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November 1962

Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS



BOOKS

CONFERENCE ON FREEWAYS IN THE URBAN SETTING · CRANBROOK SEMINAR



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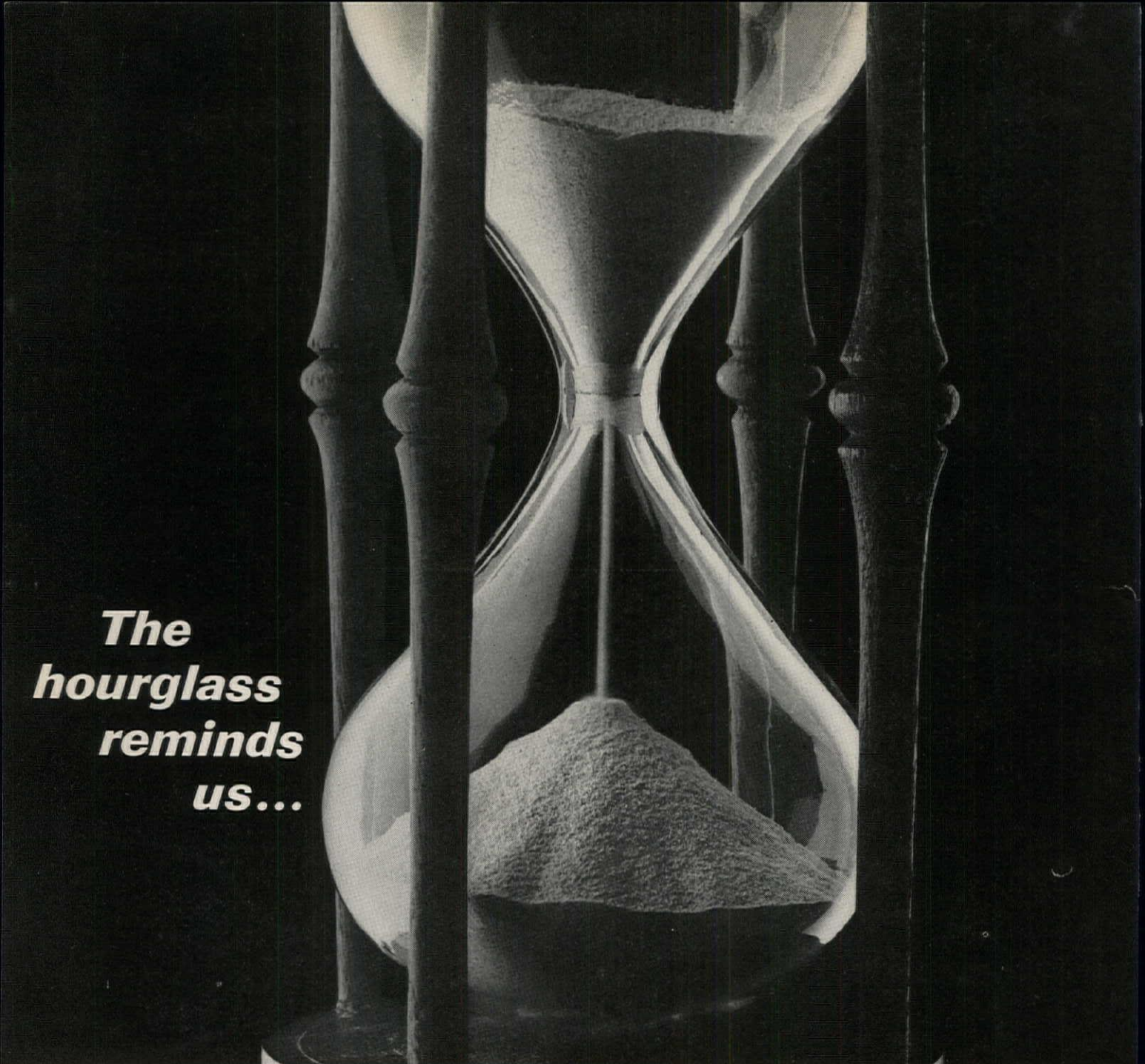


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Journal

VOLUME XXXVIII, NO. 5

NOVEMBER, 1962

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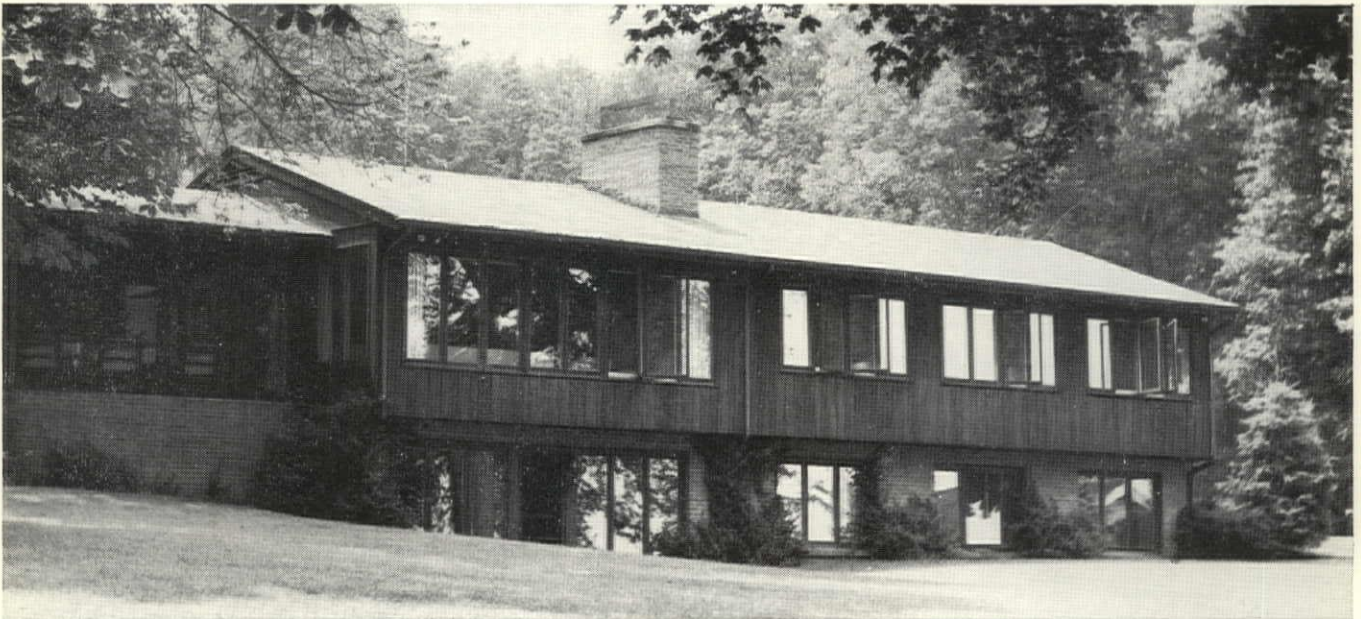
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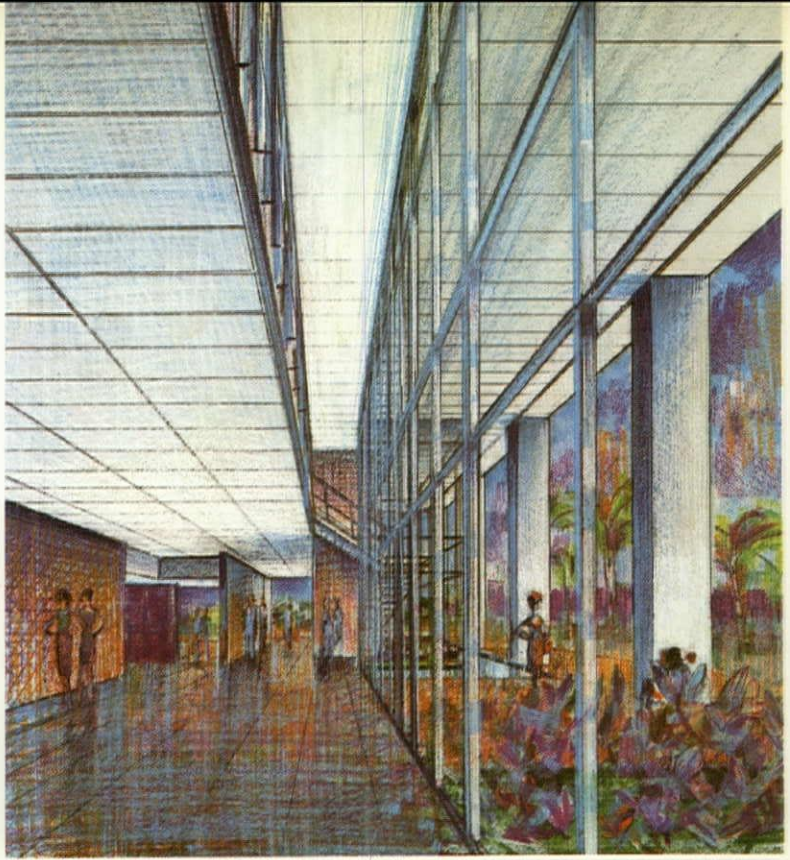
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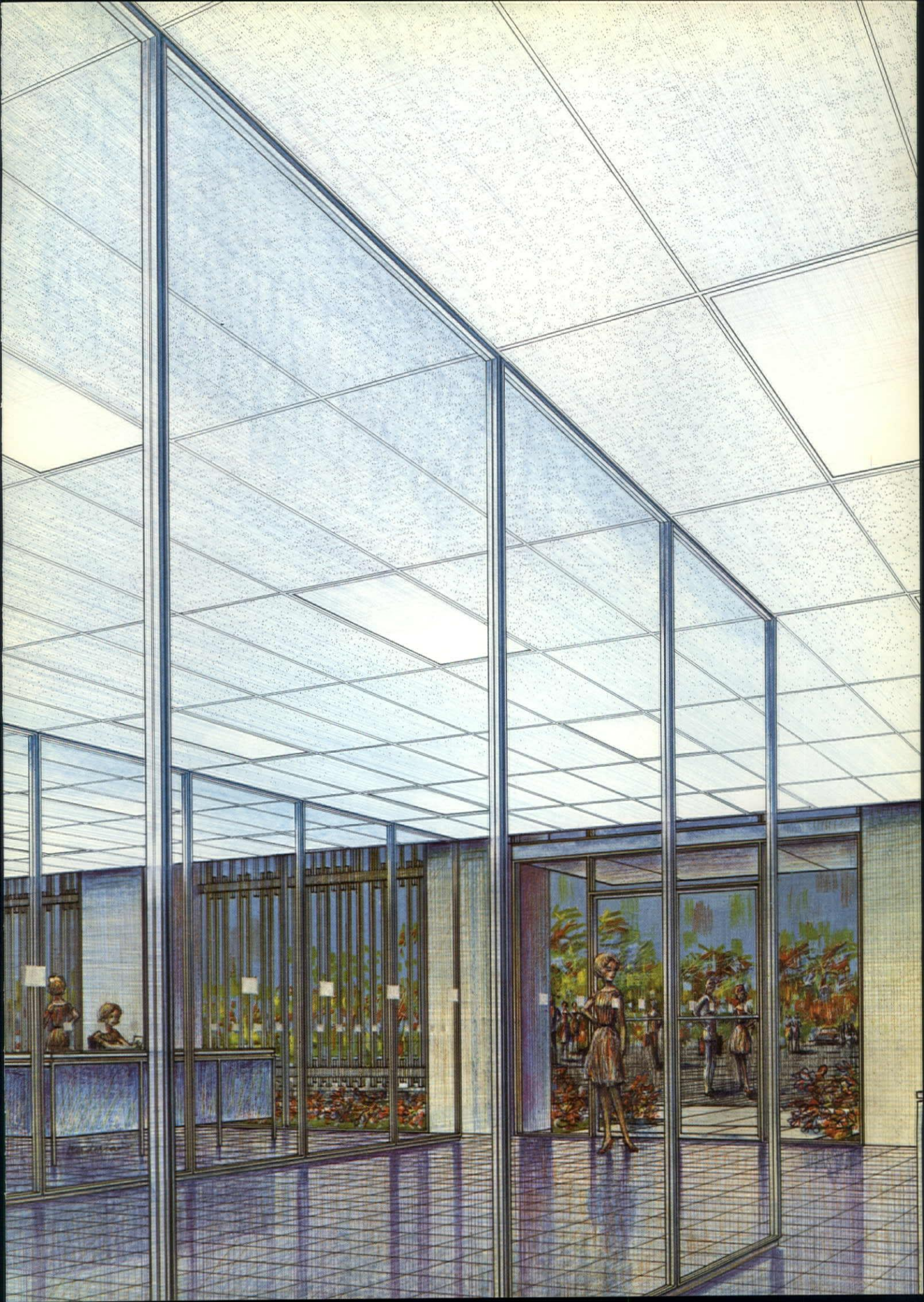
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Letters

