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The Design Problem

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For every building that is, there are a thousand buildings which might have been. Whether the structure which is built is one of the poorer or one of the better of these hardly is known, particularly to critics other than the architect himself. Rarely do other observers understand the real constraints of the design problem.

The architect needs to believe in the excellence of his solution, but he also knows that this need may obscure his judgment. He has learned that his own ability to rationalize his intellectual decisions and his talent for attaining attractive visual qualities may be self-seductive. On the other hand, he has learned as well that to act is to decide, and that decisions often must be arbitrary. Because he is a maker of the specific, he recognizes that the specific does not proceed reliably from the general, and that theoretical discussions of principles do not necessarily yield particular answers. He also knows that the exploration of specific proposals often must be terminated before the alternatives are exhausted, and that the decision to terminate exploration is perhaps the most arbitrary but most necessary of all, if he is to act.

Many of us have ceased to believe that there is an ideal building for each design problem, or that any design procedure yet known will translate given parameters directly into such an optimal solution. Rather we have come to realize that very different but equally good buildings may be designed by different architects in response to the same situation. Buildings are of value for what they are and should not be measured against what one imagines they might have been. The teaching of Design, however, often seems to suggest motives other than these to students. Theories of such distinguished teachers as Louis Kahn have promoted a sort of Platonic idealism: that, for every situation there exists a single solution "wanting to be." Students often suppose that sufficient study will yield this result, and that only the arbitrary scheduling of deadlines prevents them from realizing the perfect solution. If their work does not satisfy them, often they blame their own deficiency upon a system which imposes unrealistic deadlines. They do not understand until much later, usually, that if deadlines don't exist, architects must invent them. In retrospect they may understand that what the educational system was trying to do was not to study problems until ideal solutions were found but to develop the student's self-reliance, judgment, and decisiveness—in fact, his ability to be arbitrary. Hopefully, he might acquire some taste and practical information in the process, and perhaps acquire new values as well as experience new feelings, but without the ability to act, these accomplishments will not make an architect.

The collaborative design is difficult in practice as well as in school. In fact rarely does it work genuinely as an equal participation of peers in the design process. Experience suggests that such a democratic process yields as many designs as there are designers. When in fact a team does create a good building, generally it is because a leader is able to convey a compelling objective which his followers are willing to accept. When a strong image of a final form is shared, there may be useful collaboration. But a leader must create this image; rarely does it evolve from equal participation, from design by consensus. Pride of authorship is a natural trait, and arguments between contributors of different proposals can result in personal animosity. This of course is debilitating to collaborative effort. In some small way, at least, everyone wants to make a project partly his own. Almost always a participant will suggest some things useful which are of his own invention. Nevertheless most suggestions which are made must be rejected, and someone must play the personally unpleasant role of decision-maker. Of course, it is the most inventive people who make the most suggestions and they may be more frequently rebuffed than are their more passive associates. The role of the real emerging designer is more personally trying both to master and to apprentice than are the supportive roles of less creative participants.

There may be danger in extensive use of the collaborative project in design education, not so much from creating personality conflicts, for these seem to be inevitable in practice and might as well be encountered early. Rather it is because the more passive student may find it easier to continue his subservient role in project after project, while only a few stronger-willed or more actively motivated students may be encouraged to become confidently self-reliant. Although it is possible that some students do not have the ability to become architects in the fullest sense, an educational program should encourage every student to develop his full potential.

Although the recent tendency in most schools towards longer design projects has been valuable in encouraging programmatic study, the comment is heard from architects who employ young graduates that often they seem to have more of a literary than a physical concern for problems. Complaints are common increasingly about unproductive debates among the office staff, particularly in the larger firms which recruit a number of erudite students from some of the more prestigious schools. We also hear sad observations that fewer of the bright people seem to find joy in their work or communicate joy through their work. Many of them don't seem to be interested, really, in building buildings.

It may be a natural tendency for schools of architecture to gravitate towards the prevailing values of the academic community. We have been somewhat self-conscious about being considered trade schools; some schools, we are told, have made a definite decision in favor of academic over professional values. Of course every school of architecture to some degree is both academic and professional in its objectives. But research and scholarship come after the fact; architects make facts, and differences in basic temperament and values between thinkers and doers is a source of trouble, particularly when divergent types are supposed to collaborate. One, of course, is more naturally a passive critic, the other a less critical producer. Fortunately many inventive people have the happy facility of shedding criticism with good humor; others, however, are very defensive about their work. Nevertheless, often it is the critic who is the more defensive, as he may (with reason) consider himself the superior in intellect to the creative artist. His criticism may become embittered

with jealousy when he finds himself in a subservient role. Certainly the thinker and the doer, the critic and the designer, can be reciprocally beneficial. In practice, however, if they are supposed to collaborate in the process of design, the results can be explosive.

I think that most of the students whom I have considered exceptionally gifted as designers have been rather uncritical and have had few intellectual pretentions. The joy of doing their thing was self-satisfying to them. Usually they have been happy people, but sometimes their lows have compensated their highs. This seems to be natural enough for one who is responding to reality rather than living in the realm of theory, for reality is fickle in its favors. Often—in fact, usually—these creative people find survival in a school of architecture an ordeal—not only because their own values are not primarily intellectual, but because they become depressed by the joylessness of the people around them who consider themselves to be their superiors. Many a gifted student simply leaves; he doesn't have the heart to join the critical debates; he only wants to do his thing.

The intellectual designer (if this is not a contradiction in terms) is becoming a more common product of our schools, and these are the people to whom the architects find it most difficult to adjust in practice. They are more interested in ideas than in buildings, and try to create buildings (or "environments") which are ideograms. They have difficulty in communicating with other designers whose response is sensual; the language of one is verbal, the other's is more visual.

A "schooled" designer has been trained; he relies less upon his personal judgment, and more upon a "system." This is a verbal rationale for visual phenomena. Consistency is considered to be a virtue, even when it produces obvious dullness. The proponents of consistency may admire the most famous of inconsistent architects. Nevertheless these "systems" *are* taught by schools of architecture, perhaps because there is not much more about design which can be taught. Usually such systems are the most obvious and elementary in character: modularity, articulation, structural and functional expression, for example. Some students who manage to understand such verbal, theoretical arguments often seem to be blind to such visual realities as scale, focus, and other qualities of form which are not so conveniently verbalized. The verbal exchanges among gifted designers about their work are rare and brief.

Perhaps a source of the current wave of verbal architecture (or non-architecture) is the academic institution of the "critic" or "studio master." He is supposed to talk about design; rarely does he do it, in the studio, at least, because that is the student's role. If the student's image of an architect is derived from someone who rarely holds a pencil, is it surprising that the student thinks that he can play the same role? The compulsive need among some young architects today to justify all of their design decisions by intellectual arguments may derive in part from having been required in school to defend their theses verbally; perhaps it is also indicative of the larger concern of our profession with selling our wares to our clients and to the public. Many architects, after years of practice, however, recognize that perhaps their most important actions are not based upon rational logic. One of my partners tells of hesitating for several days to release a design although it accurately expressed the loading of a corner column of a multifloor building; logic prevailed, however, and the column was built only half as large as the other columns on the facade. He has since wished that he had relied more upon his intuitive judgment in the matter and had made the corner column larger rather than smaller than the others on the facade.

The design process is rarely methodical. Objective analysis interacts with subjective proposals or responses. Sometimes an intuitive hypothesis is appraised by critical reason; sometimes an intellectually constructed model is evaluated by gut reaction. Certainly a designer needs both qualities of mind and heart. Unless they complement each other his work may be either inhuman or sentimental. But how these qualities interact with each other may be a nuance of personality which is difficult to analyze, and different personalities may be out of phase with one another when trying to work together.

The design process is both a joy and an agony. Most everyone seems to agree these days that it is not a sequential, linear method proceeding in an orderly way, from premises to conclusions, but rather that it entails the recycling of phases, as developing conclusions cause questioning of premises. The sense of spinning wheels creates frustrations and times of doubt, but a period of gestation seems to be necessary. Many buildings must be designed before one is built.

Sometimes I suspect that the inefficiency of our practices is accountable in considerable measure to the enjoyment of designers in their work. Instead of reacting adversely when even a well-developed design must be abandoned, we often find ourselves pleased by the opportunity to begin designing again, although we know that every week the payroll goes on and that the money is slipping from our own pocket.

The pleasure, however, may derive from more than renewed opportunity; in fact one rarely begins again from the beginning, but becomes more realistic in defining the problem. The sense of increasing reality contributes to the paradoxical reaction of architects to what others might consider a setback: as the designer works within increasingly confining constraints his work becomes more real and more satisfying to him. This is quite the opposite of what many inexperienced designers suppose, thinking only that constraints restrict their opportunities.

We often wish that the recycling of the design process might be accelerated; certainly it appears to be wasteful. Nevertheless it is necessary to develop a proposal to a fullness which will allow its evaluation. One of the common failings of architectural students and young designers is their unwillingness to explore in depth without the assurance that their effort will be productive of a solution. In practice we know that many drawings and models are thrown away before the final design is presented. Sometimes in fact the building is built before it is fully drawn.

It is necessary to complete an extensive set of plans, sections, elevations, and outline specifications for a complex project in order to derive even an early, preliminary cost estimate. To be realistic, this should be based upon actual take-offs of material quantities rather than upon ballpark unit costs. If the estimate is high and the design is scrapped or considerably modified, the drawings have not been wasted. Even though they have served no other purpose, they have been valuable—in fact, essential.

In school, however, as in the office, we find considerable energy being directed to tasks which are relatively unimportant. A student may be found spending an inordinate amount of time inking borders on sheets of paper; of course this postpones decision about what to put in the middle. The make-work syndrome evidences more than poor judgment; it is a form of therapy like worry beads. Model building is another favorite activity—not, of course, study models which require thought, but the incredible kind which require thousands of identical pieces. Rendering all of the windows on an elevation is

another favorite diversion. Generally it seems that it is the most insecure student who finds comfort in this sort of activity. It is not simply that he evades thinking because he is lazy. Rather he is timid about facing decisions and often he tries to substitute instead a valiant manual effort.

Somehow a notion seems to perpetuate itself, among students especially, that there is a natural order of consideration in the design process, that circulation of people, for example, has priority over distribution of utilities and services. This is not an ethical judgment, nor a judgment at all, but is a presumption of how design is done. Circulation flow diagrams lead to balloon diagrams which, squared up and scaled to program requirements, become a plan which then is "elevated." If the student gets so far, some mechanical equipment may thereafter be inserted (usually painfully) or interiors may be considered. Unfortunately this rather old-fashioned procedure still continues too widely in practice as well as in school, with mechanical consultants and interior designers, for example, called late in the game to try to make the design work.

Buckminster Fuller refers to "synergy," referring to the exceptional qualities of some metallic alloys. The predictable totals of the component qualities of the several metals is exceeded in their combined form. This seems to be a good analogy for design. The designer's mind scans a great many alternatives in every consideration of design, from basic formal concepts and configurations to finish materials and their connections. There may be general preferences for certain things when considered in isolation, but decision comes only after the scanning of many possible combinations of alternatives. The number of possible combinations always exceeds the practical limits of exploration, but usually before this time expires certain combinations will reveal synergetic effects. Two plus two may add up to five. Certain structural systems, for example, will accommodate certain mechanical systems, yielding certain functional modularities and esthetic proportions, all of which seem appropriate for the particular need.

In teaching I generally have tried to disrupt the continuity of students' sequential thinking by introducing new considerations. Probably all design critics in the studio do this, at least in the advanced years, to the annoyance of the students. I often have suggested that the possibilities for the thousands of decisions made in the design of a building may be represented by a vast, three-dimensional matrix. Various circuits through the field are directed by sequential decisions. When circuits are found to recross each other at certain points, the significance of certain combinations of choices becomes apparent. Such a matrix may be entered from several points—this, in fact, is preferable to following the paths originating only at a single point. In other words, wholly different approaches to a design may begin, for example, with considerations of the site or of constructional systems rather than from initial consideration of functional relationships.

Understandably, abandoning one sequential exploration to begin another is less psychologically assuring to the student than is pursuit of a single course in the hope that it will yield a solution. Nevertheless, I suspect that a designer is successful to the degree that he is able to explore many considerations simultaneously. Design is organization, and organization is the configuration of relationships.

Some relationships are visual: scale, proportion, and other visual qualities are abstractions from visual phenomena which some eyes perceive while others do not. Similarly some persons seem to understand more fully than others the relationships between non-visual abstractions; they may evidence a

similar sort of judgment in such things as practicality, saleability, timing. Certainly the architect should have a measure of both characteristics; what is common to both of them is the ability to abstract general principles from the particularity of experience and to perceive relationships between principles. While buildings are specific rather than general, it is the recognition of familiar relationships which is the basis of judgment. This, of course, is why the experienced practitioners may tell the junior designer that he is wasting his time on a certain direction of exploration. The boss may be regarded as arbitrary, biased, or just set in his ways, but he may have been over that route many times before and may be able to foresee the consequences of following it again.

Shortly after my own graduation and military service I left a small office for a large office, where I wanted to work on grander undertakings. I managed to command a much greater salary and I talked my employers into allowing me to try my hand at greater things. I did not last long. I quit, partially because I was told finally that I was a design draftsman and that the project architect and the principals were the designers. Fifteen years later, I found myself playing the opposite role in a very similar little drama with an employee. In retrospect I realized that when I was a young designer I really had been waiting for some alibi to quit, knowing in my heart that I was not yet able to deliver as promised, or to fulfill my own anticipations as a designer.

I think that this may be an experience familiar to many ambitious young graduates. They may be given heady responsibilities in a design role, perhaps because they are so useless at anything else in the office. But the turn-over in design departments is regular, and the experience usually is demoralizing to the designer and is frustrating to his employers. Perhaps it is because in schools "Design" is compartmentalized from other subjects and is so little related to problems of client preference, budget constraints, and other real parameters, that students often leave a school with assurance that they have been prepared to be "designers."

Another way of describing experienced judgment is a sense of what is appropriate. Architects acquire an almost instinctive awareness of how their clients and their public will respond, of what certain benefits will cost, of what is attainable and what is beyond realization. Perhaps one reason why schools traditionally are concerned little with such realities as clients and budgets is that judgment in these considerations is learned from practice, while schools often are more occupied with theory. Perhaps, moreover, personal judgment cannot be passed on, but must be acquired anew by each young architect. Certainly the practitioner is often disregarded by students when he teaches; frequently the verdicts of his judgment are heard as authoritarian decrees expressing unwillingness to meet new challenges. His problem in teaching is that he already knows some answers, while many students want to search anew rather than being told answers.

The relationship of an architect to a school may be different from that of a physician to his school, for the creative temperament of young architects may be less receptive to acquiring the wisdom of their seniors than, for example, is that of students of medicine. By nature architects seem to be highly individualistic, relying on their own judgment to a greater degree than do some other professions which are based more upon a body of acquired knowledge. It is the dilemma of a school of architecture that it seeks to transmit certain knowledge and wisdom while seeking to encourage the independence and questioning attitude of its students.

Perhaps "Design" can never become a properly respectable course of instruction, because it cannot be taught. The danger becoming apparent now is that a sort of anti-design will be encouraged instead because of an effort of teachers to create an intellectually respectable subject which can be taught. Some design courses may become courses in architectural criticism (or, of course, of environmental criticism). The students who want such a course are many, but the role of a school of architecture is primarily to help people who want to *do* something about problems, not those who want only to learn about and to discuss problems.

As the intellectual caliber of students increases and as a faculty aspires to higher intellectual standards, the quality of architects does not necessarily increase. On the contrary, I miss some of the joyous quality that the making of buildings once had when students and faculty were perhaps less "relevant" but perhaps were more concerned with reality than with theory, which seems to be the direction of many schools of architecture today.

A school naturally might aspire to be all things. Perhaps universality cannot be, but to become a highly specialized school may be begging the basic question of architecture: that is, how thought and feeling can be reconciled into a coherent physical satisfaction and a cultural expression of our needs and our wants.

Perhaps the moment of truth in the teaching of design occurs during a group critique of the individual works of several students. The failure of language becomes apparent when the teacher finds that he may be able to explain why some projects fail but is less able to explain why some excell. Usually there is a certain class solution to a problem, solving it in the most natural and predictable way. The 'C' and 'B' students rarely are satisfied with an explanation of why the 'A' project receives its recognition. *Je ne sais quoi* is hardly adequate for students who have done everything expected of them. It is, of course, the student who does more than is expected who is the exceptional designer. He brings to the problem more than is generally recognized in it. Sometimes his powers of analysis are greater; often it is his personal set of values which motivates him to be dissatisfied with the obvious and to seek answers to questions which have not even been asked.

The gifted student's goals and values sometimes not only are more demanding on the same scale as those of other students; they may be altogether divergent. For example, the distinction used in art criticism of the draftsmanlike and the painterly approach to form may find an analogy in the disposition of some students to approach formal development as an additive process, usually expressed in linear components, while others think (or "see") more broadly in planes and volumes, solids and voids. Some of my professional associates use the term "broad brush man" to distinguish the latter sort of designer from the more draftsmanlike problem-solver. There are not enough of these plastic form-makers around. We who teach learn from all of our students, but especially from a gifted student. One whom I particularly admired explained his way of working to me: "I don't put things together, you see; I take things away." By this he meant not only that he wanted to simplify rather than to complicate form, but also that he looked first for a single, basic shape which he would subsequently cut away and hollow out, without losing its strong image quality. Most of his fellow students, of course, worked in the reverse manner. They identified and "expressed" components, adding them together with obsessive articulation. Rarely did the parts add up to a whole.

The great difference between the subtractive and additive design processes was revealed to me with great clarity by this exceptional student.

The decline of drawing coincides, not without some reason probably, with the increase in the rationalization of the design process. And, while we never had many native artists, we seem to see less of their presence now that the intellectual caliber of our students has increased significantly. This is not to say that artists are dumb, or that our admissions policy has unduly favored academic standing to evidence of creative ability. We still recruit every gifted student we can find. Somehow, however, too often we seem to do something to the exceptional student once we get him. If he withdraws from our program or sticks it out although "turned off" it may be because the academic values which tend to intellectualize criticism are unable to accept what cannot be rationalized.

The decline of drawing seems to be one of our most serious school problems at this time. I am not so much concerned about "rendering," which comes after the fact, but about the use of drawing as a means of formal development. However, even as "rendering," the modes of presentation have become modishly tasteful and uniformly impersonal. The quality of individual expression has been replaced largely by the slick look of machine graphics. More importantly, we see much less study of drawing in the studio or in the office, much less real visualization of the formal reality before the fact. One can draw only what one understands; perhaps the want of graphic visualization of the design process suggests that form is not understood—that it cannot be visualized.

Again the manner of drawing also may suggest the distinction between the draftsman-like and the painterly approach to form. Some persons seem to have a natural preference for the particular over the general and seem to see trees rather than forests. These people often are content and useful in the draftsman's role, as customary in professional practice. In a figure drawing class they may be expected to begin drawing the figure with delineation of the head, working in an additive way down to the feet. The form is seen as a collection of individual things, and these are rendered in precise outline. On the other hand, I have been fortunate enough to have known and worked with several fine painters and sculptors, and to have seen them draw. Although the contour may be expressed deftly with efficient line, the form is seen first as a whole; the recognition of parts is secondary. Furthermore, especially with sculptors, form tends to be seen in a non-linear way, particularly for its shape and plastic quality. Of course, the three-dimensionality of a form is seen by its response to light, and the values of lightness and darkness become an essential concern. A sculptor may build up his visualization of a potential form by cross-hatch drawing which is deliberately unspecific about the contour of edges but which explores the modulation of mass and surface.

It is this sort of exploratory drawing as a means of evolving form which seems to be most seriously missing today. Perhaps in our newly enlarged concern for so many aspects of architecture, society, and the environment, we may be giving less encouragement than we used to for what might be considered pure research in visual form.

It is not only that creative drawing may lead to more beautiful buildings; if a draftsman understands the turning of a corner or the convolution of a duct he should be able to visualize it three-dimensionally and to represent this graphically. If he cannot draw it he probably does not understand it.

Perhaps we can encourage the development of drawing as an exploratory

tool; what we would be encouraging would be the ability to visualize, which seems to contribute to being creatively imaginative. While representational drawing from life or still life is useful, it is no more aimed at this objective than would be a course in architectural delineation. Perhaps closer to the mark are the sort of exercises which are found in architectural aptitude tests, where a figure is to be selected which represents the missing view of an object. While taking such a test is not as fully a creative activity as is drawing, nevertheless more exercise in this sort of three-dimensional visualization might develop this ability more fully.

I have found that drawing as a design method may produce a different awareness of the problem than does working in model form, particularly in terms of scale. The model tends to become an object valued for itself at its own scale. The eye cannot focus at close enough range to represent it at a more realistic scale, although cameras may be able to do so. Even so, such a mechanical procedure cannot be as useful for simulating the visual reality of an environment as is perspective drawing. I have found in practice as well as in school that designers who depend upon studying in model form tend to regard the building as an abstraction much longer than do designers who are able to visualize in a drawing a reality of materials, light and shade, and real human scale.

I have found that some young designers engaged in my practice thought that my own large drawings were renderings of the completed design; instead they had been done at an early stage of design in order to explore visual ideas. Such a drawing may work for the architect in the way that some painters discover their ideas only in the painting as it develops, rather than beginning with a visual concept and then executing it after the fact. In this sense Kahn's reference to "wanting to be" may represent the sort of sense which a designer sometimes develops at a certain point when the building seems to have a will of its own, as if certain decisions were simply "found" by the designer in imaging the building rather than being dictated by a conscious judgment on his part. The role of intuition in design is difficult to evaluate; certainly intuition is not taught, and teachers can only teach what can be taught. The contemporary composer, Gunther Schuller has observed keenly the role of intuition:

> There are a number of myths which, by their weed-like persistence, contribute much to the controversy surrounding the subject of teaching jazz. . . . One of these consists of the unfortunate notion that the creation of music is a vague, nebulous act . . . and that there is a state called "inspiration" which periodically descends from above. . . . A corollary of this fantasy is that such ingredients as thought and work . . . are anathema to "true" artistic creativity. . . . This deception is . . . possible because very few people bother to make the distinction between what is subconscious in the creative process. In fact, this point often leads to the further fallacy that, if a composer or improviser did not consciously conceive, let us say, a certain rhythmic pattern or an intervallic relationship, then that pattern or relationship did not actually exist in the composer's mind. . . . The creative process occurs at all levels of consciousness, ranging from minimal to total awareness . . . "inspiration" occurs precisely at that moment when the most complete mental and psychological preparation for a given task . . . has been achieved. . . . In a sense, the composer, when he is "inspired," is discovering the next move. But this discovery can occur only when all or almost all of the inherent possibilities for that next move have been appraised. We tend to forget how much in the creative act is negative, i.e. how much of it consists of discarding that which is not relevant or valid, so that by a process of elimination we arrive at the single "discovery" which

> is (presumably) most valid. This process can take hours or weeks, or—and this is common in the case of improvisers—only fractions of a second. Thus what I have here called "the most complete mental and phychological preparation" is really the crux of the matter. It is the requisite condition under which inspiration can take wings.[1]

The subject of intuition is directly related to questions of style and taste. Clearly, just as thought may be impossible without language, so design is impossible without visual experience. Every work of architecture is built from the remains of other buildings, and History may again come to be recognized as the essential foundation of our art. Nevertheless while most students and architects obviously are derivative in their work, the "intuitive" or "creative" designers draw more widely from their visual experience, which may be broader and more vividly retained. It is the ability to find new combinations of visual ideas which is his real talent. Of course what is new may frighten some while it may stimulate others. Fashion represents a choice of peers to identify with each other, and conformity is the cement of society. Innovative artists instinctively are regarded as dangerous by much of the public because they are recognized rightly as a threat to established values.

Taste is acquired and may be a burden to the designer, as it recognizes and values what already has been established as valuable. I recall a painter friend who confessed that he himself would fail an aptitude test then being given to prospective art students, because the examples which the candidates were supposed to select as "good" to him were dull. He was turned on instead by the freshness of the supposedly "bad" examples. I recall another painter who confessed frustration that he always painted such "pretty" pictures.

Style generally is considered to be something somehow more valid than fashion, but the distinction never has seemed so clear to me, except that the one term seems to refer to high culture and the other to low culture. Certainly in history great art has been made within the language of established styles; nevertheless few great artists have seen adherence to a style as the object of their art. Their style is identified in terms of the work which they have done; they make styles rather than follow them.

To teach taste or style may be a disservice to the basic creative nature of design. It may repress inquiry and exploration, and create architecture which properly is termed "academic." And yet one hardly can be a teacher of design without criticizing students' work by the standards of one's own taste. Perhaps we only can explain this to students, trying to avoid shaping their work into our own stylistic images by conscious tolerance of what may be distasteful to us. This is the dilemma of the teacher of design; he really has much to do with developing a student's abilities, but little really that he can teach with authority. I recall a controversial thesis project at this school several years ago, when the jury was divided between those who wished to commend a student with an 'A' grade and those who considered his proposal to be a total failure, in fact, to be anti-architecture. The student passed, but the faculty remained divided as to what architecture was all about. In this instance a creative young person had proposed more than a design; he had suggested a new esthetic which was less historical in its stylistic origins than was the taste of much of the faculty.

Architecture is historical, and architects' formal values are derived from their experiences of environments which have already been built. There seems to be a natural tendency of architecture towards nostalgia and romanticism; there seems to be constant danger of sentimentality and revivalism of old ways and a hostility to new values or to real experimentation. One of the most serious

questions asked by designers today of each other about their role concerns its elitist character. Many young people with strong convictions about participatory decision-making find that their art is historically aristocratic and even at the present time seems to entail cultural values which are derived from experiences unavailable to the users of the buildings which they will design. Certainly it seems that for the foreseeable future designers will share values which are not popular values. Their art will remain aristocratic to the degree that it remains architecture, rather than becoming environment-making.

There is something about architecture which is neither engineering, nor social work, nor planning. It is poetry, of course, the *"venustas"* of Vitruvius. What turns on the designer may be unappreciated by his public, but probably he will continue to be motivated less by his concern for user preference than by the private joy which he finds in doing his special thing. If a school can lead a student to discover this personal satisfaction, they probably will have taught a designer the most important part of what can be taught about design.

There is an inner eye. Just as it is not the ear that responds to music, but the heart, so it is not in the objective qualities of architecture that its great emotive power inheres. What is moving about a great work is what is beyond intellectual analysis; it is not what the building tells about itself, but what it reveals in wordless language about its maker. A spiritual *gestalt* is the eloquence of a work of art. This may express the singular uniqueness of a personality, or on occasions in history it reveals the common culture of a community.

When a world-view is shared widely and when the values of a society are stable and compatible, its arts develop long-lasting forms which increasingly, by repetition, become refined. When a society is less cohesive, pulled apart by conflicting values, then experimentation with the novel and exploration of divergent directions characterize the arts (as well as other human activities) and great individual artists who express their personal views of the world generally replace the more anonymous artists who collectively had expressed the shared world-view of their more serene society.

In our own time architecture and the other arts are less successfully taught or studied than they might have been in the 18th century. The very notion of "academic art" became degraded in the 19th century, while the social and cultural disorganization of that century coincided with the ascendency of the heroic, romantic artist. Richard Wagner and Frank Lloyd Wright both were symptomatic of the 19th century. For all of the power of their visions, their idiosyncratic views of the world were as representative of the cultural disintegration of their time as were the proliferation of "styles" and the divergence of intellect and sentiment.

Our own views of the world have been inherited largely from our spiritual forbears of the recent past. Even though we seem to find ourselves in a period of great cultural transformation, real changes in basic values and world-view evolve very slowly. Perhaps, as some suggest, the age in architecture of the great individual form-givers is already over, marked by the recent passing of Mies van der Rohe. Yet the romantic notion of art as the expression of personal individuality has not passed altogether. In some of our schools, and in some of our offices as well, we live with conflicting convictions that industrial standardization will solve many human problems, while believing that ultimately it is the unique value of the individual spirit which gives expression to art and which humanizes environment. We think that better systems of objective decision-making may make the design process more efficient, and we produce more and more plug-in gadgets, putting our faith in increasing cheapness. But

in spite of our preoccupation with what is quantifiable, we yearn for improvement of what is qualitative. We talk about "man," the individual with unique qualities, but we may design for "people" as a quantitative abstraction. Perhaps the underlying question of architecture today concerns the priority of quantitative and qualitative values. For a school the question is whether, if we recognize only what can be taught, we may fail to convey appreciation for what cannot be taught but what can be developed only by the individual himself: his visual perception, emotional response, and imaginative vision.

Architecture is an art. Our role is not alone to provide shelter, to accommodate physical wants; it is as well to satisfy psychic needs, to give expression to human aspirations. To be an architect one must be at heart a humanist and share William Faulkner's ultimate faith that "man shall not survive, he shall prevail." Beyond this basic optimism about man and his condition, principles of design rarely prove to be absolute.

Of all the norms of aesthetics which I have encountered, one of the simplest but most enduring seems to be the criterion of the late Bernard Berenson. The purpose of art, ultimately, is to be "life enhancing." This says it well, simple as it seems. It is more than "life serving," of course—and this is not to demean the serving professions. But to "enhance" is something more. It is to enrich by giving additional value. In a time of increasing social and environmental concerns we should remember that as an art, architecture is more than life-serving, in a mechanistic, functional, or quantitative way. It should be life-enhancing in a qualitative way. Regardless of the urgency of world-wide priorities for basic needs, the unique value of architecture is beyond objective measure. It would be tragic if, at a time when the world population is expanding so rapidly and its environment is being largely remade, architecture focused its concern on what is quantitative to the disregard of what is qualitative. Architects need to insist that some values, literally, are priceless.

Footnotes

1. Jerry Coker, *Improvising Jazz*. Englewood Cliffs: Prentice-Hall, Inc., 1965, Foreward, pp. viii-x.