tries to resolve two distinct structural systems – one which anchors itself along the dividers of the Turnpike and of the railway lines and one which sits on firm ground – into an integrated building.

andreas savvides



This thesis attempts to devise the use and expansion of a distinguished 18C building dominating a small island, Isla del Rey, in the deep sea port, Port de Maó of Menorca through the vehicle of a Marine Biology Center. The task allows for the exploration of a specific type of intervention, one which transforms both the isolated object of the historical building and the landscape of the site into a mutually dependent organization within the island and beyond. The design considers the morphology of the extension as an open system as described by H. Wölfflin's *Principles of Art History* and hopes to give a new meaning through the matrices of the context; expressing growth through a family of forms without the need for mimesis in the selection of architectural elements.

Collective Space in Support of Education

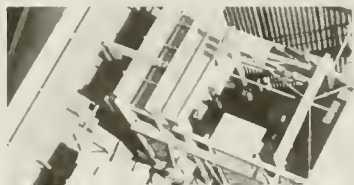
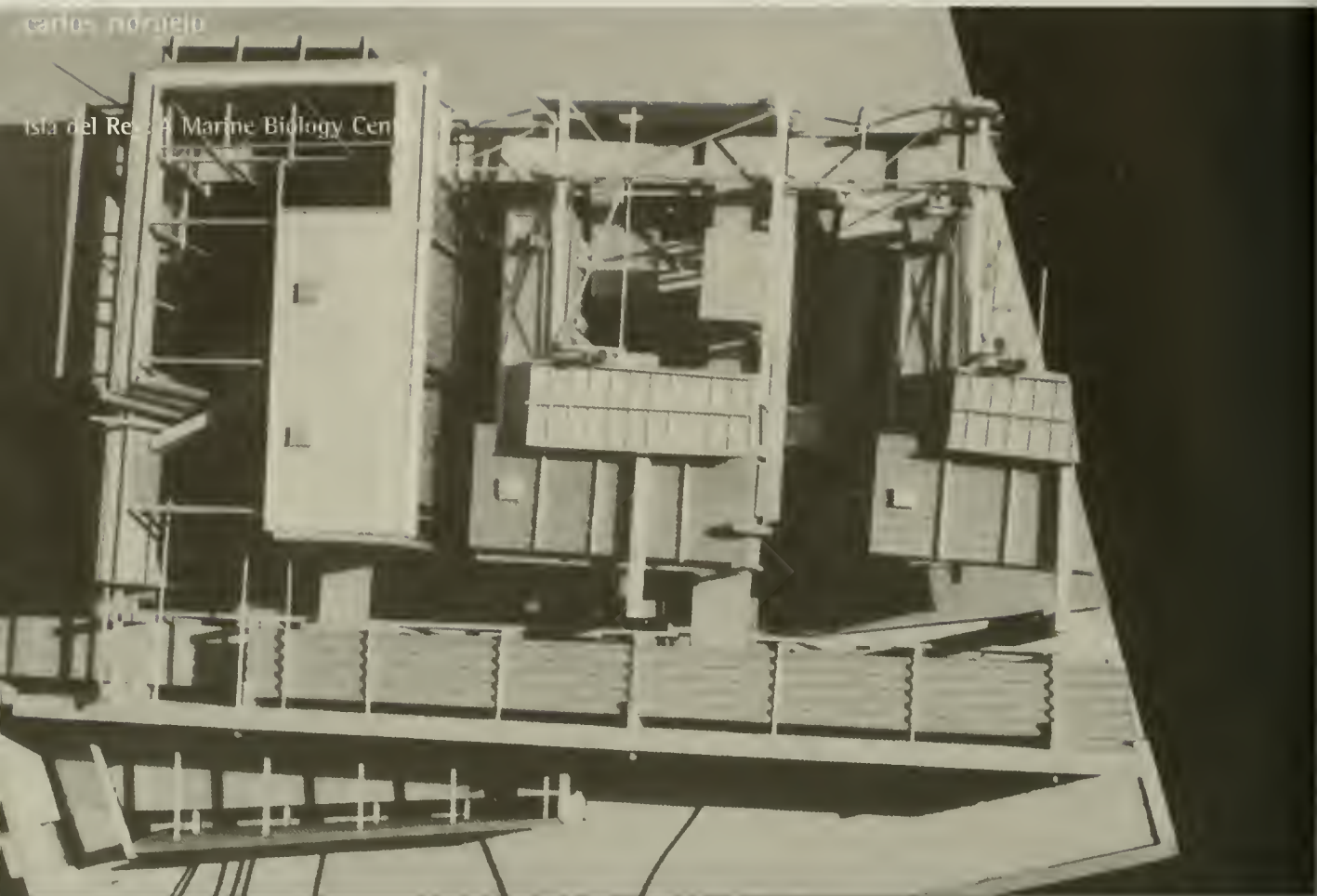
michael reid

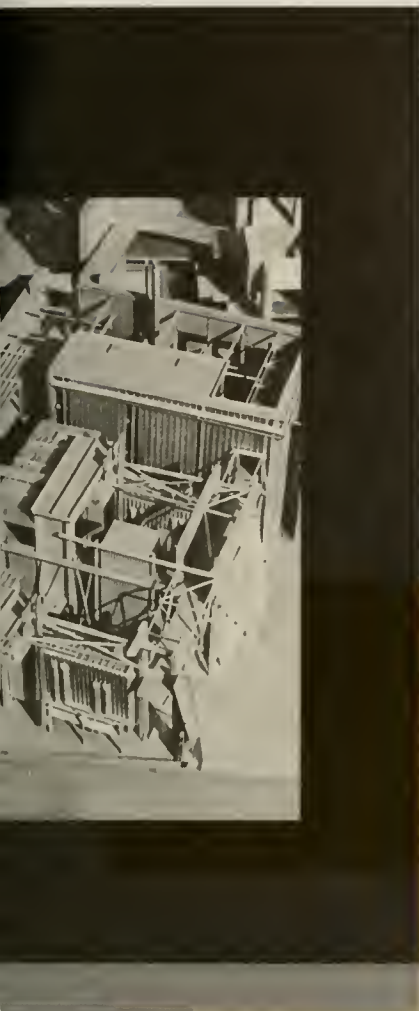
The fundamental question this thesis seeks to answer is: How can the architectural experience of a school reinforce the educational experience of the students as well as the school's value in society? By designing a small public high school in Cambridge, MA, I seek to test the following hypotheses: (1) A cohesive community needs to have a *genius loci* to operate, a necessary condition for which is a collective space. (2) The school cannot be isolated, it must have built exchanges with the larger community so that the school's community is sustained. (3) If the school is the institutionalization of "informal" education then the school must have a variety of spaces that will allow the five basic activities of "informal" education at a variety of size gatherings as they do in the larger community. (4) The school's form should be non-hierarchical but reflect democracy.

Building the Water Edge: A Public Place for Art and Artists at Fort Point Channel

audrey godwin

A multi-layered promenade into which various activities are interwoven addresses the water's edge at Boston's Fort Point Channel and serves as a public event to establish continuity of movement along the waterfront. Instead of viewing the building as a single enclosure or





container, the design explores an alternative constructional perspective in which the built form becomes a three dimensional screen, incorporating into its structural framework public open spaces, as well as visual and spatial interactions. The proposed project echoes the materials, language and form of the site's two teatomes: on one side the wooden piles and decking, on the other, industrial buildings which are firmly anchored to the ground and present continuous surfaces.

jack de valpine

Representations of Light in Design: Light, Computation and Praxis



Sophisticated computation tools for accurately representing both natural and artificial light are now available. This thesis enunciates a design praxis that utilizes computer visualization as the primary exploratory method for understanding the relations of light to form. The design of a small library in Boston serves as the domain for developing a critical understanding of such a design praxis. The library type provides a variety of circumstances demanding the control of light and a rich set of precedents in which the use of light is paramount to the spatial experience.

Mediating between the Virtual and the Physical: A Lecture Hall for the UC Berkeley Campus

haldane liew

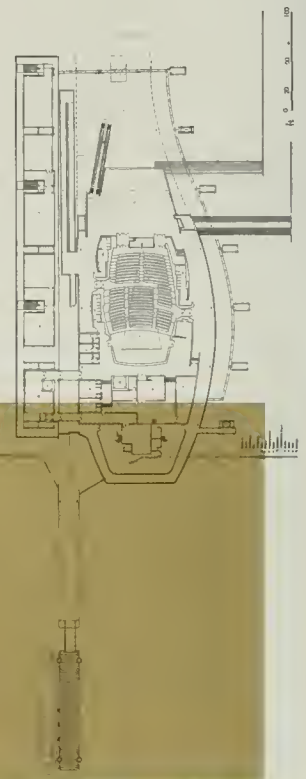
Cyberspace, Virtual Reality, the Internet have condensed our physical world by allowing us to communicate independently of space and time. The consequences of these changes are now beginning to impact the built environment. A design for a lecture hall on the UC Berkeley campus investigates a mediation between the physical and the virtual worlds. A double skinned shell divides the real and virtual worlds, where the inside is configured to allow for a seamless and idealized representation of a virtual world and the outside is layered and distorted according to the immediate physical circumstances of site and physical environment. The double skinned shell also accommodates movement of digital screens allowing for an in between mode where two worlds can be simultaneously present.

Western modernization in developing countries is always bringing in so called international style despite differences of regional, environmental and social conditions. One recent example is China which opened its doors to the West more than fifteen years ago. In my home country, Kaping, in the Canton Province of Southern China the international style dominates architectural design in housing development. There is no doubt that architectural design represents the present, yet different cultures in different regions and environments are at various "presents," as such, architectural design should not have only one solution. Vernacular architecture in Kaping has its own unique characteristics: narrow alleys, small courtyards and watchtowers. This thesis searches for new local architectural identities in Kaping which respond to the local climate, social activities, economic development and modern technologies.

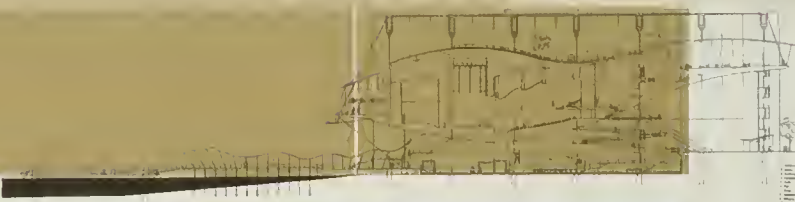
lian zhen



chih-jen yeh (b.k.)
Straight, No Chaser: Drawing a
Parallel Between Architecture and
Music



Architecture and Music share the same vocabularies: rhythm, proportion, harmony, repetition, contrast, etc. and contain similar structure in terms of composition and spatial characteristics. A multi-use art center will be the instrument through which to investigate the relationship of these two art forms, seeking to establish a methodology through repetition, displacement, contrast, transition and other devices, which enables an understanding of the inherent nature of both. The new cultural facilities, containing the programmatic elements: art galleries, exposition space and an auditorium will be located near the Dorchester Bay in New Squantum in North Quincy, Massachusetts.



Architecture as a Stage for Play and Self Expression: An Intervention on Public Open Space in Istanbul, Turkey

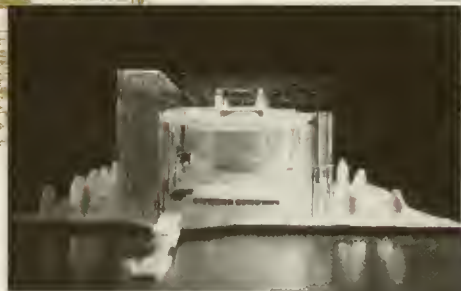
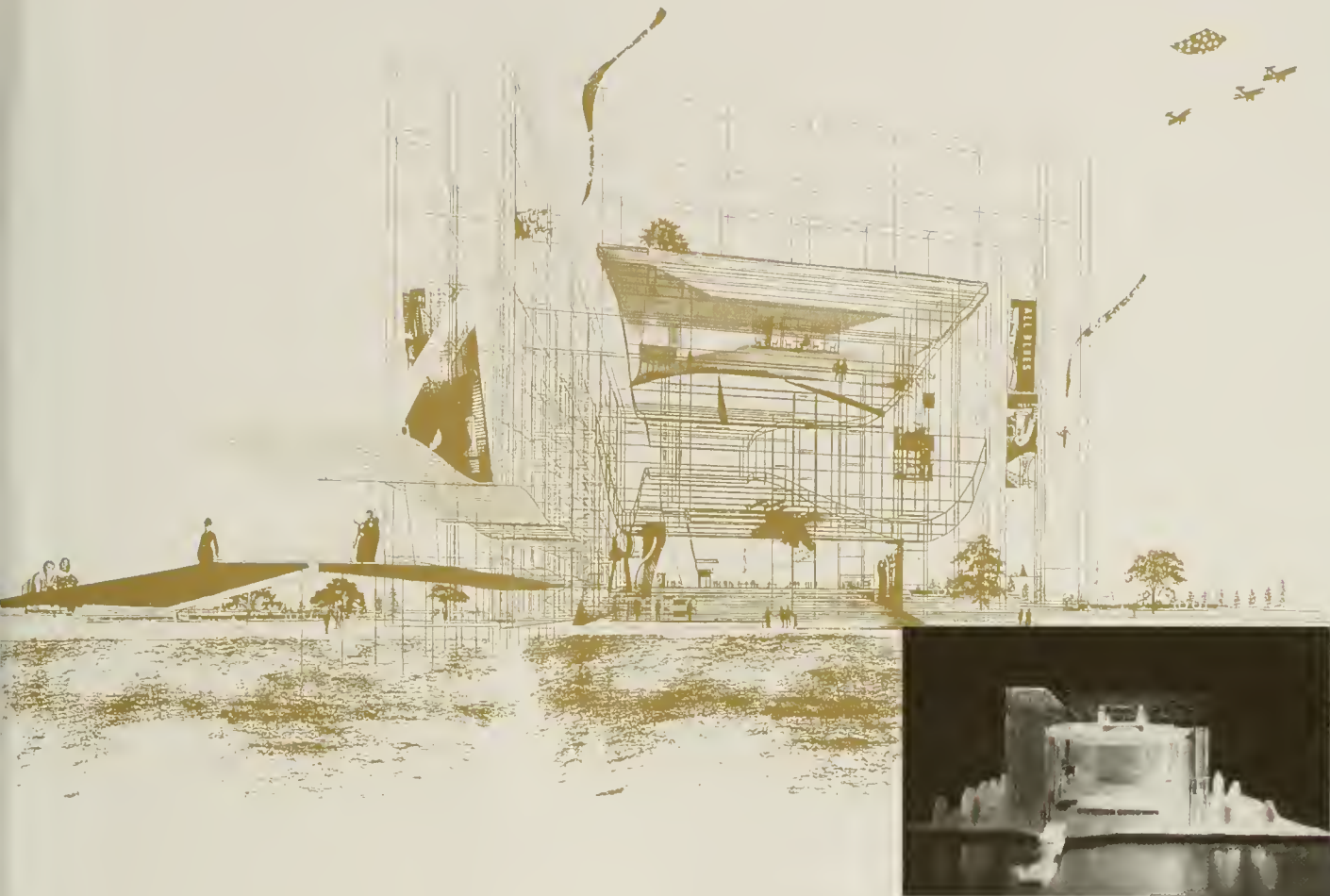
rukiye devres

People of all races, cultures and religious backgrounds share the need for public place for human interaction and self expression. Unfortunately, in a city of twelve million people, Istanbul, where public space has traditionally been associated with the mosque, historical precedents for secular public places do not exist. A proposed plaza located at the crossing of transportation and recreational paths explores the introduction of a public open space into one of the unused sections of Istanbul's waterfront. Self expression and play are the guiding forces behind the program which is organized around a big pool, a water fountain marking the public place and a reminder of water as the life giver of Istanbul.

Theater and Community: An Architectural Language for Social Interaction

ernesto rodríguez

The Puerto Rican experimental theater group, Teatros de Cayey, directed by Rosa Luisa Márquez and artist Antonio Martorell, creates a work based on the theatrical dialogue between dramatic text and pictorial image. Their theater interacts with low income communities, schools and elderly institutions with the assumption that people do not have to be actors to make theater and that theater can be used as a social transforming community tool. This design for a new performance space in metropolitan San Juan, Puerto Rico proposes a structure shared by the existing low income community of Piñones and Márquez and Martorell's theater company. The selection of building systems and their deployment within the landscape responds to the unique character of Márquez and Martorell's theater company.



"... the best theses ground themselves in some kind of recognition of how changing conditions have necessitated the re-thinking of conventional solutions. Such a grounding in changed conditions allows for critique of the conventional solution and suggests how the student might begin to formulate an alternative."

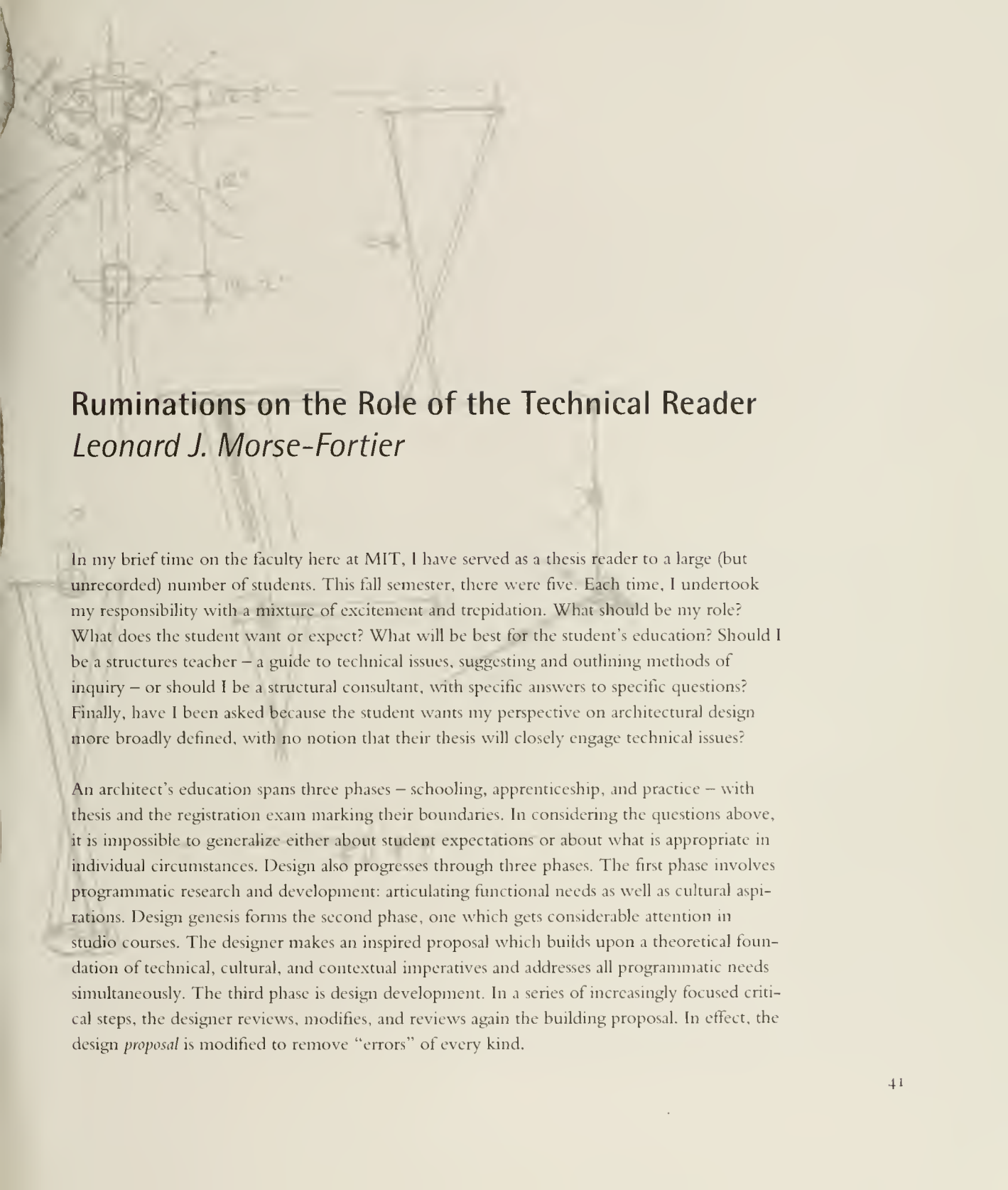
– *Ellen Dunham-Jones*

"with the thesis, one should be electing a subject matter that is a new engagement, a hypothesis which has long been lurking in one's mind – a critical thought (which is not necessarily limited to "architecture") that now should be poignantly inquired in relation to architectural design ...thus an endeavor yet untried by you and now will be attempted for the first time – as the first serious try ..."

– *Shun Kanda*

"Focus on a single idea."

– *Nasr-e Rabbat*



Ruminations on the Role of the Technical Reader

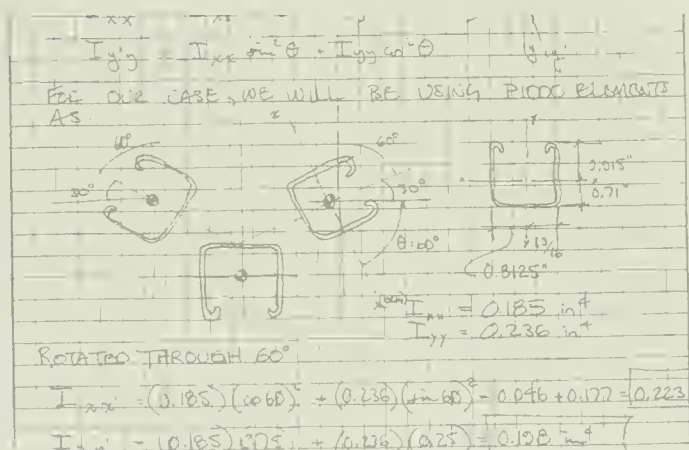
Leonard J. Morse-Fortier

In my brief time on the faculty here at MIT, I have served as a thesis reader to a large (but unrecorded) number of students. This fall semester, there were five. Each time, I undertook my responsibility with a mixture of excitement and trepidation. What should be my role? What does the student want or expect? What will be best for the student's education? Should I be a structures teacher – a guide to technical issues, suggesting and outlining methods of inquiry – or should I be a structural consultant, with specific answers to specific questions? Finally, have I been asked because the student wants my perspective on architectural design more broadly defined, with no notion that their thesis will closely engage technical issues?

An architect's education spans three phases – schooling, apprenticeship, and practice – with thesis and the registration exam marking their boundaries. In considering the questions above, it is impossible to generalize either about student expectations or about what is appropriate in individual circumstances. Design also progresses through three phases. The first phase involves programmatic research and development: articulating functional needs as well as cultural aspirations. Design genesis forms the second phase, one which gets considerable attention in studio courses. The designer makes an inspired proposal which builds upon a theoretical foundation of technical, cultural, and contextual imperatives and addresses all programmatic needs simultaneously. The third phase is design development. In a series of increasingly focused critical steps, the designer reviews, modifies, and reviews again the building proposal. In effect, the design *proposal* is modified to remove “errors” of every kind.

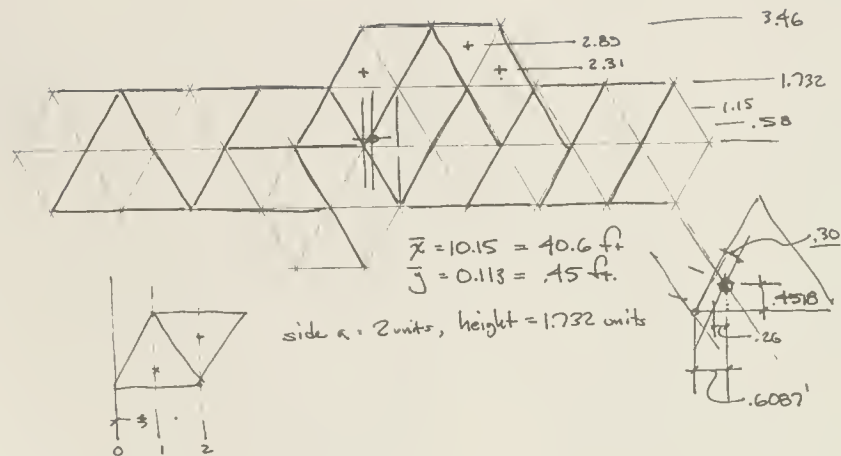
A recent architecture school graduate might well be shocked, disillusioned, or even hurt to find that the emphasis on design genesis that dominated his schooling plays a very small role in actual architectural practice. As such, architecture schools must defend their emphasis on studio training at the expense of other pedagogies. While it is the unique place where design genesis is taught, studio should move beyond developing strategies for stimulating creativity and formalizing design proposals to teaching methods of critical analysis – including technical analysis – of those proposals. For technology (or HTC) issues, specialists may enter the studio to help students better develop their subject knowledge to support critical revision of their designs. Unfortunately, with the time limitations of semester studios, and with each student's background and technical knowledge evolving only slowly, this critical revision happens in pieces and not always well. Consequently, the thesis provides the best opportunity to open up a design proposal to the full range of critical discourse.

I see thesis as forming an important bridge between school and practice – neither repeating in form or content the style of the various studios that preceded it, nor emulating the realities and constraints of professional practice. Working independently, a student will be responsible for programmatic research, for a competent review of precedents, for making her own design proposal, and for executing all aspects of design development. Clearly, a student (as would most professionals) needs help. Faculty advisor and readers should be carefully chosen as guides to the research, as critics of both proposal and revisions and as resources throughout design development.



A thesis begins with a hypothesis, tests that hypothesis, and either corroborates or not the original hypothesis. In design, this is a little trickier than in other disciplines, and the definition of a design thesis has been left vague too often. More importantly, I have often felt that many student theses did not get beyond the programmatic and proposal-genesis phases of design. To be complete, regardless of its theoretical underpinnings and intentions, a thesis design proposal must be pushed to

critical review and revision in each of a number of areas, including technical feasibility. This does not mean that the final design must be obviously constructable, but neither should it break any laws – including gravity. Most important, no final thesis design should be so unrealistic that to make it work would require dramatic transformation, especially if that transformation would compromise its theoretical basis.

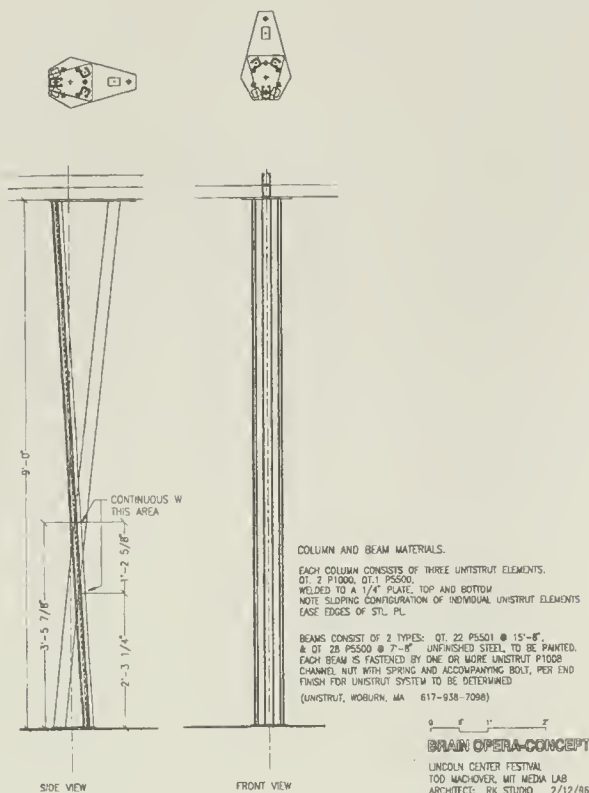


While critical design review may be isolated in one knowledge domain, formal changes inevitably effect several domains simultaneously.¹ In practice, the design professional also manages several knowledge spheres simultaneously, possibly working with technical experts, but retaining complete responsibility for the synthetic impact of design revisions.² The student design thesis represents an exercise in which the designer often lacks sufficient experience to support a sophisticated design proposal in the first place. Together with a lack of experience interacting with domain-specific consultants, this lack of design maturity places a unique burden on advisor and readers both. A student lacks a sound technical basis for founding a design proposal, both through a relative paucity of technical coursework, and because of a lack of design review experience. Nevertheless, the student must aspire to move beyond mere technical adequacy to develop a structural, thermal, lighting, or acoustical strategy that *enhances* his architectural proposal. In light of this unique design environment, I will take my introductory questions and offer the following answers, trying with each to convey how I adjust my approach to meet the unique circumstances of each student, thesis project, and constellation of advisor and readers.

What should be my role? At the earliest, I should guide each student to historical precedents for the building type they are exploring. In this, which I call the storytelling role, I assume responsibility for making the abstractions from built form to the kinds of simple structural diagrams which I teach in my classes. My role varies from reminding students how to use basic analytical tools to providing specific insights into how to estimate ele-

1. For example, a response to climatic imperatives of site may call for changing passive solar gain. Adding (or removing) enclosure will alter the quality of aesthetics, daylight, enclosure performance, and structural potential.

2. Through years of practice and collaboration, the professional learns to anticipate the shortcomings of certain decisions made at the genesis phase. In effect, the expertise deployed in the downstream, design-development phase begins to feedback to help shape design proposals first made.



This article is illustrated with sketches and communications from Len Morse-Fortier's design development notes. The project is a staging platform for the Media Lab's Brain Opera to be constructed in Lincoln Center this Summer.

how to use basic analytical tools to providing specific insights into how to estimate element sizes and develop structural forms.

What does the student want or expect? At one extreme, students may expect me to function as a structural consultant, answering questions about "how?" and "how big?". MIT's architecture school once had a building technology faculty that was tailored to this role, and the culture embraced this kind of mock-practice model. At the other extreme, students view me as a design collaborator, expecting both technical insights *and* theoretical discourse. Although I and any designer prefers this latter model, both extremes have their shortcomings. Emulating the role of a professional consultant liberates

the student from making his own analyses, but it also undermines the educational role of thesis. In the design collaborator/educator role, the risks lie in over-advicing. If the student is still formulating technical intentions, too much design input from a reader may influence those intentions unduly. While a student may come to expect technical consulting, the technical reader must temper his input to match the student's needs, and to honor the educational objectives of thesis.

Aside from student expectations, questions about roles arise from the composition and dynamics of the thesis committee: advisor and readers. Theoretical questions are often perceived to be the exclusive domain of the thesis advisor. In this case, the reader is expected *not* to discuss questions of "why?". This is unnecessarily restrictive and narrows the thesis. Where the technical reader is familiar with architectural design, and where his role is broadened to include the full range of architectural discussion, he can help a student understand not just the range of design choices, but their implications as well. However, students are poorly equipped to synthesize the reader's knowledge domain

without substantial help. If the technical reader provides this help through direct input, then the student – serving as principal designer – may be overmatched. If the advisor filters the technical information, then a bias is introduced. Clearly, in establishing the faculty team, the readers' roles should be explicitly agreed to before hand and carefully negotiated throughout.

What will be best for the student's education? Should I be a structures teacher; a guide to technical issues, suggesting and outlining methods of inquiry, or should I be a structural consultant, with specific answers to specific questions? Serving as a structural consultant is often the best way to move a student past a sticking point. Alternatively, the principles taught and learned in technical courses form an excellent foundation for understanding the synthetic issues within thesis. A student's educational needs will usually be met best by carefully directing a line of inquiry, or by guiding a simple analysis. Wherever possible, I try to direct each student to avenues of independent research and analysis that will allow her to find the answer on her own. I try to serve as an educator first, and as design consultant last. Practically, however, I inevitably compromise this position by providing direct technical answers to some questions.

Have I been asked because the student wants my perspective on architectural design more broadly defined, with no notion that their thesis will closely engage technical issues? This happens occasionally. As should be clear by now, I have a lot to say about the architectural design process, the making of buildings, and the transformation of intentions into feasible architectural proposals. While I am always eager to share my technical expertise, I joined this faculty to be actively engaged in the discourse on architectural design. I have enjoyed my role as reader most when I am discussing the theoretical underpinnings of design, when I can understand a student's intentions well enough to guide them toward technical solutions that support and enhance these intentions, and when the resulting design becomes better as a result.

Assistant Professor of Building Technology at Massachusetts Institute of Technology since 1990, Leonard Morse-Fortier has taught in the civil engineering department at the University of Notre Dame and at Princeton University while pursuing his MSE (1979) and Ph.D (1989) in civil engineering.

Trinity Church Boston
 George Heath
 Dec 1874



Visuality and Vision in the Teaching of Architecture

Ákos Moravánszky

While architectural monographs usually are on the top of the bestseller lists of architectural bookstores, recent successful publications such as *The Projective Cast* by Robin Evans, *The Space of Appearance* by George Baird or *Studies in Tectonic Culture* by Kenneth Frampton deal with issues of architectural theory. In February, the Wood Auditorium of Columbia University was bustling with students interested in a discussion of Frampton's book. The debate focused on issues such as "art-form" and "core-form," or the relation of construction and cladding in architecture, which would have hardly generated any attention a few years ago, except for a narrow circle of scholars. What explains this sudden interest in the theories of nineteenth-century architects like Carl Bötticher or Gottfried Semper? Is it just the impact of the media success of architects, who are more versed in the marketing of their ideologies than in design? Or is it the recognition that if architecture wants to regain its social relevance, architects have to understand the ways it communicates? The changing interpretational schemes of traditional architectural history, however, are telling us more about the interpreter and the context than about the buildings.

The call for a greater role for theory in architectural education is urgent. But are the hopes and expectations regarding theory-aided design realistic? Is it chance that since Semper's *Der Stil* no attempt has been made to write a comprehensive theory of architecture? Semper's

magnum opus itself remained unfinished. Not only unfinished, it was misunderstood by following generations who read it through their fundamentally different frame of interpretation. What architects of our century called theory was formatted for quick consumption and maximum effect. The manifesto is the characteristic genre – Ulrich Conrads could easily compile the most important documents of modern architecture in a slim volume.¹ The most memorable architectural programs became the soundbites, preferably three words such as “form follows function” or “less is more.”

1. Ulrich Conrads, *Programs and Manifestoes on 20th-Century Architecture*, ©1970, Lund Humphries, London; MIT Press, Cambridge, MA

In architectural history, buildings and figures in time are connected by trajectories, frequently depicted like leaves, twigs, branches, trunks and roots of an imaginary tree. Buildings such as Gehry’s Vitra building are supposed to be close to us, while Richardson’s Trinity church is far away. We can reach it from recent California architecture only via a Schindler-Wright-Sullivan itinerary. In reality Trinity church is closer to us than the Vitra museum, certainly geographically, but for many, also in an intellectual sense. The latter has a strong material presence, and we can enter it whenever we happen to be on Copley Square, while the other only exists as the memory of a magazine illustration. Although even

2. Andreas Papadakis, Cathrine Cooke, Andrew Benjamin eds, *Deconstruction: Omnibus Volume*, © 1989, Rizzoli, New York: Catherine Cooke, *Russian Precursors*

deconstructivists seem to need the ennobling effect of the proper family tree (see the references to Tatlin and Chernikhov in the exhibition catalogues)², the evolutionary tree of architectural history is a fiction itself.

Architectural history is generally regarded as a particular field of art history, using the same philosophical assumptions and methodologies. However, the disregard for the specificity of architecture, for its direct ties to everyday life and technology, frequently results in false conclusions. The definition of the avant-garde as an art movement critical of the separation of bourgeois art from the practice of everyday life certainly can not be directly applied to architecture.

Architectural history writing today is dominated by the intention to bolster certain intellectual positions. Whether these are advanced as a critique of structures of domination (based on gender, class relations, nationality) or the destruction of certain assumptions of traditional historiography, historians produced an enormous ideological superstructure. By disregarding information that does not fit into the picture, buildings and architects are exploited as mere evidence for a preconceived thesis. Justified by the poststructuralist skepticism in judgements based on

“truth,” in the workshops of architectural historiography any meaning can be installed in a given architectural form. Many architects and historians of architecture reject the historical method altogether, and argue instead for a poetic description guided by the visual experience of architecture, by the archeology of the “surgical eye.”

Although “critiquing” modernist positions is still an entertaining pastime of seminars, the discomfort with the relatively easily applicable recipes is growing. Students of art history learned to regard the art object as the signifier of reality and proceed from here to the signified. The thinking of architectural students usually moves from the architectural object, as a part of reality, toward the questions of its production. This approach, which probably could be called “pragmatic” in a wider sense, could be used to outline a program for an object-based architectural theory.

This theory would look at the building not as the representation of an idea, or the form of a content to be deciphered, but would try to reconstruct how it was produced. Without first describing the specific political, cultural, economical constellation of the time, we would be interested in the concrete decisions made by the architect, those which resulted in

the given architectural solution. It is not the conventions of style of the period in question which would interest us, but how and why these conventions were accepted or refused in the specific case, whether and how a problem was recognized and formulated. This approach implies that we do not take for granted that architecture is defined by the cultural context, but rather are interested exactly in the different possibilities of the architects to evaluate and to accept or to reject the general approach of the conventions and norms of his time. What were the margins of freedom in a given case? How

Vitra Design Museum with a Claes Oldenburg and Coosje van Bruggen sculpture in foreground.



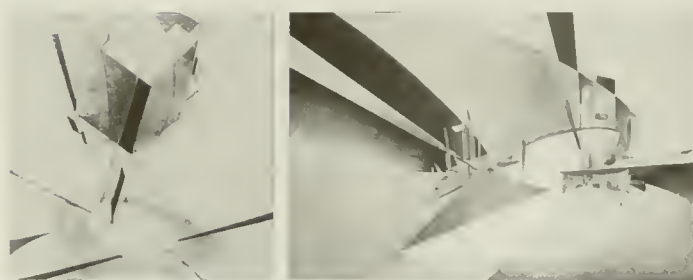
were these margins explored as the project developed from the first sketch to the executed building? These are questions whose exploration would be very fruitful for design students.

An architectural “vision” is a utopia, the anticipation of something that does not yet exist. It is easy for us today to see the architecture of Otto Wagner or Adolf Loos as early examples of a modern lan-

guage. But around 1900 such buildings were the “seeds of time,” to paraphrase Fredric Jameson. In their time, they appeared as mutations, as their design required a radically new way of imagination. How is it possible, that in a social environment with one economy, one dominant culture, a different reality can take shape in architecture? One of the most important tasks of architectural theory is to answer this question by analyzing the outstanding achievements, unintimidated by accusations of a master-work-centered “elitism.”

We need to reject the notion that the question of quality should remain open, since such judgements are not based on truth. The quality of the architectural solution depends to a great degree on the readiness to explore the margins of freedom and to risk a jump into the unknown.

Quality can be discussed, of course, also in terms of the material appearance of the work which is too often overlooked when we analyze architecture. Moral concepts such as the “truth to material” need to be critically analyzed. Our recent understanding of architecture still depends on hierarchies of material values in an idealistic system. Material is appreciated as representative of certain qualities (for instance, the ruggedness of the granite, the



El Lissitzky, *Proun 5a* (1921); Zaha Hadid, *Trafelgar Square Buildings Project, Lobbies of Towers* (1985)

hand-made appearance of the brick, the clarity of the glass), rather than the physical qualities themselves. Eventually, a material such as a roughly hewn stone plinth contrasted to the smooth surface of the facade is shaped to show a primitive, more “earthen” state, because it has to represent a subordinated, lower step within the entity of the artwork. Materials became during the history of architecture loaded with meanings. Today we are no longer aware of these meanings, and their conscious “reading” has turned into a more direct appreciation of the sensuality of material surfaces, both natural and industrial.

The issue of materials is only one, albeit important, area for architectural theory. Technology, anthropology, the architectural profession itself (including education), domesticity and daily life are further issues. What matters is the question what architecture can be if it will start anew the interrupted dialogues with science, art and first of all, with society. Only an architectural theory that is anchored in the body of buildings could help to resist the dissolution of architecture in pure visuality or in technological procedures.

Visiting Associate Professor of the History of Architecture at Massachusetts Institute of Technology since 1991, Ákos Moravánszky has practiced architecture in Budapest and Vienna and, as an advisor to the Getty Center for the History of Art and the Humanities in Santa Monica, is involved in a comprehensive inventory of the architectural monuments of modernism in Central Europe. He earned a Diploma in Architecture from the Budapest Technical University in 1974, a Doctorate in Technical Science from the Vienna Technical University in 1980, and a Candidate in Science from the Hungarian Academy of Sciences in 1990.



Notes from the Profession

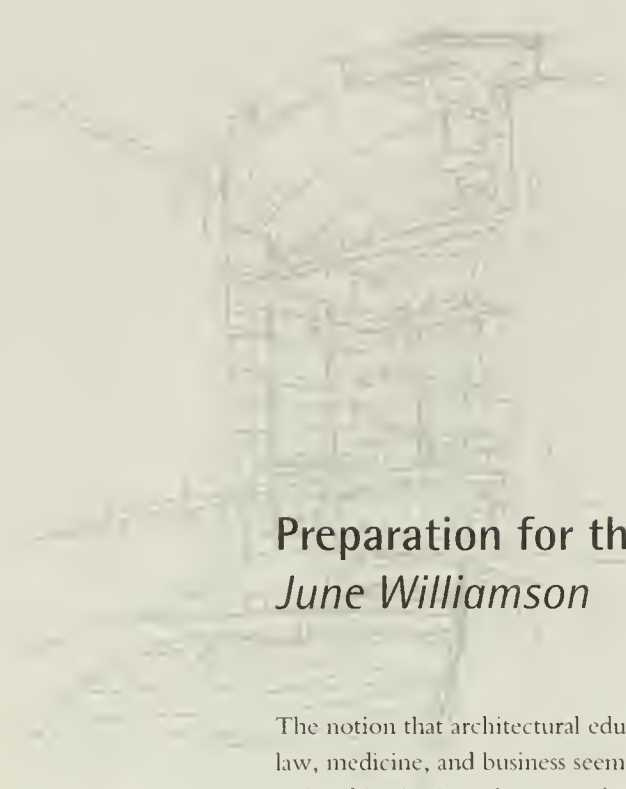
N. Michael McKinnell, FAIA

The task of architectural education is somewhat similar to preparing for a career in musical composition for one who does not play a musical instrument – both the craft by which the art may be pursued as well as the discipline of compositional technique (and thereby expressive capacities) are absent. An aroused sensitivity through a critical exposure to either music or building is an obvious advantage and the evidence of creative talent in an analogous art form – in the case of architecture this is usually drawing, painting or sculpture – is an indicator of potential success, and it is on this evidence that admission to a school of architecture is usually based.

It may be reasonably argued that in a successful work of architecture both means and ends, craft and content are, or should be, indistinguishable; that the entering student starts at ground zero in both areas is certain. This being the case, architectural education must proceed by way of a carefully and precisely calibrated progression of exercises in which the relationship of lessons addressing the craft of realization and lessons addressing the nature of the object to be realized is clearly understood by both student and teacher. Of course, the brilliant student will always strive to transcend these terms of reference and the wise critic will always encourage this, but to transcend the terms of reference is to rise above and beyond them, not to avoid or sidestep them.

The purpose of thesis is to allow, indeed to oblige the student rather than the teacher to set the terms of reference and in turn to have his critic give advice and make judgement with respect to those terms. Students necessarily reflect back to the school the nature of their preparation when faced with this task. Too often the thesis is interpreted as nothing more than the dubious freedom of choice of building type, location and/or social program. However, if the inter-relationship and inter-dependence of means and ends has been at the core of each preparatory exercise then it is not unreasonable to expect the thesis formation, its content and its presentation to be clear and to allow for informed commentary and judgement.

Michael McKinnell is a senior design partner with the firm Kallmann, McKinnell, Wood (est. 1962). He was a professor at Harvard University's Graduate School of Design for twenty-five years and has taught at Yale University, the University of Manchester, and Columbia University.



Preparation for the Profession?

June Williamson

The notion that architectural education is a professional education in the same category as law, medicine, and business seems to have become obscured. When we look at the educational institutions that serve those professions it becomes clear that a large part of the schooling is geared towards the placement of graduates in jobs. As a result, it sometimes seems that the main challenge of the student in those professional programs is simply to get accepted into the programs. The first year then becomes a weeding out process after which students, if they stay within the bounds of prescribed paths, can find themselves in well-paying, respected jobs when they graduate.

Conversely, in architecture at MIT the pressures increase over the course of the years of study and culminate in the master's thesis. The thesis semester is a physically and mentally grueling experience that leaves students thoroughly spent – and usually jobless – when they graduate. I didn't even have the opportunity to think about employment during my thesis, let alone prepare for it.[†]

This state of exhaustion is in some ways rewarding. When I finished, I certainly deserved the sense of accomplishment I felt. But there are also scars. The process of architectural education depends on adopting a critical stance. Not only do architects solve problems in the physical environment but we must identify them too, even when they have been

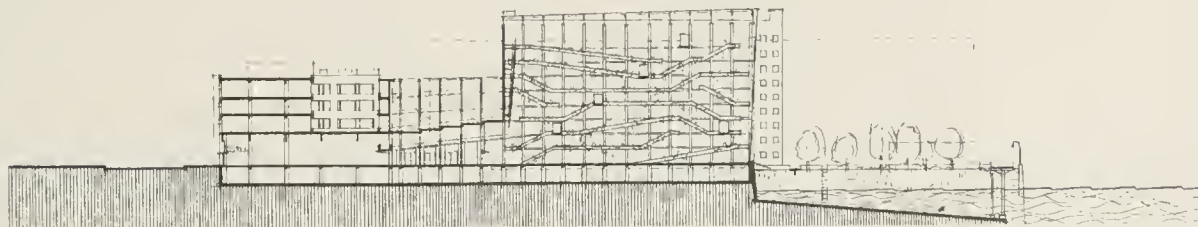
[†] The noun "thesis" has come to connote the entire experience, not just the final product.

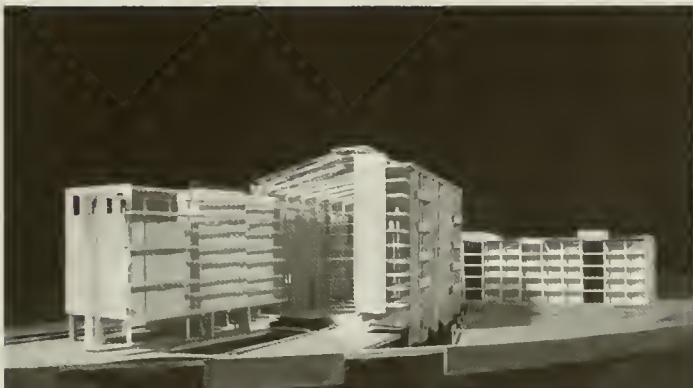
inadvertantly caused by our colleagues. As a student I became accustomed to receiving public criticism, and also to exercising my ever improving critical faculties on myself. During thesis, a student's harshest critic is often his or herself.

The next issue to consider is how the current thesis process developed. I think that the Beaux Arts legacy is pervasive at a deep structural level in architectural curricula. When this particular theory of architectural education became popular in this country, architecture was just becoming professionalized. Many fewer students, of homogenous backgrounds, were preparing for slots in a limited number of firms whose scope of practice was relatively defined. Architects designed public buildings, institutions, and monuments, as well as domestic residences for the wealthy. Within this world a thesis endeavor consisted of the development, primarily in plan, of a singular building

type with fairly specific programmatic requirements (embassy, library), and the production of a set of carefully rendered presentation drawings. This work could then be "judged" by educators in comparison with the work of other students according to a generally recognized set of criteria. Prospective employers were also adept at evaluating this work and could easily recognize the potential contribution of various graduating students as employees in their firms. In this context, the thesis operated within professional architecture education in much the same way that various job placement activities in other professional schools operate today – to secure graduating students a place in the profession.

What we have today in architecture is a vastly different professional landscape where the types of work a graduating student might seek are highly diversified. The work that the student is likely to have





pursued in his or her thesis is certain to be individualistic, if not openly idiosyncratic or deliberately obscure and theoretical so as not to appear professionally focused. It is perhaps redundant to note that these investigations are usually distinct from the modes of practice with which the student will become involved, for diversification within practice seems to be shaped by different (largely economic) forces.

This is not to say that there should not be a distinction between educational endeavors and professional practice, and I for one found my thesis investigation to be highly rewarding and motivating. What concerns me, to reiterate, is the extent to which students graduate in an exhausted state and are often insecure, despite their achievements, about their abilities and prospects. I don't think that this should or must be so.

Perhaps one path towards finding a solution to the impasse that surrounds the thesis at MIT is to look at the history of the thesis, its roots in the Beaux Arts system, and to closely examine that history in order to seek a mode for effective structural transformation of thesis methodology. I believe that the system may be effectively adapted to more closely meet current needs by recognizing and jettisoning vestigial aspects that date back to conditions that no longer exist. Perhaps the thesis could occur in the penultimate semester, to be understood as a period of introspection, which could be followed by a final semester of reflection and projection towards the commencement of a career.

June Williamson is a 1994 graduate of the Massachusetts Institute of Technology Master of Architecture program. For her thesis entitled, "The Boston Federal Courthouse: Institutional Places and the National Face," she was awarded the Ralph Adams Cram Award. (Illustrations for this article come from this thesis work). June is currently working towards licensure and teaches introductory studio at the Boston Architectural Center.



The Art and Profession of Thesis-Making

Wellington Reiter

As any student currently working on his or her thesis will attest, the supreme difficulty of the project is that it doesn't fight back. This is not surprising in that the project doesn't really exist; the thesis is a piece of fiction. Without the benefit of some external "authority" as its genesis, maintaining faith in the question as posed, let alone the pursuit of an answer, is the effort which seems to consume most thesis students. The topic that only a short while ago was so vital and interesting (and sure to produce truckloads of visual propaganda for the big review), begins to evaporate almost as soon as the student reaches out to touch it. Architecture produced in a laboratory is alchemy; the results are mirages. The angst that fills the thesis studio is about the disorientation that these hallucinations produce rather than real architectural problem-solving.

The real question about the architectural thesis is not whether it is an interesting or valuable exercise, but instead, what does it measure – art or practice? Being responsible for both sides of the equation – the asking and the answering – is a form of shadow-boxing



Illustrations on this and previous page from Wellington Reiter's original thesis

that most artists take to be normal activity. The world of the painter, sculptor, writer, or composer is about constantly needing to renew one's confidence in one's work and to be convinced (even by deception) that it matters, especially in the face of cultural indifference or hostility. External to their art, the triumph of self-affirmation is in part why we hold artists in such high regard and why their meeting pathetic and lonely ends is part of our folklore. Albeit

at a less heroic scale, the thesis demands much of the same process of introspection but we never discuss it in these terms. In my opinion, those who enjoy this rush and can power through the doubt are strong candidates for becoming something other than architects.

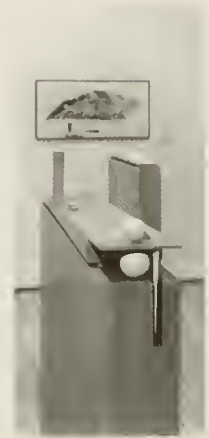
Unlike an actual client-based architectural project or even a competition entry, the thesis, like art, offers no resistance but also no encouragement. The project has only the momentum which the author brings to it. This is a circumstance for which few architecture students (or artists) are fully prepared. On the other hand, those who find this myth-making invigorating will likely be torn by many other creative pursuits upon graduation which are not modeled upon the give-and-take of architectural practice. The process of making buildings has its own rewards but is often slow paced, negotiated and heavily left-brained. Architecture's resistance to being toyed with is what makes it so fascinating and conservative at the same time. Architects, as participants in a service industry, can never achieve the same degree of autonomy as other artists, but nor do they assume the same personal risks.

The studio system in schools of architecture, and the thesis in particular, suggest

that artistry is within reach for most, and that there is an external demand for such virtuosity. Not wanting to abandon this optimal view, the academy continues to parachute students into the dense and gloomy forest of practice after graduation with a highly distorted map as their guide. As I have written at length elsewhere, due to its inefficiencies, the myopic design studio system will be with us for only short while longer. However, this is not to say that the thesis has no value nor that it should disappear as part of this evolution. In fact, one could argue that more of architectural education should become thesis-like (i.e. directed by the student but toward a specific long-term objective in the field – proactive specialization, if you will). Rather than being some anomalous situation that caps one's education, the

skills, invention, and independence that the thesis demands should be a model for linking theory and eventual practice.

Wellington Reiter is an assistant professor of architecture at MIT and a graduate of the schools of architecture at Tulane University and Harvard University. He maintains a practice in Cambridge, Massachusetts which includes institutional, commercial, and residential works. His most recent thesis projects include, "Visible Cities," (1995) (right) an installation at the Queens Museum of Art as part of the "City Speculations" exhibition and "Island Culture," (1996) (illustrated below) a 2500 sq. ft. three dimensional map installed at the Massachusetts College of Art. The two projects have or will be featured in ARTFORM, Art in America, ANY, Oculus, and "City Speculations," published by Princeton Architectural Press.



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Both of us are somewhat new to editing a publication and would like to thank a number of people who gave us support and direction in the process: Ellen Dunham-Jones for her participation in the brainstorming phase; Mark Jarzombek for his pledged support presently and in future; and to our faculty advisor, Stan Anderson, who gave us creative freedom to explore this topic and design the publication.

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illustrations

[p. 8] *Horizontal Watermill* from *Theatro de l'instrumenti Et machine*, Jacques Besson: Stafford, Barbara Maria, *Artful Science, Enlightenment Entertainment and the Eclipse of the Visual Education*, ©1994, The MIT Press, p. 109

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"Bookmaking: Putting the thesis together is itself an art and skill and suggests allocating sufficient time long in advance of the final preparation."

– Reinhart Goethardt

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