More Words on "the Dilemma"

EDITOR, *Journal of the AIA*:

One wonders about the value of publishing an article such as the one in the August *Journal* by Mr Henry Hope Reed, Jr, "the well-known critic of contemporary architecture," which, if nothing else, becomes a sum of contradictory ideas and shows tremendous lack of understanding of today's situation.

The man criticizes Lewis Mumford, while half of his article is inspired by the same awareness of the chaos of today's art. Only *he* has not been able to understand that this chaos results from these very scientific achievements. On the other hand, he seems to confuse technique with ideas in art when he implies that artists today do not go through a thorough training such as our "athletes." Finally, for his own information, may I refer him to certain Slavic folk art, where he would find at least a few dances "performed in silence," a tradition which comes from a few centuries back.

This article is entirely irrelevant to today's situation. It seems to me that in the midst of the chaotic civilization which we live through that there shouldn't be room for such irrelevancies while there are plenty of good art critics and philosophers of art whose help we desperately need, such as Lewis Mumford.

TED MAGGOS
Western Reserve University
Cleveland, Ohio

Whose Esthetic Judgment?

EDITOR, *Journal of the AIA*:

As Walker Cain states in his letter in the July *Journal*, the Commission of Fine Arts *should* protect us from the esthetic judgment of laymen, as well as inappropriate efforts of architects. Unfortunately, this is not the case in practice.

The Commission has approved, among other things in recent years, the new Sam Rayburn Office Building (a ghastly monstrosity, neither good modern architecture nor competent "American Classic" archeology) and the Senator Robert Taft Memorial, a pasty piece of ice cream whose carillon impinges on the ears as well. Furthermore, the latter was pushed through far more rapidly in relation to the time of Senator Taft's death than the FDR Memorial in relation to Roosevelt's.

Far from being the product of the esthetic judgment of laymen, the winning design for the Memorial Competition was premiated by a distin-

guished jury composed of Pietro Belluschi, Dean of MIT School of Architecture, acting as chairman; Thomas D. Church, landscape architect from San Francisco; Bartlett Hayes, Director of the Addison Gallery of American Art at Andover; Joseph Hudnut, Professor Emeritus of the Harvard School of Architecture; and Paul Rudolph, Chairman of the Yale Department of Architecture.

The Commission of Fine Arts, on the other hand, is best expressed in its current membership. Presently it totals eight members, of whom only three are architects. It is strongly conversative, with no member who might be rightfully accused of being a truly "modern" architect. There is some ground, therefore, for the suspicion that the disapproval of the premiated design was more a reaction to modern architecture in general and to the distinguished jury of modern architects who gave it first place in an AIA-sponsored competition.

Another sad loss to Washington was a premiated design of twenty-three years ago: Saarinen, Saarinen and Swanson's winning scheme for a new Smithsonian Gallery of Art (1939), which was to have been built after the war. What happened to it? But I note that the Smithsonian Air Museum of Steinman, Cain and White (successor to McKim, Mead and White) has been built with no opposition. Is there not room for thought here?

NORVAL WHITE AIA
New York, NY

Undistinguished Architecture

EDITOR, *Journal of the AIA*:

What has happened to the State Department's overseas building program? Almost without exception the twelve buildings pictured in the June issue are shockingly undistinguished. The majority are either forced, uninspired, clumsy or misplaced.

WILLIAM LYMAN AIA
Birmingham, Mich

A Matter of Semantics

EDITOR, *Journal of the AIA*:

In the August issue you asked for comments on urban design. You are right; it involves more than architecture, just as architecture involves more than building. However, I would prefer a term that would connote "total environment design." Would "land architecture" do the trick? In this fashion we could include in one term the art and science of planning communities, villages, towns, cities and the great magalopolises that are being born.

JEFFREY ELLIS ARONIN AIA
New York, NY



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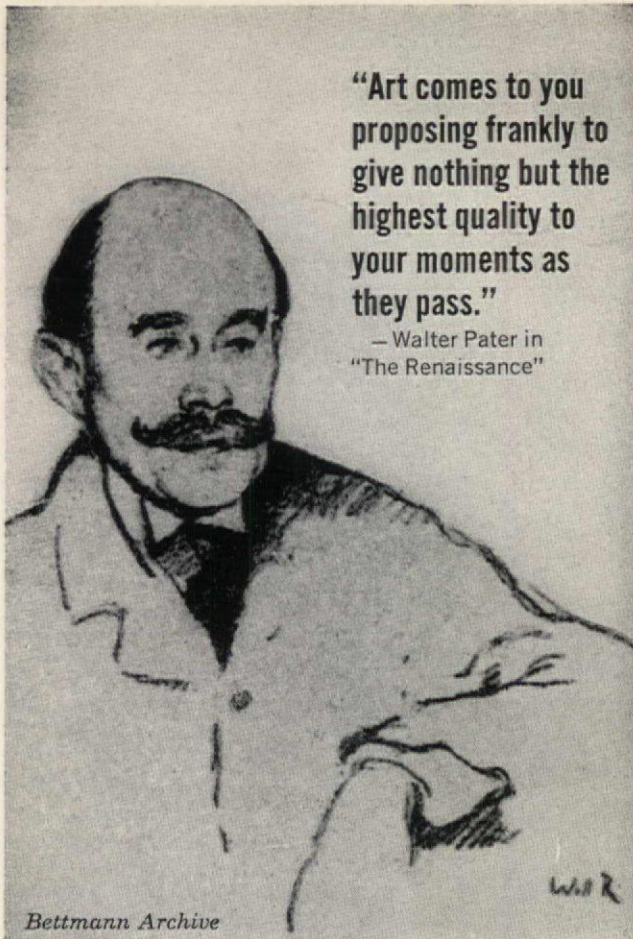
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Art in architecture is a complex endeavor. Many ideas and many practical considerations must be combined to achieve the *quality* of conception and execution necessary to the fulfillment of this art. Each material component must meet the standards of quality established by the architect, and must maintain that quality as the years pass—or another opportunity for true art in architecture will have been lost.

