Andrzej Piotrowski and Julia Williams Robinson, Editors

The Discipline of Architecture

University of Minnesota Press Minneapolis • London

5

Architecture Is Its Own Discipline

David Leatherbarrow

from: Piotrowski & Robinson, eds.
The Discipline of Architecture (2001)

> If I had to teach a child geography, I should start with the plan of his garden, it seems to me—as Rousseau did—with the space that his pupil Emile can embrace, with the horizon that his own eyes can see; then I should project his curiosity beyond the limit of his vision.
>
> —**André Gide, *Pretexts***

For architecture to remain significant in our time, it must redefine its basic subjects. That it is a discipline with its own subject matter can neither be assumed nor taken for granted because nowadays architecture is often seen as a practice that borrows methods and concepts from other fields, whether the natural or the social sciences, engineering, or the fine arts. This appropriation is neither by accident nor by fraudulent intent; for some time now, other professionals, engineers, landscape architects, and planners, have performed some of the skills that had traditionally defined the architect's role, and have done so reliably. It would be naive and nostalgic to assume that we can return to the way things once were. Does this state of affairs mean that architects should continue to turn to other fields for inspiration?

For what is the architect responsible? For what tasks should students be trained in order that they may act authoritatively in some arena of cultural work? What skills and subjects are particular to this form of practice and to no other? Are there any? If not, if a distinct role cannot be

identified, should the architect be trained as a "generalist," a "facilitator," or a "coordinator" of the building process, neither its engine nor one of its main gears, but the lubricant that eases its operation? Worse still, has the architect become redundant, a source of friction or wheel spinning, a technology that has become outdated in the accelerated movement of contemporary life?

My aim in the argument that follows is twofold: one, to show that architecture does possess its own subjects and skills, and two, that the neglect of the differences between the practice of architecture and that of related fields, engineering, painting, planning, and so on, should be resisted, for the sake of professional responsibility and intellectual clarity. I want to make this argument by describing what the architect does and what he or she must understand to accomplish specifically architectural work. This means defining a discipline by circumscribing a mode of practice. To say that architecture can be defined in this way is not to claim that this practice is only or essentially a matter of know-how or of technique, for architecture is equally a matter of ethical understanding, as Karsten Harries has recently shown, as have others (Harries 1997).[1] Beyond this, I shall also try to show that the subjects we have inherited in traditional discourse and practice need to be rethought in our time because of changes in the professions and in society. To state it plainly, and with no desire to be sensational, architecture is a discipline in crisis. This crisis is just as apparent in the recent publications that question the relationship between what professors and professionals do as it is in documents such as the Carnegie Report, which testify to the guilty conscience of many educators and their nearly pathological anxiety about the profession's cultural role. Further, new and competing professions continue to emerge and grow, leaving to architecture less and less of its traditional subject matter. Within architecture itself considerable fragmentation of knowledge exists, as do irreconcilable truth-claims, of which three are dominant: technical rationality as the truth of the expert, market experience as the truth of the professional, and creative intuition as the truth of the artist. In this state of affairs, one must endeavor to unmask these "truths" when they become dogmatic and attempt to redefine which aspects of technical rationality, market experience, and creativity are particular to the discipline. Only when this two-part task of critique and reconsideration is accomplished will it be possible to see how authority

and responsibility can be restored to architects, and only then will it be apparent how a sense of cultural purpose can be regained in practice. This double task must draw on knowledge of the discipline's tradition of education, reflection, and practice but also propose ways that inheritance can be reshaped because its forms are inadequate to current conditions; hence the need for rethinking or redefining architecture's subjects. But what are the subjects we might take to be basic these days?

The answer from the tradition is clear: in the oldest surviving definition we have, Vitruvius's, we are told that architecture consists of firmness, commodity, and delight. These qualities pertain to buildings, however, not to a discipline; to be seen as the basic premises of a curriculum, they must be viewed as targets of the architect's skill—skill that must be taught, for it is neither "inborn" nor acquired by everyone who matures within a given culture. Shifting the focus from what architecture is to what architects know and do, one could say that for Vitruvius, the architect is that individual who can direct the construction of buildings that exhibit firmness, commodity, and delight.

The paideiatic or educational import of this triad is easier to understand when the Vitruvian categories are translated into the terms of their philosophical antecedents, which are almost certainly Aristotelian and Platonic. To make this comparison is not to say the Roman architect was a careful reader of the classics of ancient Greek philosophy (despite his habit of dropping names); rather, his summary presentation takes for granted a division that had become commonplace in Roman thought, that of Cicero, Varro, and Lucretius, for example. The main source for these Latin thinkers was Aristotle, who distinguished three sorts of human knowledge or virtues of the soul: technical, ethical, and philosophical understanding (Aristotle 1941b, bk. 6).[2] Put differently, three types of activity characterize human life: production, action, and contemplation, which depend on and demonstrate these sorts of knowledge. The goal of each is a specific kind of outcome. The result of production is something made, of action something done, and of contemplation something envisaged or desired. Aristotle and Plato also distinguished these three ontologically, only the first concerns mundane objects, for example. Returning to architecture and stating this division in quasi-Vitruvian terms, one can say that architecture is something made to accommodate human life and to be observed with delight.

As the ingredients of an architect's education, however, these types of knowledge present different challenges, for not one is similarly teachable, precisely because they are different kinds of knowledge. Although Vitruvius was silent on that matter, both Plato and Aristotle thought that of these three types, only technical reason could be taught, either by a tradesman to an apprentice or by a teacher in an academy (Aristotle 1941a, A1; Gadamer 1991, 23–29). All arts or skills are taught as know-how; painting and architecture, for example, also metalworking and sewing, likewise nursing and public speaking. Ethical reason, by contrast, is never taught but is appropriated indirectly, by acculturation, one might say, as a result of maturing and acting within a given society. Further, decisions taken within this horizon affect the individuals who make them and others, not things; yet artifacts preserve traces of these decisions, just as they serve as the physical premises of their accomplishment. Although few individuals become expert in the practice of more than one art, all those who mature in a given cultural context share the same ethical understanding, or they assume that the ethical context of their decisions is the same as that of others. The commonality of ethical understanding is just as true in our time as it was when Aristotle made these distinctions; before students arrive at the steps of the architecture school, they know what patterns of life distinguish a town house from a courthouse, and the ability to make such a distinction evidences their ethical or practical reason, their understanding of the right forms of conduct in the typical circumstances of a particular culture, which is generally a tacit form of understanding. Finally, philosophical reason is not something that can be learned once and for all, or perhaps one should say it must always be unlearned or continually relearned. Ancient thinkers such as Aristotle and modern ones such as Edmund Husserl have described the philosopher as a perpetual beginner whose "progress" has the peculiar habit of returning to its own beginnings. Husserl's last books have titles that begin with phrases like "A First Introduction to . . ." Further, both held that wisdom is what people naturally and continually strive for: "all men desire to know," said Aristotle (1941a) on the first page of his *Metaphysics*.

By analogy, the types of knowledge that define architectural practice are acquired through teaching, acculturation, and questioning. The

teachable kinds of knowledge can be called the architect's skills, to distinguish them from the subjects that the architect must grasp in other ways.

Knowing the World by Making Images of It

To begin to identify the skills of an architect, we must answer a question about what it is that an architect makes or produces. Architects do not make buildings these days, even less cities, not even rooms. All of these places result from the arts and crafts of building or construction. This distinction alone is sufficient to establish a clear difference between architecture and the other plastic or performing arts—painting, sculpture, and music, for example—the performance of which is generally, although not always, "solo," meaning that "design" and "production" are concurrent in their development and indistinguishable in their realization, which is very rarely true in architecture, the exceptions being mostly limited to the work of design-build firms and of architects who build their own houses. It is true that individuals other than the artist are often involved in the production of nonarchitectural "works," but almost never is the artist not involved, almost always he or she "handles" the materials of the work, which architects rarely do because they are skilled in design not construction. Architects handle drawings and models, not bricks and boards.

Many architects and critics see artistic creativity as a matter of self-expression. This means that in modern painting or dance, for example, "the artistic work" cannot be fully enjoyed or understood without some understanding of the artist—his or her biographical circumstances and intentions. The reciprocal definition of the designer and the work is assumed by many to be characteristic of contemporary architecture as well; we say the "Gehry building" instead of the Weisman Museum. Robert Klein, in his paper "The Eclipse of the Work of Art," has asked: "What would Brancusi's egg be without its history, and without all of Brancusi?" (1979, 181). No museum or gallery of contemporary art opens an exhibition without labeling each of the "works" on show with the painter's name and the date of the work's execution, even if a title is lacking. A full understanding of a painting depends on knowing the artist's

desires and personal history; in fact, this information is so much a part of the work's meaning that sometimes it is taken as its essential subject matter. Put in terms that approximate Martin Heidegger's, the work of art is quite simply what the artist makes — the first defined by the second (Heidegger 1971a, 15–88).

Yet information about "authorship" is never as important in architecture because the drawings of an architect are different in kind from those of a self-expressive painter: while expressive, architectural representations must show more than a designer's style, skill, manner, or biography; these drawings must reveal something otherwise unseen in our world. Paintings, too, have a revealing function. But while pictorial disclosure has no consequences other than those occasioned by its surface, architectural drawing leads to outcomes with entirely different characteristics — I mean those of a full-size, inhabitable enclosure. That these consequences occur gives to the architectural drawing an instrumental function, which is not its only one. The outcome of an architect's skill results in representations of buildings, cities, and rooms, or of their parts at least. "Representation" here is less a mimetic achievement than a prospective one, because in architecture design is always separate from production, envisaging distinct from realizing. Of course, architectural drawings can be viewed the way paintings are seen, but that is neither their only nor their primary purpose. Moreover, seeing architectural drawings as if they were paintings encourages the substitution of a formalist sort of aesthetic judgment for a nonformalist comprehension of broader cultural purposes. Aesthetic appreciation of single images also overlooks the relational or dependent character of architectural drawings. The plans, sections, and details of a building are rarely significant in a pictorial way because they are rarely intelligible individually; unlike paintings, which are almost always "framed" individually (enclosing a world unto itself), the graphic sheets of an architect normally come in sets, each drawing being "cross-referenced" to many others. Architectural understanding means grasping a network, weave, or matrix of figures, each partial but all mutually dependent.

A related distinction is that architectural drawings are different from paintings because they do not show aspects of the world that are outwardly apparent, but rather those that are "hidden" to the nonarchitectural eye. Just as the better digital representations of architecture develop images of what cannot be shown through manual means (such as movement through a setting or the change of lighting in an interior through the course of a whole day), so the traditional media of architectural representation disclose aspects of settings that would be otherwise unseen. A plan drawing, for example, allows one to see all of a building's rooms at the same time. No one can actually view a building in this way, but it is essential in architectural visualization. Likewise, an outline or profile drawing isolates figures from fields for purposes of exact dimensioning. The fabric of the world we inhabit is, by contrast, all of a piece. And finally, sectional drawings show aspects that are hidden from the nonprofessional eye: the interior of a wall or the depth of space behind it. Nothing of the architect's optic is typical of prosaic seeing, nor does it result from ordinary penetration. This is to say that architects, as architects, literally see the world in a unique way, a sort of x-ray detection, but not so mechanical. Architects see rooms, buildings, and streets in this way, but also entire neighborhoods and landscapes. Every design project begins with descriptive drawings, site surveys, which discover aspects of the horizon that are not immediately apparent. These surveys are not "merely" descriptive because they "catch" something essential in a site or region; thus they inaugurate or ignite design projection, whether that involves the elaboration or transformation of existing conditions. Architectural drawings are not only instrumental but interpretative, or biased toward the "hidden" and constitutive depth of the world we inhabit, which is also its potential. The real challenge of teaching drawing is to set up conditions under which students can risk seeing that world anew; seeing it, that is, in ways that allow it to be remade metrically, spatially, and qualitatively.

A third peculiarity to architectural drawings is also important: their fictive character. They are fictive in two ways: depicting something that doesn't yet exist and showing something we would like to have built. Representations in architectural work are intended for two audiences, architects themselves and others who have not been trained in architecture, such as builders, clients, and public officials. These sorts of images are not of buildings that exist; representations of that sort typify the art of premodern painterly description, not architectural drawing.

Distinct from the painter's sort, an architect's images are ones showing situations that have been imagined and settings that could be built. Perhaps an analogy will make this point clear: what the architect's drawing is to the building, the painter's sketch is to the painting: an indication, outline, proposition, or (in the best term I can think of) a *projection.* Further, they show not only what could be built, but what we would like to have built; they combine something imagined with something desired, not the world as it is, but as it should be. In some projects this desire is proposed as an "ought"; in others, it is presented as an obligation, which is why architectural acts must be seen to have ethical and political consequences. To say architectural drawings are fictive is to take advantage of the positive sense of that term, the one commonly used in literature and criticism, not to suggest that drawings of this sort show something impossible or improbable. They do not falsify reality but show how it can be shaped into something the given condition only approximates, something that condition isn't now or hasn't been yet, in much the same way that repressed or concealed passions are actualized when one puts on a mask or, more prosaically, particular kinds of clothes. In these instance of "fabrication," or when so adorned, we accomplish the paradox of becoming someone other than ourselves without ceasing to be ourselves. In 1965 Theodor Adorno opened the Deutscher Werkbund by saying, "Architecture worthy of human beings thinks better of men then they actually are" (Adorno 1979, 38). The function of fictions in art and architecture is to augment reality, which is not to forget nor to repeat it but to enhance it (Ricoeur 1991). Perhaps the clearest way of describing these sorts of figures is to call them anticipatory or approximate, in the sense of getting close to a situation or circumstance we would like to bring into being as the horizon of our lives. Architects always work in the subjunctive, not the nominative, case; each drawing or model is an "as if" (Summers 1991). Architectural representations can be verbal, graphic, three-dimensional, or, in our time, digital; but never are they not representations, which is a shorthand way of saying standing-for or in-the-place-of something that can become real. Making representations of this kind involves abstraction, in which the reduction of some aspects of an artifact allows for concentration on others, those that are taken to be key or essential for architectural purposes, purposes that include the conception, description, and construction of a built work. Yet the instrumental function of architectural representation is neither its only nor its highest purpose. I've identified both hermeneutical and fictive purposes, which are just as important. The other one now apparent is the drawing's rhetorical function. And not only must the client and builder be persuaded, but the architect too.

This last point leads to the greatest impediment to a clear understanding of what is essential in architectural representation: the long-standing and commonly held truism that architectural images display ideas, assuming that ideas precede and guide the development of images, that the conceptual matter (I possess) becomes clear to others when (my) drawings make it visible. Alberti's sense of design as "mental composition of line and angles" has contributed as much to this misunderstanding as has Descartes's description of "clear and distinct ideas." Drawing, as I have come to understand it, is both a public showing and a private disclosure, which is to say a creative articulation of what makes sense to others and to oneself, the demonstration of an idea as well as its advent. Put forcefully: in design, no idea exists until it has appeared in a drawing. Architects think architecture by drawing. Perhaps this dependence of understanding on visualization is similar to what occurs in other forms of articulation: that no idea is understood clearly until it has been voiced or expressed, that understanding does not precede articulation but progresses through it. In contemporary architectural practice, the functions of public showing and private disclosure through drawing are no longer taken to be aspects of one task because we have divided the media of representation into different categories, such as the rendering and the sketch, each having its own practitioners, its own place in the architectural process, and its own "audience." This division is one source of the professional fragmentation to which I referred earlier. The real task of reflection on this architectural subject in the midst of this fragmentation is to redefine and rethink the work of architectural representation as the means whereby several "ways of seeing things" are integrated into one way of knowing the world. Architects know the world through various media and methods of description and projection by showing how it can be made and remade. The instruments and intelligence of this work must be discovered again and described anew.

Architectural Reflection

If the craft of making a certain type of representations is the chief skill of the architect, what are the subjects that individual must understand? The other two parts of the Vitruvian triad, commodity and delight, seem unpromising in the face of this question because these terms have been used so often that they seem used up. I have said already that together with drawing, I want to focus on theory and technology. How do these subjects square with the classical list, with commodity and delight? Let me say immediately that there is no one-to-one correspondence. Nor for that matter is it immediately clear how my topics could be related to Vitruvius's famous *Encyclios disciplina*: "[the architect] should be a man of letters, a skillful draughtsman, a mathematician, familiar with historical studies, a diligent student of philosophy, acquainted with music, not ignorant of medicine, learned in the responses of jurisconsults, familiar with astronomy and astronomical calculations" (Vitruvius 1970, 1.1.3.). This recommendation for a well-rounded or liberal education in architecture follows Cicero's advice to the orator: "No one should be counted an orator who is not thoroughly versed in all those arts which are the mark of a gentleman. Whether or not we make actual use of them in a speech, our knowledge of them or lack of it is immediately obvious" (F. Brown 1963, 100–101). As they did for Cicero, the trivium and quadrivium formed for Vitruvius the basic subjects of architectural education. This list of subjects is longer than the triad to be sure, and few would doubt the value of understanding literature, mathematics, history, music, law, and so on. But in our time, unlike Vitruvius's, these disciplines are broad, highly developed, and diverse. No one honestly assumes comprehension of all that they entail. Thus, from our classical source, we have both poverty and abundance: too little for an architect to strive for, and too much to possibly comprehend.

Perhaps, then, it is time to finally abandon the classical sources and recognize once and for all the unbridgeable gulf between the ancient past and our time. Such recognition would mean dispensing with the classics and the arguments derived from them, thereby breaking the canon of architectural writing. In wider university and academic circles, any mention of a canon these days is often met with wholesale disapproval. Ours is not a promising time for the classics. It seems anachronistic to read the "great books" of Vitruvius, Alberti, Laugier, Ruskin, Semper, Sullivan, and Wright. What do they have to say to us? Many critics have come to see the study of books venerated in the past as a contemporary form of social control "dedicated to the justification of the present by the past" (O'Brien 1986; Weinsheimer 1991).[3] Allegiance to the old books, to those that have been taken as the wealth of our inheritance because they are the ones that have survived through the ages, can now be seen as the uncritical acceptance of what amounts to a repressive tradition. Some literary critics suggest that instead of studying and interpreting classical texts, we should cultivate in ourselves and in our students critical thinking, the capacity to question and to resist this tradition. And the vocabulary of "critical thinking" has been absorbed into architectural discourse: the design practices we want to praise these days are called "critical practices" although few seem willing to explain what that term means. Accordingly, the well-trained student is not the one who is well-read but the one who is always and everywhere capable of critique, which is an act that combines resistance, disbelief, and thoroughgoing questioning. For the not so well trained student, this approach tolerates neglect and indifference.

In the massive shift from conviction to critique, all texts seem open to question,[4] indeed all things in cultural life can be taken as the subject of critical thinking, except perhaps one: the sovereign authority of the questioner himself. Pursued further, this line of thinking would lead to the suggestion that in architecture there exist no "subjects" other than drawing as a form of personal discovery driven by dissatisfaction with inherited culture. This would mean that everything other than self-expression needs to be criticized or deconstructed. On this account, architecture would begin anew in the schools with each first-year class, or with each semester, or with each project, or, again, with each conversation. Take the books out of the studio, eliminate all the "references" from project descriptions, free creativity from the burden of bookishness! Although stunningly unsubtle, this sort of fundamentalist primitivism is commonplace in the twentieth century: it can be found in the heyday of early modernist manifestos, in the postwar period when European émigrés set up shop in North and South America, and more recently in "back to basics" movements. Yet in the turn away from venerable texts, does not the designer, like the progressive literary critic,

venerate his or her own discourse? Further, doesn't this turn take creativity itself as a text beyond critique because it answers only to itself, to its own capacity for resistance and independent production? And isn't this entirely uncritical?

There should be no secure place for the veneration of old texts in contemporary architecture. Theory teaching as dutiful citation of ancient doctrine is, indeed, a spent force. For us, authenticity (in understanding as in life) involves self-determination (C. Taylor 1991). Yet are we so dedicated to independence of mind and self-determination that we need to shy away from the reflections of others? We know some texts have sustained critique for long periods of time. Neglecting them may shore up our sense of originality, but they can hardly be ignored when we learn that they treat issues that we find pressing, such as the role of drawing in design, which was in fact considered by each of the architect authors I have listed. Could it be that these texts have survived precisely because they have raised and tried to answer questions that were vitally important to the person questioning them — questions that are still with us? Could they not serve this function in the future? If so, wouldn't these sources be the ones that should properly be called classics? Let me cite Hegel: "[the classic] is essentially a question, an address to the responsive breast, a call to the mind and the spirit" (Hegel 1975, 71).[5] Hegel's definition invites us to see the classic not only as a statement, about which we can agree or disagree, nor only as a stance or position we may want to resist, interrogate, or deconstruct; it may, instead, encourage us to view the classic as articulated wonder, as a discipline of inquiry about a topic we can take up and practice ourselves, having discovered its potential in the example of its author. Understanding on this account would involve an exchange or crossover of questions, what has been formally called a "reciprocity of questioning" (Gadamer 1989, 333–41; Weinsheimer 1991, 129). More simply, it would be the occasion of wonder about themes and issues that have fascinated others, those that architects in the past have taken very seriously. Put broadly, these topics are what architects do, what one should call an architectural work, and who should be called an architect. I think it is fair to say that shared answers to these questions are not self-evident in our time, nor were they in the past. The uncertainty of past authors is apparent in the history of architectural questioning. My suggestion is that the questioning and answering undertaken by others may help us develop our own, and for that reason primarily should be studied. The thesis of reciprocal questioning suggests that the study of classical texts and the subjects to which they pertain takes as its model dialogue, which has always been the foundation for both honest reflection and democratic life. Reflective dialogue with our cultural inheritance is also the way I see teaching the history and theory of architecture, one of the discipline's basic subjects.

The subject matter of reciprocal questioning in architecture is not the history of written assertions, though, nor even of ideas. Teaching architectural reflection is not the same thing as giving a course in the history of architectural ideas. Nor do I think it follows from a history of monuments or exemplary buildings. We must move beyond this way of identifying and instructing in "culture." Neither a table of contents nor a season ticket can be found that would provide direct entry into the vital and vigorous culture that architects must understand. Just because theories and projects arise out of the world in which we live does not mean they are sufficient expressions of it; such an assumption deprives the figures of their ground, as if flames could be understood apart from combustible materials. Although both ideas and buildings do indeed enter into the kind of understanding that is necessary in architecture, the real task of reflection within the discipline is to witness and comprehend the emergence of both ideas and buildings from the cultural context that endows them with vital significance. This context can be named the structure of the life situations that buildings accommodate and symbolize. Situations such as these are not only matters of fact or of personal experience, nor is this structure the same thing as a law, a pattern, or a set of ideal norms. By structure of life situations, I do not mean an arrangement of user needs, client desires, or conventional programs; these factual things are important to know and to acknowledge, but they are insufficient to describe the subject matter of architectural understanding because they take for granted exactly what must be explained: how the various needs, desires, and programs of a given context can be integrated and brought together into a meaningful order. If cultural patterns serve as architecture's prefiguration, the act of designing involves projecting their reconfiguration. Such a prefiguration is not axiomatic or archetypal, though, and statistical study is an in-

sufficient basis for insight into the order of human situations. Thus neither "real" interests documented in surveys nor formal norms grasped in analysis disclose the structure I have in mind; it is both more concrete and more abstract, more like an ensemble of typical incidents, prosaic in its concreteness, and variously institutionalized, but potentially poetic when reconfigured into compact but impermanent unity.

Such a structure of situations is neither already given before an architect begins work nor created from scratch in the process of this work; more accurate would be to say that this structure is the outcome of architectural invention because its disclosure amounts to the articulation of something tacitly known to all of us. How is this possible? How can understanding originate what already exists or bring into awareness what antecedes comprehension? How can something new make sense in the context of the lives we have lived? Can one's faith in what has been be integrated into a vision of what might be under new conditions? The answer to each of these questions is nothing other than the drama of cultural continuity. I call it a drama because its outcome is uncertain and its unfolding is the result of the decisions we make. The "I think" or "so-and-so has thought" of traditional theory must be redirected toward an "I am doing" in conditions such as these. In the continuity of culture, history and tradition have a role but always and only insofar as they can be reshaped creatively into the patterns of "pretheoretical" contemporary life (Gadamer 1989, 267–74; Gadamer 1986, 164).[6]

Theory teaching is more than the citation of texts from our tradition. These sources are useful, and singularly so, when they sustain reflection on problems that are pressing in our time. From what grounds or site do these problems arise? In answer to this question, I have a suggestion that weakens the position of the professor: the real or profound basis for radical reflection on the structure of situations that serves as the subject matter of architecture is every individual's participation in preprofessional or pretheoretical cultural life. Before each student walks up the steps of the architecture school, he or she has already developed the basis for rethinking and renewing architectural content. I have touched on this issue already in my comments on ethical understanding being essential for the architect. Studies of the literature and monuments of architectural history and theory will be renewed and made

relevant only when they are reintegrated into the preacademic themes, problems, and patterns of contemporary culture.

Building Architecture in the Modern World

The shaping and reshaping of the patterns of contemporary culture in architecture intend permanence. Writing serves this purpose to a degree but not as well or as vividly as the manifestation of creative thinking that is privileged in architecture; I mean the actual construction of buildings, which results in these patterns receiving shape, durability, and expression. Let me cite August Schmarsow: "Architecture prepares a place for all that is lasting and established in the beliefs of a people and of an age; often, in a period of forceful change, when everything else threatens to sway, will the solemn language of its stones speak of support" (Schmarsow 1994, 295). Architectural construction is the way culture augments the natural and the inherited world, overcoming what in it is fleeting and wanting while enriching it. I have said already, though, that the skills of the builder are not the same as those of the architect; architects make drawings and builders make buildings. Although building technology is not a skill practiced by the architect, it is one of the basic subjects of the discipline, one that we have been too willing to abandon in recent years in pursuit of an architecture of communication that is indifferent to its means of realization. So this subject, like both theory and drawing, needs to be redefined in our time because the conditions under which buildings are produced these days are no longer the same as they once were.

Perhaps the most direct way to indicate the difference between contemporary architectural construction and the building practices of the past is to distinguish between construction as the putting together of materials on the one hand and as the joining together of elements on the other. As ways of assembling things, these two are as different as the things they join. When I say materials are put together in construction, I mean things like bricks, blocks, and boards, which are examples of the types of materials that give a building its palpable presence or physical substance: its color, temperature, size, shape, and "climate." Materials such as these must first be extracted from nature or made,

then brought to a construction site where they are assembled together and finally finished. The task of realizing such a construction is the craft of building, not a craft the architect performs but one that he or she is expected to direct. And this is how matters have stood for millennia.

In our time, architects still need to understand these practices in order to direct and oversee them when they occur, but instances of this sort of building are being replaced with increasing frequency by another sort, the assembly of architectural elements that have been made off-site in a workshop or a factory. And these "materials" are not as simple as the former sort; instead of timber and glass from a forest or furnace, ready-made windows, trusses, and partitions come to sites as components, units, or entire systems from factories or warehouses. This is true for construction systems as well as systems of heating and cooling, lighting, furnishing, and all the other components of project realization. The complexity of these elements and systems is often so great that architects do not know how they work, nor how they might be modified, without compromising their "performance." When they come to a site, elements for these purposes are not so much put-together as put-into, not fabricated but installed. This manner of building is a dry not a wet process, less formative than preformed.

Thus, in contemporary building, two different types of procedures exist that require different kinds of understanding on the builder's part, but also the architect's. The first comprehends manual practices, the second industrial production. Vittorio Gregotti has observed, "gothic architects transformed materials into architectural facts, we assemble products" (Gregotti 1996, 52).

The more recent sort of construction can be called "craft" as long as we remember both the two-part history of this assembly or installation process and the external authority of its inception. Correct procedures in contemporary building are often measured against a standard devised apart from any specific project and then applied to each unique case. While on-site adjustments would be cause for praise in traditional building, as examples of ingenuity, in modern practices, alterations or "change orders" are cause for concern because the performance of a modified element can no longer be guaranteed. Perhaps the best way to distinguish between the assembly of materials and of elements is to say that

the parts of the first are remade in construction, whereas those for the second are premade before it begins.[7]

Were building technology or design for that matter nothing but the assembly of premade parts according to prescribed procedures, the production of buildings would be like any other form of contemporary mass production, which it is not. Although standardized elements are used in current technologies, building construction is not standardized, despite all the ambitious efforts to make it so and the increasing control of construction managers. Perhaps the standardization of construction remains partial because the unique characteristics of sites, climates, and environments always influence building practices, unlike the stable situation of a factory or workshop interior. Equally significant may be the abilities and habits of builders, as they vary from project to project. Though the overall tendency of the industry is toward rational prescription and standardization, no construction is completed these days without a good measure of on-site adjustment.

For this reason, adjustment, alteration, and modification are the topics of construction that merit attention these days, even though changes of this kind always risk performance failure. These topics should also be part of the subject matter of technology teaching, augmenting traditional topics. The basic question is as follows: on what basis can an architect direct a builder to make adjustments to premade elements? More basically, under what conditions is ingenuity still possible? The answer to this question is a matter of understanding, but also of education. For example, midway through one of their design projects, students could be given a mass-produced element (a standardized window would do) and asked to remake the design or the window to allow for congruity among the different parts of a building and between the building and its site, and in view of the dwelling (the cultural) situation that is envisaged. The imagination necessary for this sort of adjustment or modification is a synthetic sort, the kind that brings together things that had been seen as different or incongruent, a concrete rather than a speculative imagination.

Changes in prescribed procedures or past practices risk performance failure. The singular virtue of technique is repeatability; it is a form of knowledge that enables a practice to be assured of its results: "I

have done it once and can do it again." Repetition is true for building technique and for other sorts as well. In archaic Greek myth, humans were given the gift of the arts or techniques by the demigod Prometheus, whose name signifies "knowing beforehand," or envisaging an outcome with the power of foresight, cleverness, or of "sly thought" (Kerényi 1977; Vernant 1983, 237–47; Gehlen 1980, 33; Trimpi 1983, 7). Accordingly, "know-how" is also "knowing before hand." Past procedures become prescribed because they allow for the prediction of outcomes, and in construction practice—especially the market-driven construction practice of our time—predicted outcomes are both valued and safeguarded. Insofar as adjustments, modifications, or alterations prevent prediction, they can be seen to represent a risk not worth taking, and the difficulty of prediction is true in both traditional craft and modern standardized practices.

The reason for taking such a risk, however, is the same now as it has been in the past: to make the project or the practice more perfect in its outcome when the total picture or full schedule of provisions is understood. In the mythical accounts of Prometheus presented by both Plato and Aeschylus, the god who gave humans technology was not admitted into the citadel of Zeus, for he knew nothing of the art of politics, nor of any subjects that concerned the whole of human life (Plato 1991, 320d). A profound lack exists at the heart of technical knowledge, the sense of wholeness, or concern for it. The ways that various contributions participate in the realization of a desired end is what the builder or contemporary technician (as builder or technician) never attempts to understand and what, therefore, the architect (as a representative of the full horizon of expectations) must bring to the process. The adjustment of standards in a building results from an architect's understanding of how all of its aspects, premade or remade, come together to give durable dimension and shape to the patterns of our lives.

Because architects these days can avoid neither craft nor industry they must develop an intuitive grasp of manual procedures and a scientific understanding of the physical world, so that predictions about the performance of elements can be understood. In schools, exercises in full-scale construction, not necessarily of buildings or even parts of buildings but with real materials and different assembly technologies, must be added to studies in statics and mechanics. The first kind of knowing can be called concrete, the second abstract; likewise, they can be called empirical and mathematical, or outwardly apparent and conceptually significant. But while each kind of understanding can be distinguished with these or other terms, no choice should be encouraged. In the terrain called technology, no fork in the road demands a choice between craft and industrial methods; instead of assuming or mapping out a divergence, we must discover and describe a convergence; we need to see how manual and conceptual technologies intersect with one another along the lines of a unified understanding of building production.

The Prosaic Horizon of Architectural Culture

The task of rethinking technology in architecture, like rethinking theory and representation, arises out of dissatisfaction with inherited principles and practices. Because these subjects, like this discipline itself, exist within a context that has changed, they too must change. But this change is not for the sake of conformity or the seamless interweaving of a profession with a society. In my comments on building construction, I implied a yes and a no to the imperatives of contemporary technology. A similar kind of resistance was proposed in view of the excessively autobiographical tendencies of contemporary art. And in my comments on theory, I implied that reflection in architecture should become less theoretical, that it needs to be regrounded within a horizon of typical life situations. In each case, I have advocated a renewed connection between the subjects of architecture and lived culture, some aspects of which will provoke practices of resistance. This connection to concrete existence is decisive in architecture, and in other fields as well. Much of twentieth-century philosophy has argued for a return to the "lived world." The first section of Merleau-Ponty's *Phenomenology of Perception* is called "Traditional Prejudices and the Return to Phenomena." In the same vein and closer to architecture, Karsten Harries (1968) has argued in the concluding sentences to *The Meaning of Modern Art* that modesty and patience will help us see the meanings of the world in which we find ourselves. The ingenuity that I see as the essence of design requires just this interest. Let me again cite Vitruvius (1970): "when therefore account has been taken of the symmetries of the design and the dimensions have been worked out by calculation, it is then the business of [the architect's]

skill to have regard to the nature of the site . . . *to produce a proper balance by adjustment,* adding or subtracting from the symmetry of the design so that it may seem to be rightly planned" (6.2.1). The ability to make adjustments of this kind, like the capacity to see similarities where others find them lacking, requires a versatile mind, said Vitruvius, an *ingenio mobili.* Ingenuity cannot be taught, but its occasions can be cultivated by attention to the prosaic circumstances of a given situation and by recognition of what has been "seemly." I understand that care for existing cultural conditions restricts the independent authority of technology, theory, and artistry as they have been practiced in the recent past, but this sort of attention is necessary if architecture is to regain relevance in our society. This shifts one's focus from possible realities to real possibilities.[8] On this basis alone will the subjects of architecture be seen as essential and be redefined in resistance to some of the tendencies of that very same society, those that favor dogmatic indifference to concrete conditions. On this basis, too, the basic subjects of architecture can be discovered again.

Notes

1. I too have treated this issue in Leatherbarrow 1997.

2. For commentary and explication see Gadamer 1975, 278–89; R. Bernstein 1985; Voegelin 1957, 296–303; and Jaeger 1934, 437–51.

3. Weinsheimer (1991, 125) quotes Mary O'Brien (1986, 93) from "Feminism and the Politics of Education." In what follows, I cite and paraphrase Weinsheimer and consulted Eliot 1957; Kermode 1975; Voegelin 1973; and Rykwert 1980.

4. Here I cite the title Paul Ricoeur (1998) has given to a recent set of interviews.

5. I treat this under the heading of topical thinking in Leatherbarrow 1993, 2–6.

6. On page 165 of Gadamer 1986: "It is also easy to see that in the sphere of practice the conclusion is not a proposition but a decision."

7. I owe this "premade-remade" vocabulary to my frequent coauthor Mohsen Mostafavi, although he used it in a slightly different sense.

8. I owe this phrase to Dalibor Vesely.

6

A Dialectics of Determination: Social Truth-Claims in Architectural Writing, 1970–1995

David J. T. Vanderburgh and W. Russell Ellis

Writing, Responsibility, and the Claiming of Truth

> For it is not as a very great philosopher, nor as an eloquent rhetorician, nor as a grammarian trained in the highest principles of his art, that I have striven to write this work, but as an architect who has had only a dip into these studies.
>
> —**Vitruvius**

A well-known British architect (Duffy 1996) confesses to having been "ruthless" while researching his doctorate, one of the first awarded in a wave of new graduate programs created in the 1970s. Then, as now, research in architecture required frequent cross-disciplinary visits. Such visitors must be ruthless in taking advantage of the host discipline, and ruthless again with themselves to avoid what anthropologists call "going native." In this, they fit the classic image of the architect as using knowledge from many other disciplines without becoming an expert in any of them (Vitruvius 1960, 5–11).

Our epigraph, taken from the oldest surviving architectural text, might thus be read as referring to architecture's multidisciplinarity: architects can be effective using knowledge gained from "only a dip into" domains ranging as widely as physics, city planning, and history. But in the citation we've chosen, Vitruvius specifically limits his responsibility regarding writing: between the lines of his disclaimer is the conviction that