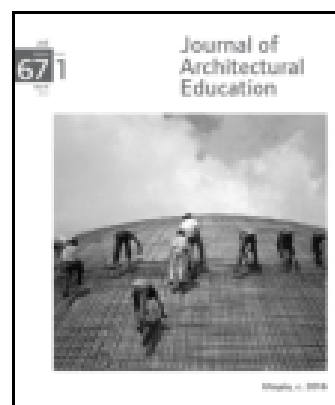




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Typology and Primary Elements

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Typology and Primary Elements

In the recent past, programs in architectural education have shown themselves to be sharply divided by seemingly contradictory tendencies between “theoretical” and “practical” architecture. Reflecting a similar schism among practitioners, this conflict has become a cause of serious concern among educators and has brought into question traditional pedagogical methods. Usual practice in first-year design education at Cooper Union has been to expose beginning students to basic design principles via a consideration of abstracted architectonic elements. Particularly successful in this regard has been the ‘nine-square’ problem developed by John Hedjuk and Robert Slutsky. Here, through drawing and model building, the student manipulates simple geometric elements while beginning to explore their three-dimensional implications.

It is the second year, however, that has remained the focus of our attention at Cooper Union—a critical time neither at the beginning nor near the end of the curriculum. The second year is a period when the student is required to sustain the theoretical investigations of the previous year while for the first time attempting to integrate the growing complexities of programmatic and site requirements. Traditionally, the strategy in second year has been to introduce the students to a variety of building and site types, with a gradual and calculated increase in their complexity. However, there remain a number of difficulties with this approach. In emphasizing the derivation of forms from buildings of similar functions, the focus on building types can become too reductivist, impairing the student’s ability to work inventively within a newly acquired architectonic vocabulary. Further, in moving to more complex programs and sites, issues of architectural quality are often bypassed by what seem to be overwhelming demands of programmatic concern. In the end, the abstract problems on the one hand, and the programmatic problems on the other, are often seen in an opposing manner. Does form follow function or function follow form?

The Typological Model Exercise

In actual facts, both are interrelated. Therefore, our primary task in second-year education is to provide a framework for exploring the interrelation of issues of form and function. Our approach to this problem, and to the general one of bridging these concerns with issues taught in the first year, has been to introduce the notion of the “typological model.” Our basis for developing this second-year program has been to synthesize the abstract with the pragmatic. The second year is therefore structured as a series of exercises which dissect and isolate primary architectural elements to be analyzed and explored. The separate exercises are intended to culminate in a single building. The nature of these exercises helps the student maintain a clear goal in mind. The elements proposed to the students are architectonic in a formal sense while also underscored by functional, or programmatic, ends. “Column,” “wall” and “window” for example, are each in themselves elemental and generic architectural figures made more specific when placed or seen *in context*. As with teaching someone to speak, one begins with the words and builds up to the larger structure of the sentence, only after demonstrating the power and potential of the words themselves and their interrelations.

To exemplify this idea, one of the exercises we require from students is the “Passage” problem. The task is to design a passage through a volume which is four feet deep by 30 feet wide by 30 feet high. This simple exercise provides an opportunity for each student to deal with the fundamental, abstract, architectural notions of *plan* and *penetration*. The student must address the formal, architectonic and functional aspects of ‘passage’ and must determine the particular context for the volume itself by giving formal definition to its two sides. In so doing, the student must also develop a knowledge of construction and detail befitting the material with which he has elected to work. The required model is at a scale of one-half inch (*figs 1,2,3*). The size of the architectural element in question, and the special nature of its function, forces the student to consider the issue of scale and its physiological impact. This exercise and the pedagogical theory behind

it, however, do not preclude the use of historically-derived forms; rather, they encourage a widening of the scope of applicable precedents to be considered.

The Object-Prototype Exercise

A second exercise is the “Utilitarian Object” problem, in which the student is asked to design and construct, at full scale, a working prototype of a chosen object. By inventing an object, or redesigning an ex-

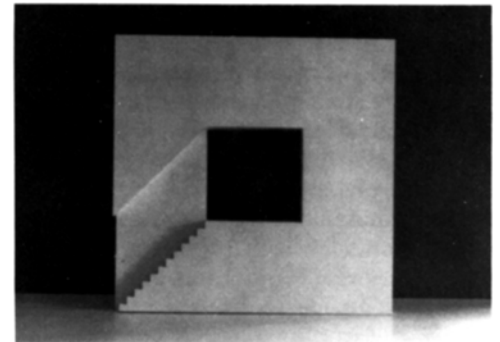


Figure 1: Passage—cast plaster model.

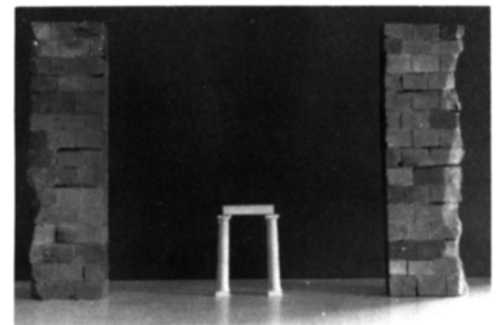


Figure 2: Passage—plaster and stone model.

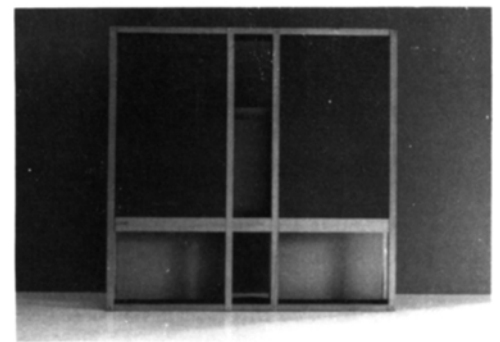


Figure 3: Passage—wood & lacquer model.

isting one, the student gives precise definition to a highly specific program. The objects considered have varied in scale from a teaspoon to a two-passenger, 'folding' electric vehicle. The development of any working prototype necessitates much analysis, and therefore the student gains a comprehensive understanding of the object in question and its relationship to the human body.

Interesting permutations of long-standing approaches to physical problems associated with certain archetypal objects, for example, have included a shovel with a curved handle (fig 4), allowing the foot to be placed centrally above the blade for greater efficiency in digging, and an umbrella with an off-center shaft (allowing the user to fully occupy the space directly under the center of protection). We put an emphasis on constructing such objects from raw materials. Because the requirement is to translate a thought into a drawing, a drawing into a model, and a model into a three-dimensional reality, the student is continually testing the validity of the design against the reality of production and use. Here, more than in any other problem given during the course of the year, the student directly confronts the problems of scale, material, detail and craftsmanship (figs 5,6).

Explorations of "Column," "Window," "Room," and "Furniture" are subsequent exercises intended to further the student's understanding of the elements of architecture. Our intent is to use these exercises, as with the two already described, as a cumulative pedagogical base leading to a comprehensive project: the building itself. For this final project only the materials of construction and overall are requirements are specified. Context and function are to be determined by the student. The complex program and site requirements of the traditional building-design problem tend to force the student to reduce these requirements to a palatable form before proceeding. The elemental approach, on the other hand, requires an additive (rather than the usual reductive) process of problem investigation.

Our emphasis on a typology of primary elements, together with our parallel concern for largely unspecified program conditions, is not intended as a manifesto for anarchy. In allowing the particulars to remain undefined at first, the student must therefore react in uncompromised ways to sets of criteria whose hierarchy of importance (and there *is* a hierarchy) must be self-determined. This focus on a distillation of the problem to irreducible ideas, and the process of design it engenders on the part of the student, results in a student's accommodation to the complexity of architecture: learning to make a line, to effect passage, to know and build a utilitarian object, to make a building.

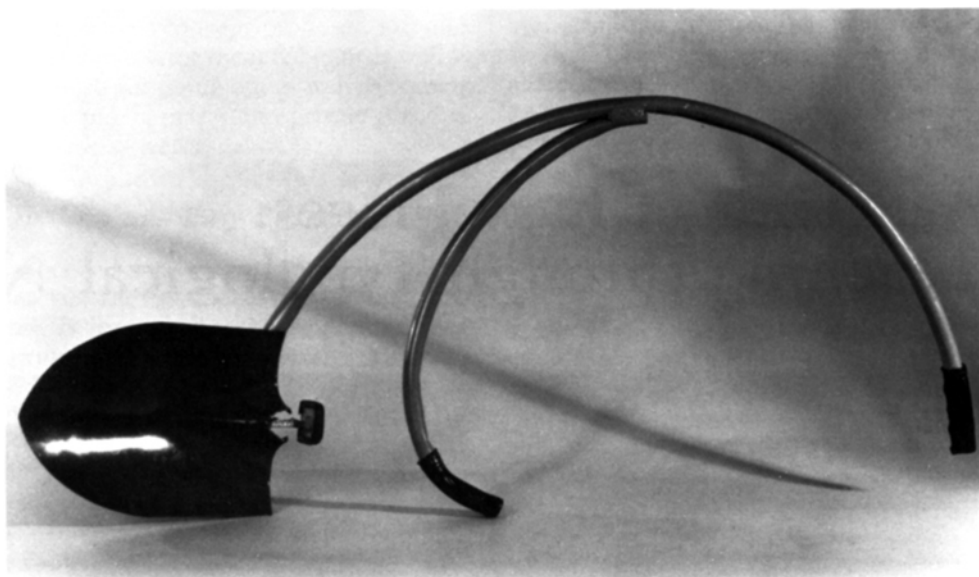


Figure 4: Utilitarian object—"utopian space."

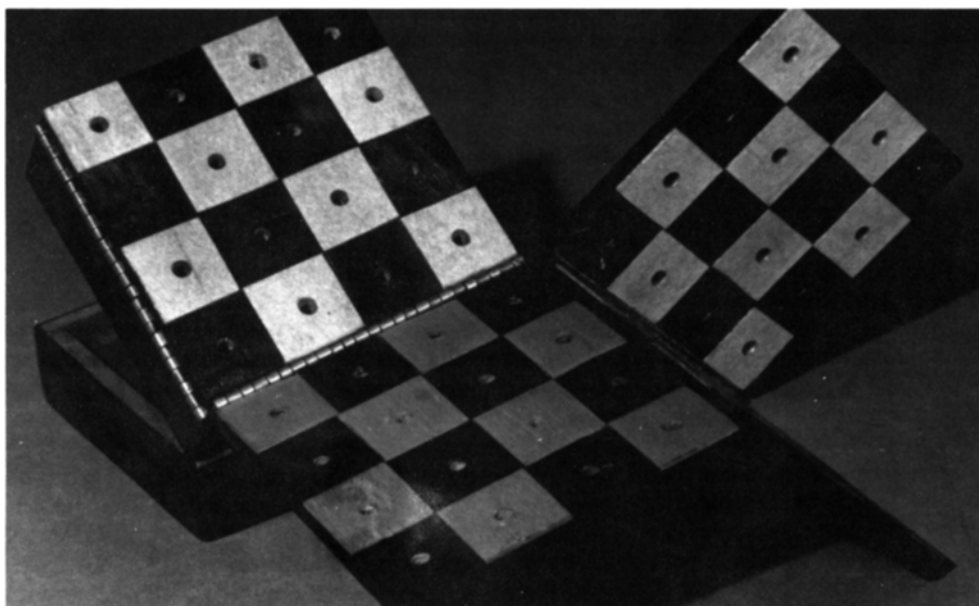


Figure 5: Utilitarian object—fold-out chess set.

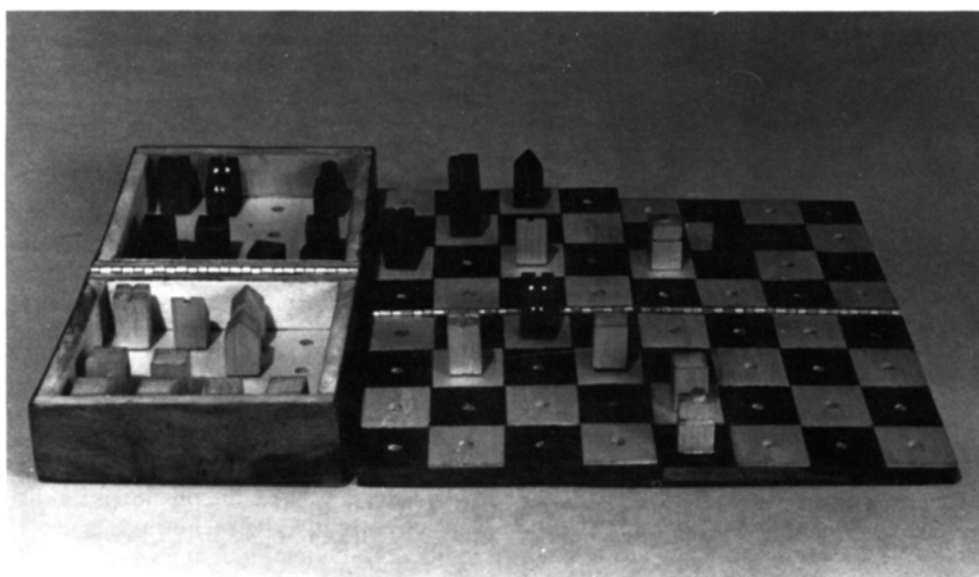


Figure 6: Utilitarian object—fold-out chess set.