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URBANISMS

A regular column by our specialist on urban affairs, Matthew Rockwell, Director of Urban Programs

The Press and the Building of Cities

We learned a little more about reporters last month—and we think they know us better too. Probably the entire profession should have been present—listening quietly, weighing and considering what another profession thinks of us.

The occasion was a three-day workshop sponsored by the Institute at Columbia University. Here in the warmth of Indian summer thirty reporters from our metropolitan dailies gathered to learn how to do a better job of telling their readers the meaning of architecture and the city. They heard in plain terms how to evaluate good design and used a baseball scorecard to register its measure; they asked whether architects were trying to prove a point (like proving that a building can be made entirely of glass) or were really interested in improving the liveability of mass housing.

They were impressed with Radburn, NJ, and wondered why more Radburns had not been built. They suggested that open spaces rather than buildings were better as focal points—but if we insisted on the building as a focus, then it should have the same human appeal as the corner tavern. They asked why the press was never involved in the "preliminary" aspects of project planning, rather than being brought in after the final plans were settled. One architect suggested that the architect was the "expert" and that people didn't really know what they wanted—and therefore shouldn't be consulted more. An equally brave man suggested that if the press informed the people more fully as to what to expect in a proper city, they would not only get it, but they would also get "nobler" cities.

In the end, while they were somewhat suspicious of their host's intent, there was no doubt that they had learned a great deal. The important question was: Had we learned as much of them?

Better or Worse?

Most of it had changed. I wondered if it could have been otherwise. The memories of twenty-five years before were very close—very vivid. Of course I had been back in the meantime but never with time to reminisce. My steps now turned to—

(Continued on p. 12)

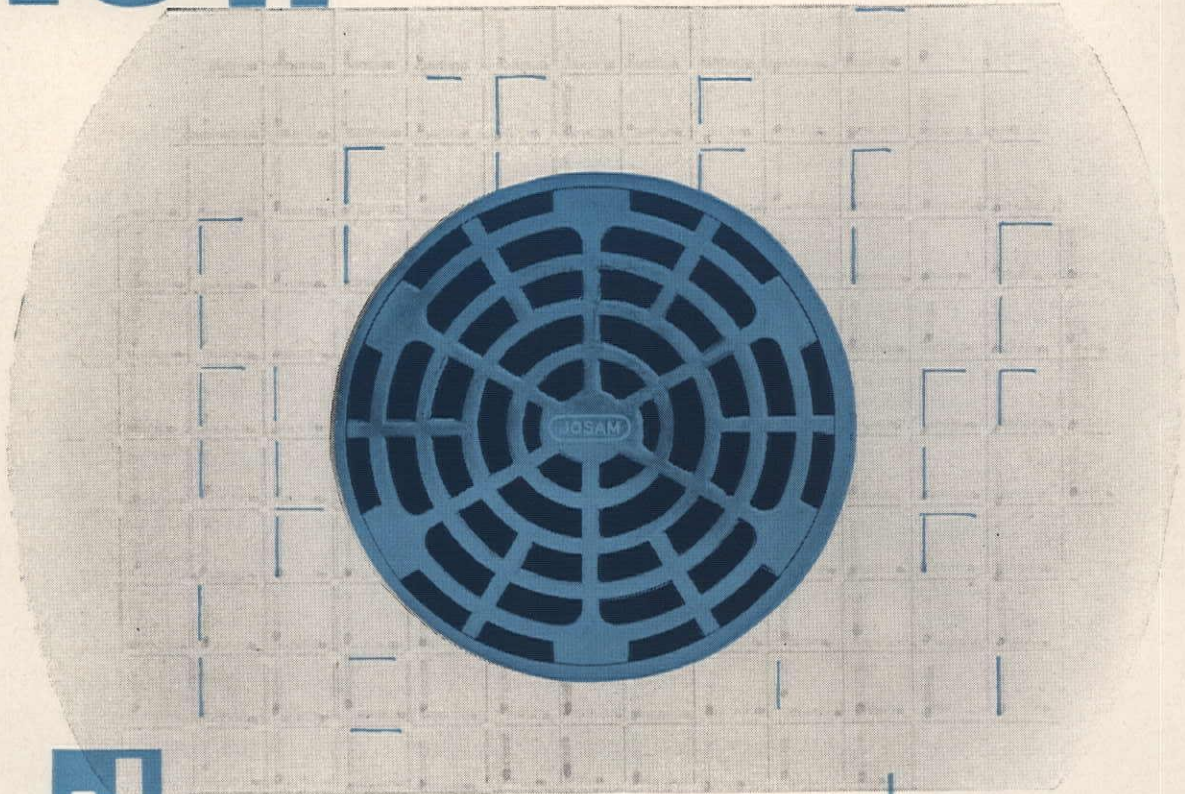
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Urbanisms (Continued)

ward the small art gallery where occasionally we had spent our lunch hours. It was still there, almost the only familiar street face. It reminded me of that lunch hour when art competed with the joy of spring and we had gone rowing in the pond in the garden.

There had been four of us—two of them now were great architects—the third has become a minor pink, or maybe just a discontent. At any rate, I've lost him. But one of the others, in fact the most noted one, remains suspended in my memory just as he was when we rowed under the small bridge and he reached up and caught hold of one of the girders. We rowed on and there he hung, his face surprised and grinning and more and more contorted with effort at holding on until we returned. At any rate, this bridge when I crossed it again was one of the few things that had not changed.

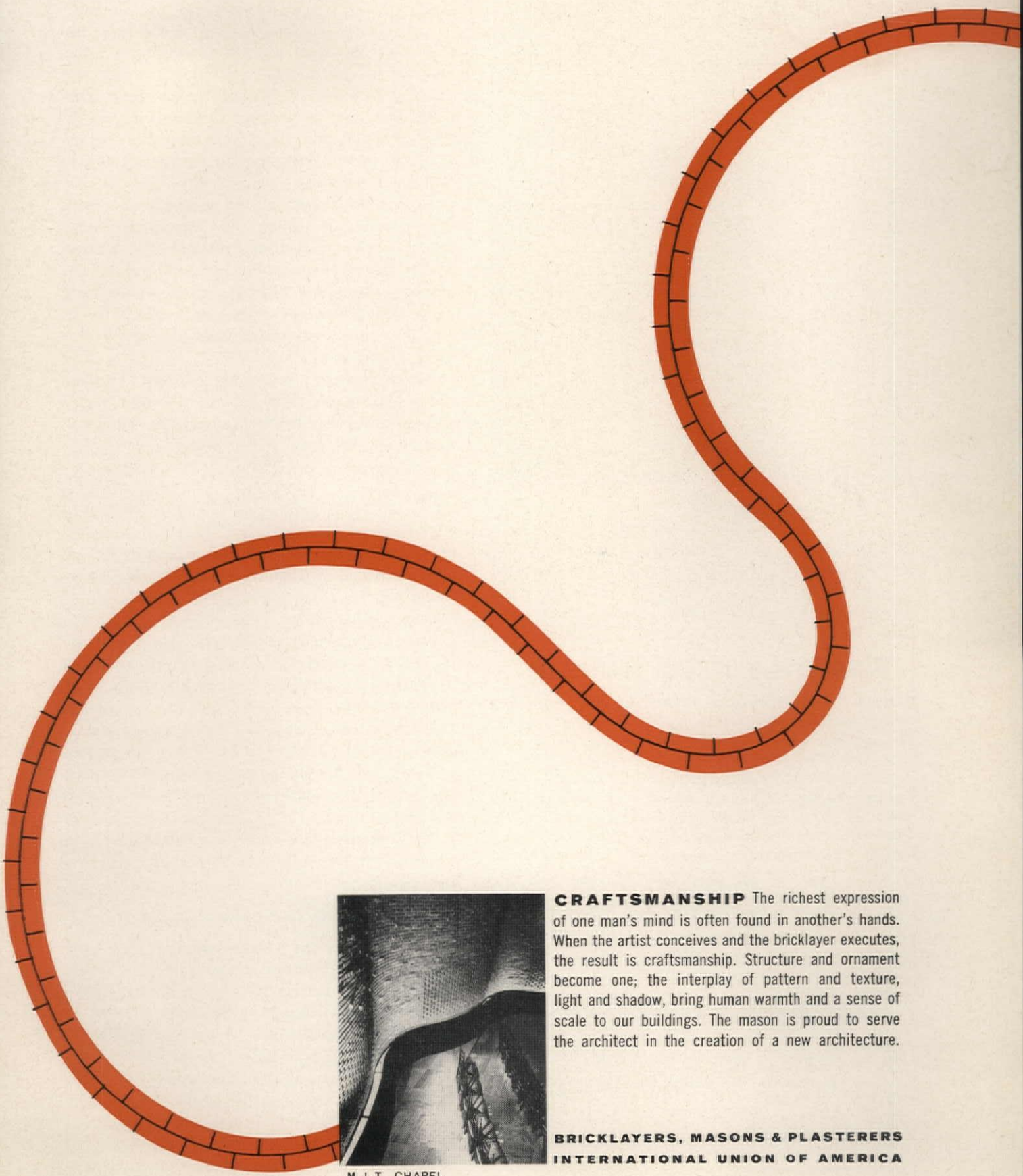
Over on the Charles River almost a quarter of the river basin I remembered had been filled, first for a highway and then second for an esplanade. To reach the latter I crossed the highway on a serpentine overpass. Its winding form gave many pockets for wastepapers and leaves. Its apparent need for night lights called for the provision of foot-level electric globes. Without exception these were kicked out. Nearby signs were flaking. Was public indifference now king?

The highway was overloaded; the traffic rush was oblitative. But the river embankment was a silent oasis. Along the water's edge dandelions on yard-high stems competed with still fresh goldenrod and mallards rocked gently in their lea.

In the name of progress this triumvirate of improvements—overpass, highway and esplanade—had been created. Each of themselves utilitarian, each of them at the same time creators of new problems. All together they represented change. My question was: Were they any worse in the balance than similar conditions to which I was oblivious twenty years earlier? Was our environment better or worse? I decided not to weigh them in the scale.

Urban Design: The Architecture of Cities and Villages

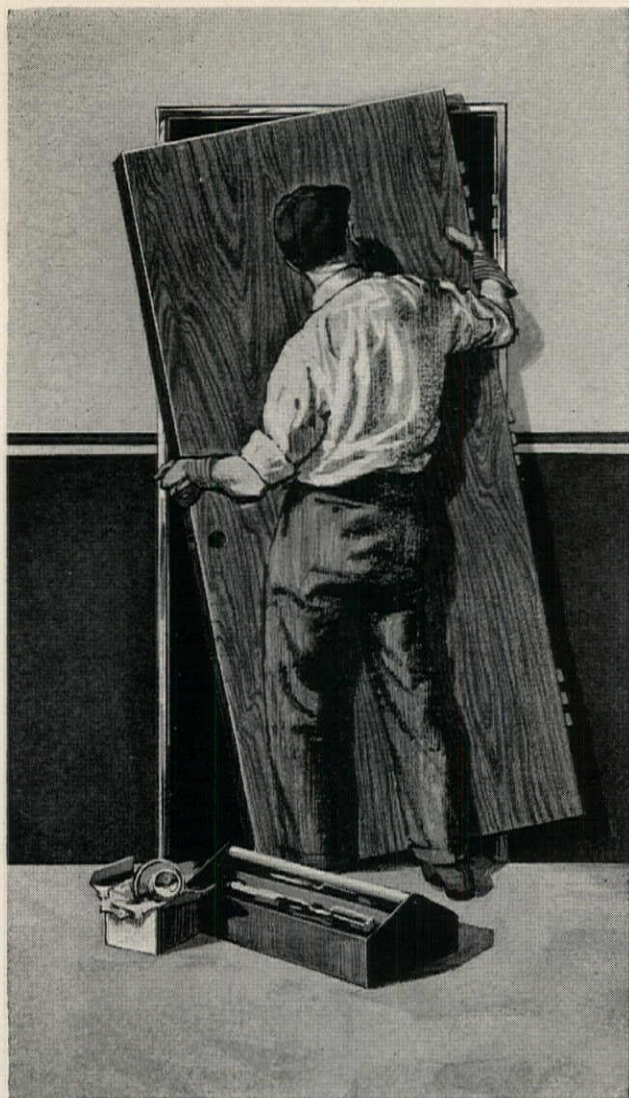
Next month the first chapter of the Urban Design series will appear in the *Journal*. Originally announced as a part of the project UD '62-'63, this series is being financed through use of members' supplementary dues for the years 1962-63. The title of the series (see above) has been broadened somewhat—next month look for an explanation here by Arch Winter AIA, AIP, Chairman of the Urban Design Committee.



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News

Sullivan's Ornamental Work Preserved

Plaster and terra cotta ornament from Louis Sullivan's Garrick (Shiller) Building, which was razed last year, has been preserved by a joint committee composed of the Commission on Chicago Architectural Landmarks and the Chicago chapters of the AIA and the Society of Architectural Historians.

A large collection of the ornament has been given to the Art Institute of Chicago and representative pieces are being distributed to schools and museums which requested them. Institutions desiring any of the remaining pieces of ornament may request them from the Committee. The requesting institutions must arrange and pay for crating and shipping.

Requests are to be sent immediately to Joseph Benson, Secretary of the Commission on Chicago Architectural Landmarks, Room 1005, City Hall, Chicago 2, Ill.

1963 Reynolds Student Award

The Reynolds Aluminum Prize for Architectural Students has been revised to limit its \$2,500 national award to scholarship purposes. Previously there was no stipulation on the winner's use of the cash prize for the "best original design of a building component in aluminum."

The AIA, which administers the three-year-old competition, added the new feature because of the increasing emphasis by architectural schools on scholarship programs. The Reynolds award also includes \$2,500 for the school whose student wins the national prize. As in previous years, the school may spend the money in any way it chooses.

Each participating school sets rules for its own competition under AIA general guidelines.

Cuban Architects Being Placed in Jobs

A note from the US Department of Health, Education and Welfare reminds us that many architects are among the five hundred Cuban refugees being placed in positions outside of Florida each week. Many of these people are bilingual and highly skilled. Architects needing trained drafting room assistance or wishing to help in the refugee problem, can obtain employment questionnaire forms from the US Employment Service, Cuban Refugee Center, 501 NE First Avenue, Miami, Florida.

(Continued on p. 16)



AIA·AIAF

SCHOLARSHIP PROGRAM

1963-64

The American Institute of Architects has funds available for scholarships in architecture for the academic year of 1963-64. They are derived from general scholarship and education funds, trusts of The American Institute of Architects, and grants to The American Institute of Architects Foundation, Inc.

Eligibility

Undergraduate Scholarships: present third and fourth year students in Member and Associate Member Schools of the Association of Collegiate Schools of Architecture.

Graduate Scholarships: present fifth year and graduate students in Member and Associate Member Schools of the Association of Collegiate Schools of Architecture.

Post-Graduate Scholarships: practitioners and educators in architecture and the allied arts.

How to Apply

Undergraduate and Graduate Scholarships: a limited number of applications are available in the office of the Head of each School of Architecture.

Post-Graduate Scholarships: applications available by writing to the *Scholarship Program, Department of Educa-*

tion, The American Institute of Architects, 1735 New York Avenue, N.W., Washington 6, D.C.

Applications are to be completed and returned as instructed on each form *no later than November 19, 1962.*

Selection

Awards will be based on *need and scholarship* as selected by the AIA Committee on Education.

Number of Awards

Funds are allocated in proportion to the number of applications received.

Announcement of Awards

April 1, 1963.

AIA-AIAF SCHOLARSHIPS

The American Institute of Architects Funds

Henry Adams Fund for fourth and fifth year undergraduate or graduate students in architecture, primarily for studies related to ecclesiastical architecture.

Delano and Aldrich—William Emerson Fund for French architects, sculptors, painters or students for travel in the United States. (Applications should be made directly to M. L. Arrette, Comité Français pour L'Attribution de la Bourse, Institut des Architectes Américains, 6 Rue Jules-Chaplain, Paris, France.)

Edward Langley Fund for residents of the United States and Canada. Awards made to fourth and fifth year undergraduate or graduate students for the study of architecture.

Milton B. Medary Fund for graduate students who have received as undergraduates the "School Medal of The Institute" for graduate study in architecture.

Carl F. and Marie J. Rehmann Fund for graduate students, practitioners and educators in architecture for travel and research; and for aid to artists and craftsmen who are pursuing their arts with an architectural point of view.

Louis H. Sullivan Fund for fourth and fifth year undergraduate or graduate students in architecture.

Dan Everett Waid Fund for fourth and fifth year under-

graduate or graduate students in architecture "to serve education in architecture which shall be interpreted broadly so as to include the promoting, knowledge and appreciation of the fine arts."

AIA-AHA Joint Fellowship Program in Hospital Design for graduate study at universities which have schools of architecture and hospital administration.

The American Institute of Architects Foundation, Inc. Grants

Blumcraft of Pittsburgh Scholarships to aid fourth and fifth year undergraduate students in their study of architecture.

International Association of Blue Print and Allied Industries Scholarships for students in their fifth year of architectural education.

National Board of Fire Underwriters Scholarships for students who are attending one of the collegiate schools of architecture in the United States, preference given to those students completing their fifth year.

The Ruberoid Company Scholarships (Mastic Tile Division) for fourth and fifth year undergraduate students attending one of the collegiate schools of architecture in the United States.

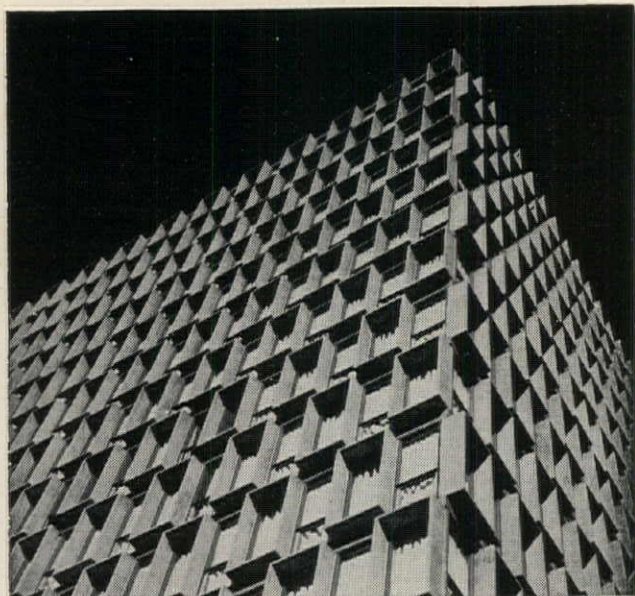


Photo: Hendrich-Blessing

*Water Tower Inn, Chicago

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- Suprema Royal Spar*
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FLINT ADMINISTRATION BUILDING, Flint, Michigan

Architects-Engineers: Linn Smith & Associates,
Birmingham, Michigan

Mfg. by : Pre-Cast Concrete Co., Marysville, Michigan
Panel Engineering Corp., Troy, Michigan

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CANON CITY, COLORADO

Stewardson Traveling Fellowship

Applications for the 1963 James Stewardson Traveling Fellowship, a \$2,000 grant made by the New York Chapter AIA "to a worthy architectural draftsman," will be accepted up to December 1.

Promising candidates will be interviewed and the winner announced on or before February 1. The fellow will begin his trip within eight months after that date and spend at least four months in travel.

Eligibility extends to men and women who 1) are between the ages of thirty and fifty, 2) have been continuously employed—not as a principal—for at least one year in an architectural office in the territory of the New York Chapter immediately prior to making application, 3) have not previously had a traveling fellowship.

For further details contact the New York Chapter AIA, 115 E 40th St, New York 46, NY.

Once Upon a Vacation

Closing up shop for a week to go to Myrtle Beach, SC, is old hat to Charleston architects C. E. Silling & Associates—they've done it for thirteen years. But early in September a new crease was put in the office chapeau.

In addition to the beach, Cy Silling took his six "boys" on a jet trip across country to the Seattle World's Fair. And that's not all. After an enthusiastic visit to Century 21 (for a real travel-agency-type account see the monthly bulletin of the West Virginia Chapter AIA), the southerners continued their journey to Portland and San Francisco, enjoying the western hospitality of their colleagues up and down the coast.

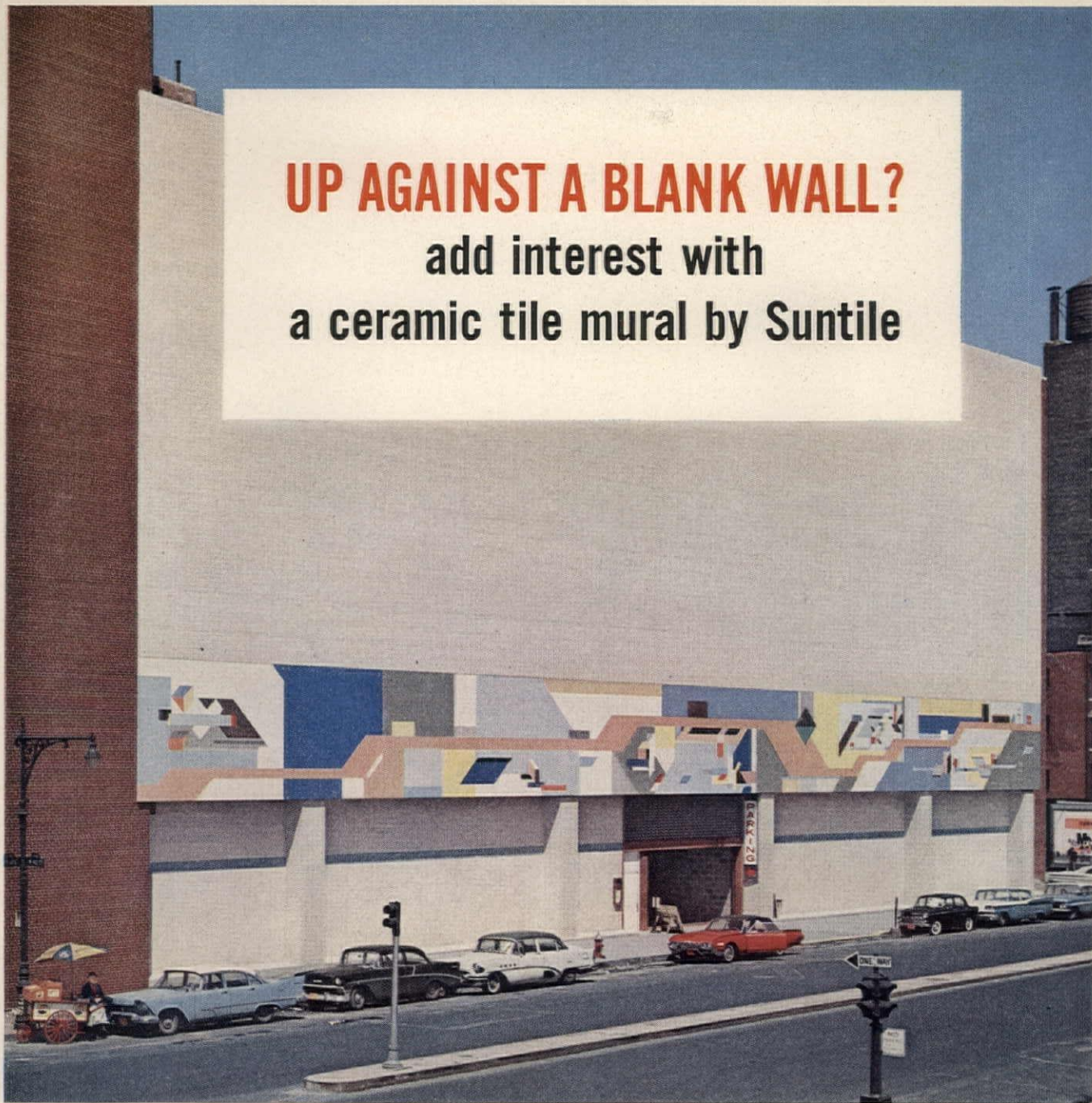
It added up to eight days of fun—without sleep—and all at the boss's expense.

Acknowledgment—and an Apology

On more than one occasion, Laura Winslow has been on hand with her camera to sensitively record AIA activities. Such was the case when Her Imperial Majesty Farah of Iran stopped at the Octagon during a state visit to Washington earlier this year. Credit for the resulting photograph which appeared in the July *Journal* was inadvertently omitted.

Miss Winslow's work also was represented in the AIA-sponsored brochure for the Seattle World's Fair and the Board Report in June 1961, which featured her fine photographs of the Russian team visiting the Institute headquarters.

UP AGAINST A BLANK WALL? add interest with a ceramic tile mural by Suntile



United Parcel Service Building, New York, N. Y.

Architects-Engineers: David & Earl J. Levy—Abbott Merkt, Inc.

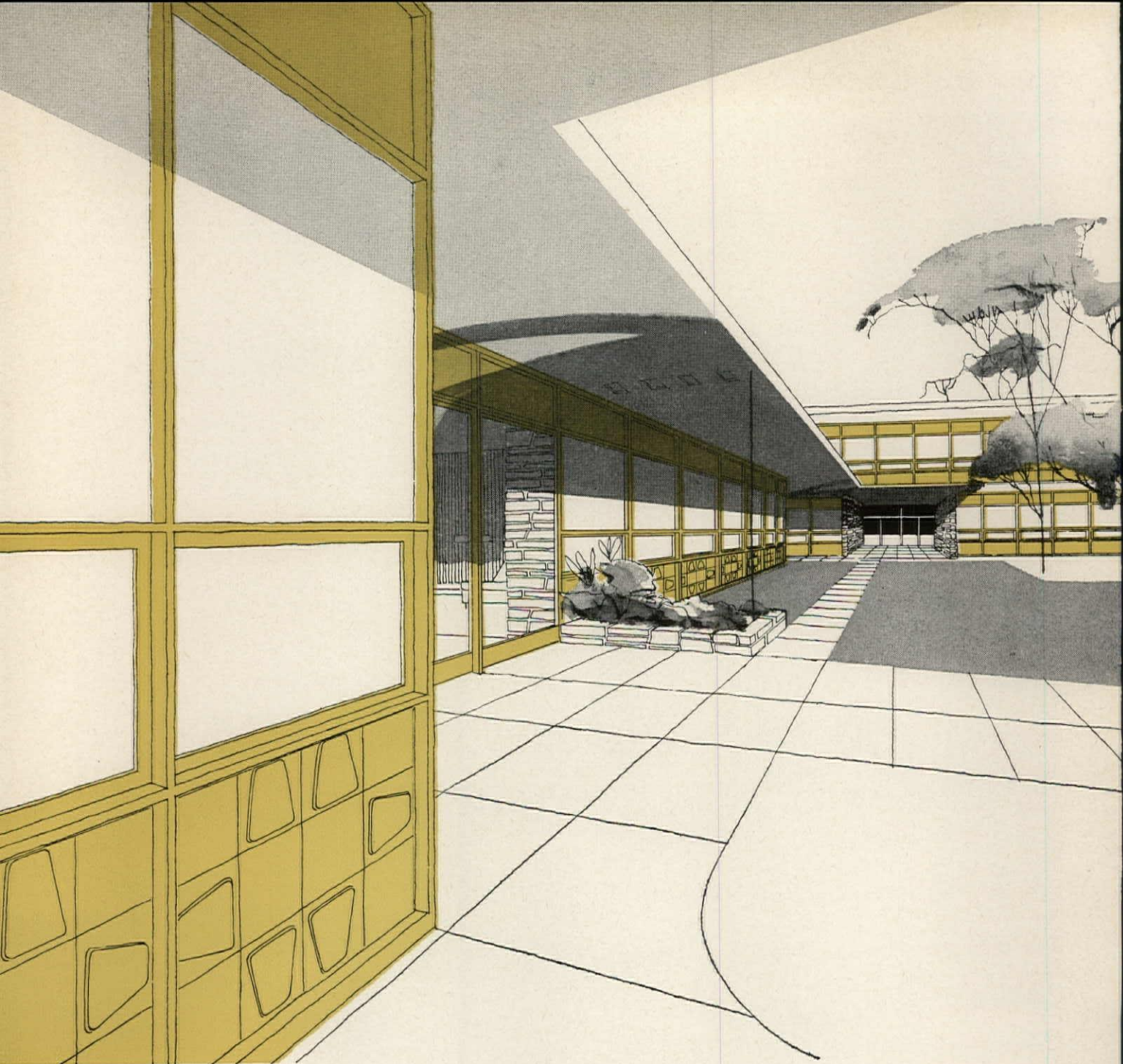
Mural Designer: Max Spivak, New York, N. Y.

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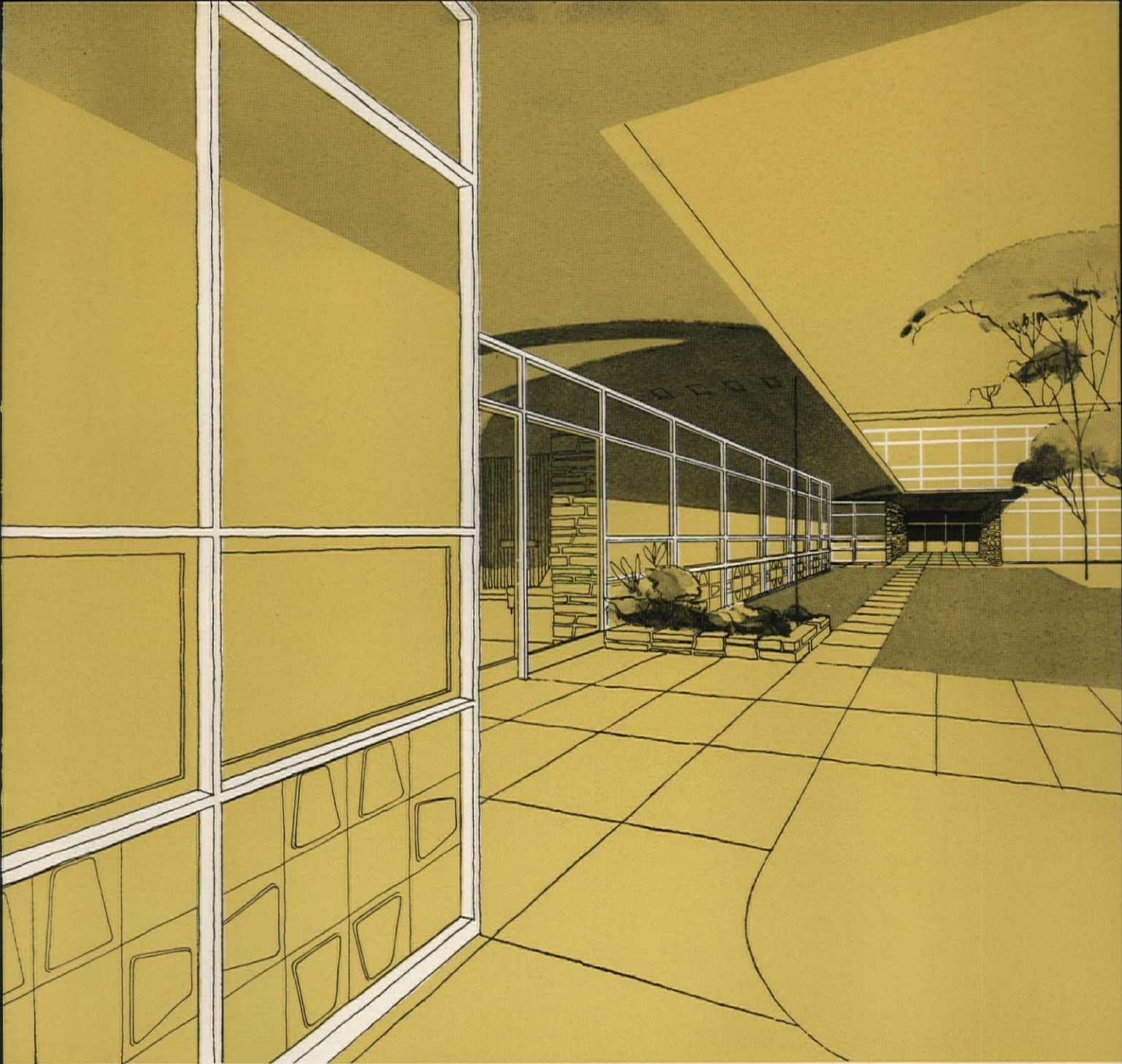


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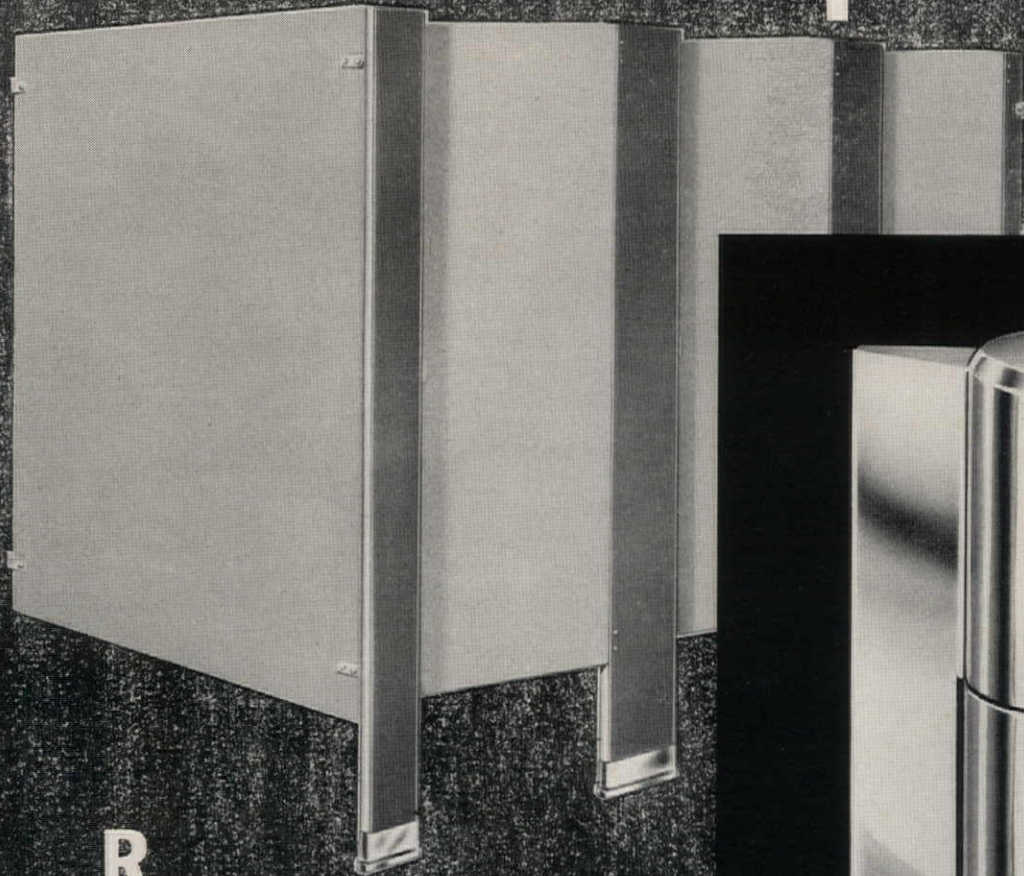
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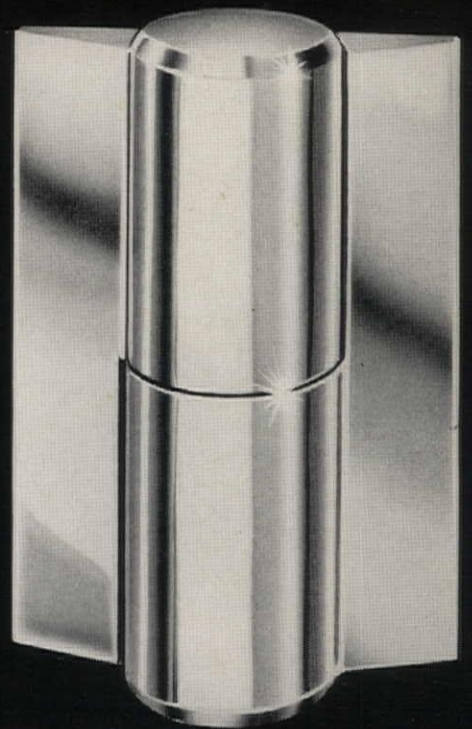
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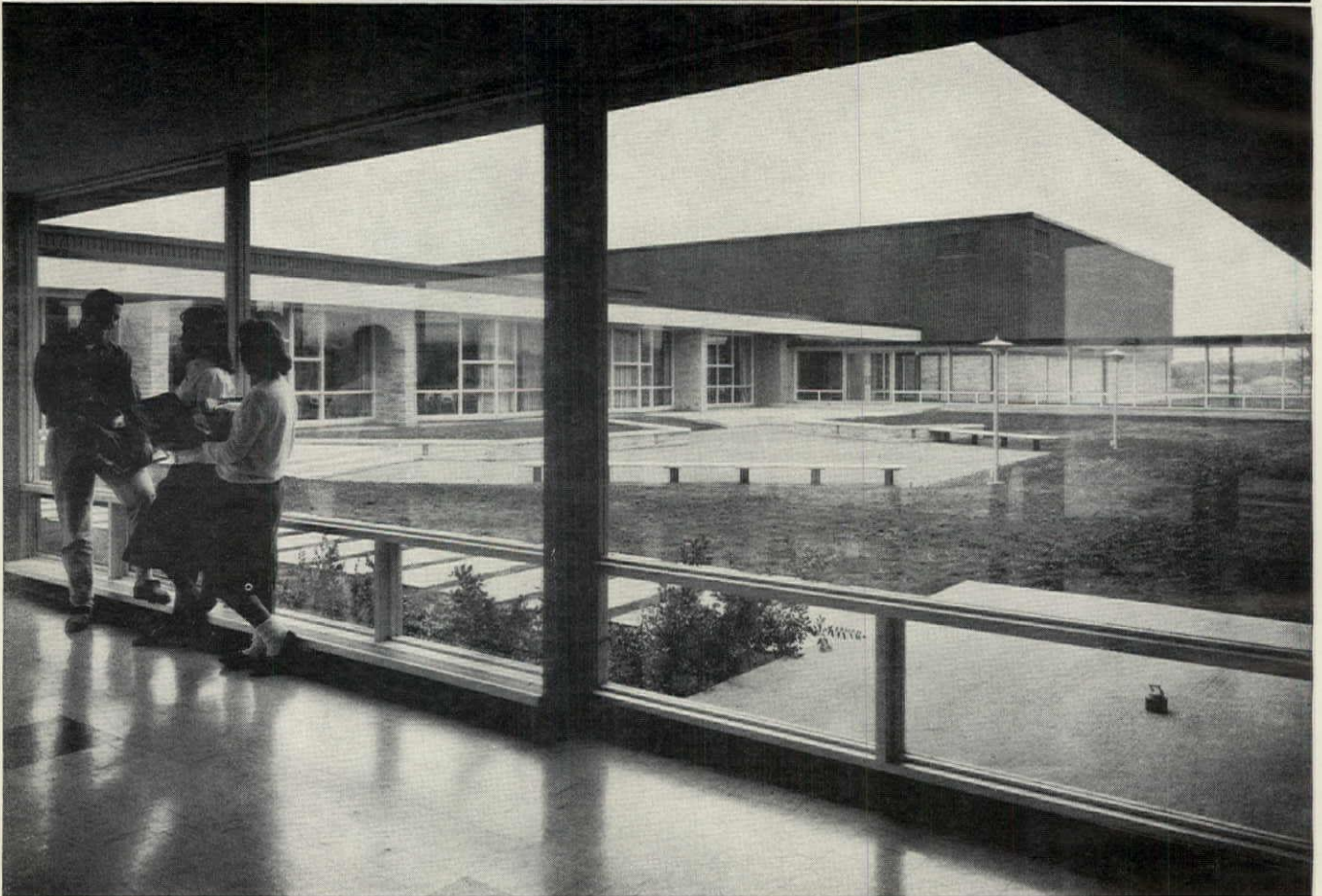


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Journal

Frustrations and Fruitions

Conference on Freeways in the Urban Setting

In early 1962, former President Will uttered a strong hope that architects would express themselves in the field of highway planning and design. A short time later the opportunity presented itself. Moving to meet the growing opposition to urban freeways, the US Bureau of Public Roads and the US Housing and Home Finance Agency, working with the Automobile Safety Foundation as a focalizing agent, sponsored meetings with interested groups to develop a major conference on the subject. The Institute, through its Urban Design Committee, was one of the several groups who developed the program. The Automotive Safety Foundation will shortly publish only the findings of the conference (available on request to the Octagon). But the papers of the architectural participants were considered important enough by the Urban Design Committee to have them reproduced in the *Journal*, with an introduction by John Rannells, Special Assistant to the Administrator, National Capital Transportation Agency.

—Matthew Rockwell, Director of Urban Programs

Introduction by John Rannells ASCE, AIP

Freeway design has become the outstanding art form of the automobile age, subject to sets of requirements as compelling as those that made the sailing ship outstanding as an expression of our commerce a century ago. The mechanics of freeway design—products of the dynamics of speed and directional controls—have been mastered. The rules of the art, so far as the physical freeway itself is concerned, are well established. The highway engineer, with some help from the landscape architect, can be counted on to produce freeways well related to terrain and a pleasure to traverse.

The big test of the freeway is met in the city. It is here that the geometric criteria of the free-flowing highway come up against rigid physical patterns and long-established institutions. It is here that considerations of civic values, of dislocated activities, of urban amenity, must be added to the design requirements. Here the highway engineer must work with the city official, the city planner and the architect.

In a very few cities, this is an old story. Recently, stimulated by the Federal Highway program and especially by its emphasis on "interstate" routes with ninety per cent Federal financing, this problem has become urgent business in every city. There have been a number of conferences among professionals, all concerned with finding a common ground for dealing with urban freeway location and design. The most recent of these conferences—on "Freeways in the Urban setting"—was held at Hershey, Pennsylvania, early last June.

This conference was intended to focus on ". . . the problem of locating and designing a freeway through a transportation corridor in such a manner as to best serve present and future planned land use, esthetic values of the neighborhood and traffic demand." The architects and architect-planners found some difficulty in orienting themselves to this rather limited concept, feeling a need to set the problem in a larger frame. Their views are well represented in the papers that follow.

Four Architectural Factors

by Arch R. Winter AIA, AIP, Chairman, Urban Design Committee

The architect-planner of all but the large metropolitan cities could hardly hesitate to accept the rule laid down for this meeting: that discussion not go off in debate on the relative merits of alternate modes of travel but be limited to the problem of locating and designing freeways.

For the simple, beginning fact is that the small and middle-size cities have grown up with the automobile. Their low-density development depends upon it, their commercial transportation is geared to it, and if their small streets cannot now accommodate its increasing numbers, their new city plans are drawn to remedy that situation. It is the freeway, not the automobile, that is the awkward stranger in the city.

In trying to see why this is true and what ought to be done about it, the architect's point of view, as distinguished from the architectural aspect, may be useful. From this viewpoint, each part of a composition, whether the composition is a building or a city, has meaning (and therefore should be carefully designed) in relation to the other parts. A given element can be isolated only for clinical purposes; it cannot live apart. To take an obvious architectural example, the vertical circulation—the elevator—in an office building must be located, sized and designed for the floor space or the people it is to serve. Neither the office tower nor the elevator can exist and function independently of the other. Otherwise, there follows a horrible vision of general confusion and dislocation—of broken necks, even.

In a larger, but sharply parallel way, that channel of high-speed horizontal circulation—the urban freeway—can be isolated from the city only for technical examination and only for a short period of time. If it is kept out of its natural milieu very long, separated from other city functions, it becomes warped out of alignment so that it no longer fits into its place in the over-all scheme. It may even become an end in itself, rigidly and independently designed, first overlooking, then ignoring the tenants of the area on either side of the path of its march from origin to destination and finally dividing and even displacing the very city it started out to serve. There are some who say this already has happened.

So the initial task, if the urban freeway is to have a future other than as an interesting artifact of the Concrete Age, is to bring it into harmonious, purposeful relation to its urban context.

I suggest, therefore, that from the architect's viewpoint the first important factor or principle to be followed in freeway design is correlation with the urban environment of which the freeway is one part.

This, of course, is the broadest kind of directive. But it leads naturally to several quite practical sequential components. Begin with "function"—and with one of those obvious facts which are so skillful in eluding us. The automobile is a fairly flexible vehicle. It has a wide range of speeds and can adjust to a great variety of roads and maneuvering situations. Is it not therefore reasonable that an assortment of street types be used to answer the



requirements of different movements? In fact, this is just the purpose of the ordinary city planning vocabulary of "major," "secondary" and "minor" street types.

A latecomer to this lexicon, the freeway was originally designed as a highway, not a city street. It was brought into the city in a desperate attempt to cope with runaway traffic volumes, at least part of which was the result of overintensive land use, in turn the consequence of bad city planning. And, in some cases, the completed freeway has suffered from the aftereffects of desperation. Too late it was realized that it might require substantial change if it were to be a good answer to city circulation problems.

Here is a basic illustration of the point: The freeway with a design speed of sixty or seventy miles an hour is appropriate enough to the countryside, for connecting cities and towns not too far apart and certainly for connecting the city with its suburbs. But in its present form the freeway is often unsuited to the central city itself. What real difference does it make whether we cross a mile-square downtown district in one minute at sixty miles an hour or two minutes at thirty miles an hour? The small savings in time hardly seems worth the price of the space consumed and the damage done. Moreover, as all surveys show, most of the traffic wants to go *to*, not *through*, the city center.

In short, the problem is less one of speed than of accommodation to the special situation and the special needs of the business center. The same is true of the close-in residential sections. The degree of freedom of the freeway might in these places be modified and its design

speed reduced. It may be said that this calls for something other than a freeway, but if it does, that something should possess many of the freeway's characteristics; it should be closer to the freeway in its design and accommodations than to the ordinary thoroughfare.

So the second important factor or principle, growing naturally out of the first, is that the urban freeway should be designed to fit an individual situation, following flexible rather than fixed standards.

In regard to location, the essential consideration is convenient placement in relation to the areas and the functions to be serviced. Needless to say, location as well as design must consider land use, social groupings such as neighborhoods and other requirements of urban activity.

Would it be impertinent to suggest that the freeway be located where the city plan calls for it? After all, a city's master plan is the result of intensive and usually intelligent study directed not toward any partial objective but to developing a design for the *whole* city. It is cognizant of where a separation may be needed—as, for example, between a residential neighborhood and an industrial district—and where one would be a fatal cleavage. It is the guide for the agencies responsible for public buildings, utilities and urban renewal, and it is the guide for developers and architects projecting private enterprises. Why not for freeway builders?

Clearly, my recommendation for a third principle is that the freeway follow the city plan in seeking a location in logical relation to its service area and with consideration

for the amenities of urban life in general.

Finally, as the exponent of the architect's viewpoint, I should like to join the landscape architect in calling attention to the visual aspect of the freeway. Being an emphatic and often dominant element of the city scene, the freeway has the same obligation that individual buildings have to fit congenially into the surroundings. When it fails, it joins the ranks of their disheartening failures.

Besides form, some of the architectural qualities that apply equally to the freeway, as a new three-dimensional structure, are scale, proportion, mass and texture.

Take, for instance, scale, a visual quality that is a function of speed as well as distance. The large sculptured form of the freeway in the country expresses straightforwardly its earth construction and the extended coarse dimensions of its rural setting. But closer in to the city, scale is quite different. Here speed is slower and texture and detail can be observed. Here, too, different materials can offer relief from the starkness of the pervasive concrete. Steel and the unit masonry materials can give freeway structures varied texture and color. Already the city is indebted to the freeway for the welcome cool green that is a foil for the usually warmer colors and geometrically sharp building forms.

And, coming back to the quality of form itself, great variety is possible in both city and country freeway, the divided roadways going up and down independently of each other with the undulations of the land. Middle grounds can be made wider or narrower from place to place and punctuated occasionally with structures for advertising* or

* When questioned by the *AIA Journal* about this particular point, Mr Winter replied: "The term 'advertising structure' is the industry's euphemism for 'billboard.' But, taken literally, it *could* mean something other than the image of itself the industry has created. It *could* mean quite imaginative constructions in a variety of shapes, sizes, materials and night iridescence. This colorful prospect, however, is unlikely to be given reality, not because of rules against it but because the outdoor advertising people have invested \$50,000 in a standard poster panel design and are stuck with it. Now they employ planning consultants to defend what they do instead of architects to show them how to do something better."

"The other point I had in mind was relief from the dullness of mile after dreary mile of freeway sameness which, psychologists and motorists agree, makes drivers sleepy. Occasional mildly startling middle-ground sculpture, advertising or other, would wake them up. The Natchez Trace Parkway designer once told me his greatest problem was how to relieve the cloying beauty of so much nature."

other uses not needing regular access.

Thus the fourth architectural principle or factor in freeway design is that it be sensitive in scale and proportion and appropriate in form and mass to its urban setting.

Now, having followed the rule of relevancy for about nine of my ten minutes, I should like to add a footnote that may stretch the rule but hardly break it. It seems to me that a discussion limited to the freeway and its problems may not produce the needed long-range conclusion. Nor do I imply that giving consideration to the monorail or even mass transportation in general will provide the answer.

Rather, I suggest that in looking at tomorrow's transportation—*automobile* transportation—we widen our view to take in the whole urban picture. Instead of projecting tomorrow's circulation by the process of extrapolation, we might project tomorrow's entire city by the process of imagination. Far from being impractical, this approach is firmly grounded in technological progress.

We know, for example, that instantaneous two-way communication between people and among a group is perfectly possible and feasible and that its wide use merely waits development. Recently, the transistor and the satellite have brought it closer.

One consequence of such quick, multiple communication might be a reversal of the steeply rising curve of automobile use. With this prospect, our origin-destination surveys should perhaps ask the question, "Would you make this trip if you could accomplish its purpose by cheap and quick personal visual communication?"

Transport and communication are no longer mainly problems of technology but of economics and political decision. Their future uses and special forms, however, and the way in which they are related to their urban environment remain matters of design. The new city will certainly be vastly different from the old, its rich variety limited only by imagination and the resources we will have for its building. In that respect, there should be change. But, just as surely, there should be an element without change, and it will consist of those basic architectural factors of correlation, function and esthetic quality that lie behind the sound planning of a freeway. ◀

The City Planning Standpoint

by Morton Hoppenfeld AIA, ASSOC AIP



Were the freeway designed at a higher level above grade with a vertical sense to its openings, light and life could be seen and felt beyond to minimize the severing effect of the existing bulky structure



The title of this panel, "Important Factors in the Location, Design and Amenities of Urban Freeways," implies an attitude toward the consideration of urban freeways commonly held by many. I think it suggests that location, design and amenities are, in some way, separable.

In a like way, the titles of the subsequent panels imply a similar attitude toward "independent factors," to be considered when necessary. I know that this is not exactly an accurate observation and that it is necessary for purposes of analysis to take something apart, in order to explore its aspects in detail, before we can put it together again in a better way.

But, as an urban designer, if I can make no other contribution to this discussion, I would state that *we must, at all times, realize that freeways are but a fragment of a larger whole, critically related to many aspects of the city involving other than transportation values which require simultaneous and constant consideration.* To make my point clearer, I would like to restate the title of this panel to read: "Location and Amenities as Basic Factors in the Design of Urban Freeways." Location and amenity are, in fact, the two basic variables not only in the discussions of this panel, but in all subsequent panels.

One of the underlying problems we are here to discuss is a commonly held, but invalid, idea about the meaning of the term "design." With regard to highways, in particular, I think design has been typically thought of in two stages, with

one clearly a subordinate. The first and dominant has been geometrics and structure (to be done by engineers); the second, architectural and landscape embellishment (done by others) and often considered only if the budget permits. This is not an attitude peculiar to highway thinking; it is a common attitude of our industrialized society which leads us to believe that beauty and amenity are somehow separable from the more basic attributes of function and economy. This attitude, easily held in a surplus economy, has led to a great debauchment of American taste.

The freeway program has developed as a direct response to felt transportation needs and expressed or anticipated demand. A substantial part of a nationwide program has been accomplished, but suddenly we find in community after community a reluctance to go further. There has been a reaction against freeways in many cities based on experience either in those cities or in others—a reaction in some places strong enough to impede, or bring to a complete stop, further freeway building. In plain fact, one might deduce the consensus to be that "urban freeways (as opposed to rural freeways) are ugly and blighting and, therefore, unwanted." Is there any question but that this meeting was called in response to this situation? The natural response is, "Well, if they are ugly, let's make them beautiful; if they are beautiful, they won't be blighting."

Most of the people involved in the freeway program (engineers and administrators) blush at the mere

idea of talking about beauty, and their immediate defense is to hire a beautician, namely the architects and the landscape architects, to do the bidding of the art commissions and thereby solve their problems. But unfortunately, "zip-a-stone-walls" have not carried the day. This goes back then to the basic idea of design and suggests that we try to establish some common agreement as to what we mean.

The word "design" is a much used word which is analogous and, at times, interchangeable with the word "plan." As a noun, Webster says it is a plan of something to be produced, or purposive planning—a means to an end or the arrangement of elements which make up a work of art. (There are many who contend that we may be dealing with a new kind of art form.) As a verb, it means "to conceive of as a whole, or to fashion according to a plan; again, to execute as an integral or artistic whole—to plan." If we keep foremost in our minds this recurring concept of wholeness, then we must always strive to relate one thing to another; it is in this relationship of parts that quality rests.

I would suggest that there are no abstract criteria for a good freeway, but that a well-designed freeway is one which, in the balance, satisfies all criteria to the best possible extent and resolves inevitable conflicts of values. A poorly-designed freeway is one which either does not consider other than transportation values or does not allow the full weight of other values as conditions might suggest.

Let us start then with one of the basic design determinants—location. Typically, this has been dictated by transportation criteria alone, i.e., the shortest distance between two established points, to be mitigated by construction economies, land costs and convenience, the latter being determined by wherever "the shouting could least be heard or ignored." I would like to suggest that at least five other locational factors need to be considered in order that final judgment as to desirable routes be consistent with good design. These additional criteria are not definitive, but are some elements of the cityscape and the workings of the city which need to be considered as affecting locational decision:

1 *Edges as an element of urban form.* Cities or metropolitan areas are not homogeneous entities nor sprawling things, as they are so

often described. Instead, they are in fact a conglomeration of various sized sectors and districts, each organically related to the other and connected by a web of circulation systems. Many of these sectors or districts within the metropolitan area have very clear and obvious edges such as parks, dramatic changes in terrain, changes in basic land uses—railroad yards, bodies of water, etc.

First of the essential criteria of a freeway and indeed implicit in its name is limited access and, in that sense, an essential detachment from its immediate environment. