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In looking at study models we can see the greater intent of the designer: the ideas that are thrown away, the ideas which become other ideas, the ideas which possibly never realize themselves in buildings. We can witness the struggle between the idea and the form, and view the forms which provoke ideas.

In an historical sense, we can observe that architecture and its study tools are intimately related and dependent upon one another; and that a development in one will inspire a change in the other. It is curious however, that understanding of the model has largely come through examination of the drawing. Several recent exhibitions—mostly notably the Museum of Modern Art’s show of Beaux-Arts drawing—have done much to enflame an interest in the tools of architecture. Although the Beaux-Arts architects eschewed the model in favor of the large drawing, the show was a profound illustration of the decorative architectural drawing against which Gropius had railed, with the subsequent rise of the light and carefully machined model.

Decades after the Bauhaus, the model was still being used for study and had supplanted the traditional rendering as the final presentation mode. Critics had begun to refer to “the White Cardboard Style” and the increasingly popular isometric drawing probably finds its correspondent in the model. There are now three major collections of architectural drawings on exhibit in this country, which may be heralding a return to large and decorative drawing. Whether we will witness a parallel shift away from the model remains to be seen.

*The Student Publication of the School of Design sponsors an exhibit entitled “The Study Model: A Dialogue Between Thought and Thing”*
Romaldo Giurgola, in his interview for The Student Publication's coming issue on models, observed that the model best suits an architecture whose exterior reflects the interior—as has been largely the case of modern functionalism—and that an intellectual architecture of image and allusion finds less value in the model. But if we are observing not the return to Beaux-Arts thinking but the breaking of the rigid functionalist and even formalist bounds, it is likely that we will see not the demise of the model, but its eventual transformation. The growing fashion of painted models, models composed of found objects, schematic models, cutaway models, and conceptual models suggests an expansion of horizons to increasingly analytical use, as well as 3-dimensional "painting" and working sculpture. Giurgola, Graves, Stern, and Hardy Holzman Pfeiffer, among others, will describe their differing uses of the model in Volume 27, which will be released this spring.

The idea for an exhibit of study models at the School of Design evolved naturally out of the research for The Student Publica-
tion. Like the popular exhibits of architectural drawings and an exhibit of models at the Institute of Architecture and Urban Studies in New York, a show of the artifac-
tual byproducts of the design process sets a stage for invaluable insights to the designer and to, as Michael Graves describes it, the dialogue between thought and thing. The concern is not for how one makes models, but for why and when one models, what is learned from doing so, and how the entire process influences the design. For this reason, models in the exhibit have been selected according to a broad definition of the purpose of study, excluding presentation models whose purpose is solely to illustrate in miniatuized form the finished design. The exhibit is intended to present a wide range of 3-
dimensional objects whose creation was to facilitate dialogue between the designer and his design, and among designers and other interested parties. The emphasis is on the intention, not the appearance of the model. Accompanying statements by the modellers should clarify the nature of their modelling processes and the relationships between the models and the final designs.

Two major problems in assembling a collection of this sort are the extreme fragility of the model, and the highly contextual relevance of the model which may hinder its understanding when removed from its context. The study model is conceived as a "tool to the object" and hence is not built with an eye to permanence and is often dis-
carded when its mission is accom-
plished; and thus many of the selections have been plucked from the desks of their creators only days before the exhibit. The extensive examples of models by students is testimony to the school's love of the model as a teaching and representation method, perhaps attributable to the legacy of Gropius.
The highlight of the show is very probably the remarkable park design by students Doug Hurlbert, Hutch Johnson, and Tracey Jones [4] which produced twenty-four models along the way. They first modelled an idea for the park together, then separated to model five and even eight ideas individually, each then synthesizing his ideas into one model, and as a group created the final design. The striking freedom of expression which is evident suggests that the model can operate effectively in many different roles simultaneously: as thought-provoking object, as design record, and as a medium for synthesis and communication.

Michael Landau's [1,3] models document the progression of a design through the modeling stages of early studies, schematic and preliminary models.
A model curiously reminiscent of the Beaux-Arts is that which illustrates the 3-dimensional development of the form from the plan. This is an excellent method when a controlling idea is the plan or parti, as illustrated by the models loaned by architect Wes McClure [5].

The most popular method of illustrating volume is usually the modelling of surfaces whose separation creates voids, or architectural spaces. Yet it is conceivable, although unusual, to model the volume rather than the planes defining the volume, analogous perhaps to the Beaux-Arts style of building section which drew the lines of the building in only faint strokes while rendering the interior spaces in elaborate detail. Possibly the two studies for a tennis court shelter by T. C. Howard [6] come the closest to principally modelling volume as opposed to surface. Howard modelled volumes derived from the dimensions of a tennis court, the surface of the volume thus describing the surface of the structure.

The most explicit modelling of a surface is the study of a facade, wittily illustrated by student Tom Brown's study [2] for a San Francisco building facade tilted to the plane of the street. An extremely popular type of model is that employed to study massing and composition. Tom Brown took this simple model one step further and created two metaphorical studies [7], one for a house which in composition is analogous to the city skyline, the other for an entrance influenced by a famous gateway by Borromini. The latter sets up sight lines by which the stair appears to extend much further than it actually does. The model by architect Roger Clark [8] has in addition been manipulated for surface treatment as exemplified by the varying hues, texture, and light reflectances.
The models also reflect considerable variations of expression, in addition to study intention, particularly among the student models of Vernon Shogren's studio. These models represent not only designs for architectural forms, but 3-dimensional expressions of the symbolic, technical, formal, and experiential content of the designs. Thus the modelled expression of the technical content of her design for a guest house by Betsy Warner [11] is strangely schematic and almost 2-dimensional, while the formal expression by Jeff Schoellkopf [10] is strongly 3-dimensional and architectural.

The students also developed four designs apiece for a vacation house, giving priority to each of the four architectural contents in turn. Roger Holland's studies [9] illustrate the varying expressions influenced by the changing priority of intention. Thus not only can the model be used to develop form, it may also express the ideas and values of a form.

Apart from modelling the subjective content deliberately given to a design, student Tim Hill illustrated the conflicting visual perceptions of a house design whose composition from one point appeared to be that of the addition of parts, and from another the subtraction of pieces from a whole. Hence he modelled first the design as an ambiguity occasioned by the conflicting perceptions, then additionally modelled it both as a composition of pieces, and as a form sculpted from another form.

(9) Roger Holland

(10) Jeff Schoellkopf

(11) Betsy Warner
The relation between the drawing and the model, as David Gebhard notes in the introduction to 200 Years of American Architectural Drawing, is intrinsically closer than the relation between model and building. One understands the model, he observes, through reference to the drawing, not to the building. Thus one can see in student Paul Haynes' model the attempt to reflect the drawing section rather than the plan, and in Ron Maddox's [13] the influence of a prescribed two-dimensional grid. Architect Dean Best [12] studied the fenestration of his town houses in model form after first illustrating the effect he wished to capture in a perspective sketch. The red clay study by John Thompson of his site at a scale of 1" = 100' is understood by reference only to an aerial photo or map since of course at that scale the eye cannot perceive the total land area. The schematic model by Brian Shawcroft [15] can be seen as the bubble diagram whose components have received the first suggestion of form and position in space. The intriguing attempt by student Don Self [14] to "ghost" a neighboring church facade in his infill design for an office building sets up perspective lines, as does Tom Brown's entrance study, by which from one position one may observe the intended composition. Walls and sculpture frame and emphasize the lines of the church.
Excerpting a piece of the building to examine a problem area or to suggest a theme or treatment for the entire building is yet another method of study. Architects McKimmon Rogers Edwards modelled only two walls and a roofline to illustrate with moving flashlights the seasonal path of the sun for the building’s clients. The detail model by student Joe Prefontaine [16] is a study for a corner and two elevations whose development is extremely 3-dimensional. The sleek black and white character of the model is also reminiscent of an Art Moderne luxury liner, but a character which its execution in brick would probably never have. So it must be observed that while any model is an abstraction of the building it represents, it often takes on a life and aesthetic of its own. This is not a matter of right or wrong, for the abstraction is in the eye of the designer and it is not for the viewer to determine whether or not there is “fit” between model and building. It is worth remarking that viewers most usually fault designs whose models either “look” exactly like the building or absolutely do not “look” in any manner like the building; a modicum of fit being preferred and suggesting that the viewer really does not know just how to read the model. The sleek white model is often attacked for its formal abstractness and has become almost an object of scorn among the postmodernists; but curiously I am told by a Viennese professor that frequently architectural competitions in Europe specify that the model be white to facilitate the reading of the surfaces and spaces.

The subsequent resentment of the model as art object is not easy to understand in light of the fact that the architectural drawing has always been considered to have the right to an art market. This is a situation possibly occasioned by the fact that often much of model-making is not participated in by the designer, such models frequently exhibiting representational, at the expense of expressive, qualities; although of course many architects do not engage in drawing either. Obviously the model has still not been recognized as a legitimate side product of architectural expression.

Whether the model can negatively influence the building is entirely another, yet very potent question. Industrial designer Niels Diffrient has observed that the architectural model at 1/16” = 1’ scale represents only 1/192 of reality and for that reason is a poor tool for design. Robert Stern too discounts the model for its deceptions on the nature of materials, its inclination to suggest flat planes and correspondence between interior and exterior surfaces, the inevitable simplistic reduction of the design to greater and greater abstractions.

Certainly there are grave difficulties associated with an art whose study and development cannot use the materials and techniques of its execution. And it is often the case, as Robert Stern notes in his interview for The Student Publication, that the intentions of the architect are way ahead of the methodologies available to him. Thus the tools of the architect, as abstractions and approximations of the reality of his art, must endure constant change and evolution; while their execution in another medium can lend to them the separate status of the work of art. The examination of the model as well as the drawing unveils the greater architectural intent often unrealized in the building, while reflecting the development of entire movements in architecture.
Retrospecta
Twenty-seven Years of The Student Publication
by Charles H. Boney, Jr.

The School of Design at North Carolina State University has now been in existence for twenty-nine years. Led by Henry Kamphoefner from 1948 until his retirement in 1973, the School received world-wide recognition as one of the foremost of the modern schools of design. Its reputation for design excellence was born in the spirit of the faculty which Dean Kamphoefner assembled at the School's outset and was spread by the first graduating classes. Evidence of this spirit of design appeared in 1951 with the first edition of The Student Publication of the School of Design. This publication, published entirely by students, quickly gained acceptance and world-wide recognition as a student forum.

Drawing by E. F. Harris
Vol. 10 No. 2
Today, under the leadership of Dean Claude McKinney, a larger School of Design strives to maintain its reputation for producing new thought. The School survives despite (some say because of) the extensive changes which have occurred since 1948. Most of the original faculty members have taught, departed, and have been replaced. Brooks Hall has survived two major additions and is nearing the completion of a third. Thus one of the few constants left from the original School of Design is the Student Publication.

In its twenty-seventh year, the magazine maintains its original purpose: to serve as a forum for student interest. Its history as the oldest student-organized design publication in the country (no, Yale fans, Perspecta didn't appear until summer of 1952) is one of varying success. As ambassador of the School of Design it has been received by libraries and individuals world-wide; Reyner Banham has called it a legend.

The Student Publication began as an idea in 1950 by H. Theodore Wijdeveld, a faculty member at the time. He had been involved with a design publication in Europe called Wendigen during the 1920's, and suggested the formation of a similar publication to his fourth year architecture studio.

Jim Brandt, who has since been a faculty member, was a student at the time and became interested in beginning such a student publication for the School. It was his intent to begin a periodical which would serve as "a working medium through which the ideas and opinions of ourselves and others may find recognition and encouragement." Dean Kamphoefner approved the idea. The first real obstacle that Brandt's group had to overcome was money; a plan was made to assess each student four dollars each year for the publication, which the students voted on and confirmed.

In August of 1951 came one of the new School of Design's first crises—the tragic death of the Head of the Department of Architecture. The Wijdeveldt-Brandt idea had just begun to grow at the time, and the first SP was conceived as a tribute to that man of whom Lewis Mumford said: he . . . bore within him the seed of a new age . . . That which he left undone through his death must now call forth the creative efforts of a whole generation.

This man was Matthew Nowicki.
Nowicki was a Polish architect, thirty-eight years old when he came to the School of Design in 1948 at the recommendation of Lewis Mumford. He had previously worked and studied under Le Corbusier as well as Eero Saarinen and was credited with the major design work of the United Nations Assembly Building. Kamphoefner agreed by phone to meet Nowicki at the information booth in Grand Central Station. They met, and the Dean invited him to join the faculty at the then-new School of Design as Head of the Department of Architecture. This occurred during the reign of McCarthyism and Nowicki, as a foreigner, had to be interviewed by the upper echelons of State College to be sure he wasn't a communist architect bent on taking over the quonset huts of the School of Design. He wasn’t. He was hired.

Students under Nowicki recognized in him a total commitment and involvement; he was always an architect. Time spent in rest and relaxation he spent as an architect resting and relaxing. He demanded the same type of discipline from his students. According to an old School story, Nowicki once asked his students if they had attended the basketball game the previous weekend; they answered yes. “Good!” he replied. “Now I want you to draw the structural system of the gymnasium!”

As a practitioner in Raleigh, Nowicki designed Dorton Arena in collaboration with William Henley Deitrick. Completed posthumously by Deitrick, this building stands as a reminder of Nowicki’s potential as a superb creator of form. Also a project during his two years in Raleigh was the city of Chandigarh, designed in collaboration with Mayer and Whittlesey (and later finished by Le Corbusier). With such large commissions before him and the brilliant talent already displayed in those projects, Nowicki’s future in architecture seems to have been undeniable.

The last day of August in 1950 marked the end of a brilliant and young career; on a return flight from a Chandigarh planning session in India, Matthew Nowicki’s plane crashed and burned in Egypt. He was forty years old and had hardly begun his work. Those who knew him were fortunate in that experience; those of us who never knew him are better able to understand Matthew Nowicki through Jim Brandt’s first edition of The SP.
After Jim Brandt's year as editor of the magazine, an election for a new editor was held. This election has now been repeated for twenty-seven years to make The SP of the School of Design the oldest publication by an American school of design in continuous existence. Only two students have failed to produce in the publication's history, each time leaving a gap of several months in our records.

Dean Kamphoefner relates an amusing story about one of the editors who failed to produce a publication. As the deadline for printing approached, this editor approached the Dean with the idea of making a record for The SP instead of the usual printed matter. The Dean gave his approval, apparently to the dismay of the editor, who appeared to be looking for an excuse not to produce. Had the Dean rejected the idea of producing a record, the editor could have said "Well, I went to the Dean with this fantastic idea of producing a record for The SP, but he wouldn't let me do it." As it turned out, the editor's record never materialized.

Once again, The SP is a student-organized project. Usually, as the circulation expanded and influence increased, it became apparent to some faculty members that the magazine would make a convenient personal forum. One ex-faculty member recalls making his acceptance of a position at the School of Design conditional: he had to have a private office and The SP for a year. The material produced by such faculty members was generally of high quality, but had the occasional disadvantage of students perceiving The SP as a faculty-controlled part of the School of Design, thus discouraging student participation.

Participation in years past has ranged from mammoth undertakings by a few students to the involvement of over forty students in Volume 16:1&2 "Forty Gardens." As participation has been varied, so has the production. As many as five issues have been published in one year; 1964 saw the documentation of the architectural idea as exhibited in the work of Alvar Aalto, Le Corbusier, Louis Kahn, Paolo Soleri, and Harwell Hamilton Harris. Other years have had an average of two publications per year. As ideas for subject matter have grown increasingly ambitious, and the costs of printing have risen, the most recent editors have generally limited themselves to one volume per year.

In later years, the original four-dollar assessment was found to be insufficient to cover costs of printing. Because of its association with the arts, it was only natural...
for The SP to decide to hold an art auction to raise funds. All students, faculty, and regional artists were invited to contribute some of their work to the Annual Art Auction of the School of Design. The first such auction was held in the Raleigh Little Theatre and raised $400 for The SP. As the Art Auction became a highly regarded and anticipated event, the proceeds grew to a high one year of $2500.

The idea of the auction was a sound one: when a piece reached the block, it was sold anonymously. Ultimately this system of “art for art’s sake” auctioning was the Annual Art Auction’s downfall; artists began to find that their paintings which brought $50 on the auction block were being bought by gallery owners and placed in their galleries for $350. Bad publicity followed and the Art Auction, which had continued for about twenty years, had to be discontinued.

Patrons have been solicited by the magazine over the years to supplement income from the Art Auction; response has been impressive. A sampling of past patrons includes Fuller, Belluschi, Sibyl Moholy-Nagy, Candela, Otto, Tange, and Progressive Architecture, Architectural Forum, and the Architectural Record. If this list was expanded to include the North Carolina architects who have patronized The SP in the past, there would be no room to continue writing. A deep debt is owed to the North Carolina architects for many years of individual support. Perhaps if any two individuals deserve recognition for their patronage, they are Edgar J. Kaufmann, Jr. and Wallace K. Harrison. Their generous financial gifts have greatly served The SP in the past.

Another fascinating story from Dean Kamphoefner’s unlimited supply of anecdotes recalls one particular edition’s financial difficulties: the editors desperately needed an additional $5000 to complete their issue. As possible avenues for revenue were exhausted, The SP’s future seemed dubious. One day one of the editors brought a cashier’s check for $5000 to the Dean—an anonymous contribution from someone known only to the editor. To this day, no one except the editor knows where the money came from. (The SP is still looking for that anonymous contributor …)

Subject matter of The SP has been more varied than its production schedule. Suzy Buttles, editor of Volume 27 on three-dimensional models, recalls trying
to select a single representative volume to send Gunnar Birkerts at his request; the job was next to impossible. The Student Publication volumes are of too wide a range of subject matter to say that any volume represents a cross-section of the past. One year might find The SP involved in technology, the next in philosophy; one can easily find the early writings of Lawrence Halprin, an interview with Ludwig Mies van der Rohe, a selection of gardens by Roberto Burle Marx, a portfolio of sketches by Matthew Nowicki.

Volume 25: "Projections" is the most recent of the philosophical issues. Seven essays by faculty members and E. F. Harris relate to the future of design and divide into four basic viewpoints: problem, practice, project and production.

Another grouping of past issues deals with technology, a natural reflection of the strong emphasis on architectural engineering of the early School. Buckminster Fuller contributed extensively during the years of involvement with the School; among other contributions was his famous Dymaxion Air-ocean World Map.

Duncan Stuart—who is still with the School—has been published several times in The SP, including his "Orderly Subdivision of Spheres" in Volume 5:1 (reprinted in 1963), reproduction of some of his paintings in Volumes 7:1 and 7:3, his "Time Drawing" in Volume 6:1 and an essay in Volume 12:1 entitled "Polyhedral and Mosaic Transformation." The SP office receives more requests for copies of Stuart and Fuller articles than for any other contributors.

One of the better-known past members of the School of Design's faculty is Eduardo Catalano. Volume 5:1 contained a documentation of his well-known warped surface studies; his interests in this field led to a second publication of his work in Volume 10:1 "Structures of Warped Surfaces." This volume consists of a collection of thirty plates which explore visually the possibilities of warped surfaces in design. Both Catalano publications are out of print.

Other structural innovators featured by The SP have been Caminos, Nervi, Torroja, and Candela.

An interesting illustrated technological edition evolved from a class assignment in Brian Shawcroft's studio in 1967. This issue, Volume 17:1 "Building Skeletons", is a collection of ten significant buildings drawn in the same manner and analyzed according to structure.

Several recent issues have addressed an area of growing concern to the designer: the idea of social responsibility in design. Of these, Volume 18: "Response to Environment" and Volume 19:2 "Design and Community" have already sold out. Volume 20:2 "12345678910 Eleven Views" (eleven essays emphasizing collaborative design at the planning level), and Volume 23:1 "Designing the Method" (a look at the use of experimental methods in design) are still available.
Volume 9:1 “Building Footprints” has perhaps been the most successful of all Student Publications. It was a simple idea executed by then-faculty member Eduardo Sacriste, Jr., with The SP; it consists of forty-five significant building plans, all drawn to the same scale. Through comparison of these plans, one can gain a sense of relative scale and parti for buildings such as the Parthenon, the United Nations Assembly Hall, and St. Peter’s. Several other similar publications followed this simple idea. Volume 13: 1&2 “The City: Form and Intent” was a photographic collection of clay models of cities at the same scale. Richard Saul Wurman, co-ordinator of student efforts on this issue, has since bought the copyright from The Student Publication and has reprinted this volume. Volume 16: 1&2 “Forty Gardens” is a similar collection of drawings of forty significant gardens.

Two new volumes are presently in the planning stage; Volume 26: “Carolina Dwelling” is hoped to be produced and distributed by Christmas of this year. Doug Swaim, editor for that issue, is providing a well-illustrated documentation of vernacular architecture and landscape in North Carolina. Volume 27 on three-dimensional architectural study models will feature many contemporary architects discussing the influence and scope of the model in their work. Production is slated for late Spring of 1978.

Perhaps the most amazing fact about The SP is that it has changed hands completely year after year for twenty-seven years and has managed to continue. The opportunity to participate in all aspects of production of a design journal such as The Student Publication is possibly one of the best educational experiences offered to students at the School of Design. Student pride in the reputation of the publication, which editors soon discover is more extensive than might be imagined, runs deep. Within the confines of the crowded but comfortable office, one finds a haven for the student-philosopher, the budding writer. A small but complete archives contained in a cabinet provides assurance to the staff, standing in mute testimony to the efforts of their predecessors.

Certainly contributing authors who have donated their invaluable time must receive a great deal of the credit for advancing The Student Publication’s reputation. Le Corbusier, after compiling and annotating the drawings for Volume 14:2 “The Architectural Idea: Church at Firminy” for editor Keller Smith, wrote:

Voila! Mr. Keller Smith. You have given me orders! (to comment on these drawings) I have devoted the time necessary to it; my morning’s work has been rudely interrupted! Yours, Le Corbusier

The Student Publication has doubtlessly interrupted many other mornings and happily will continue to do so!
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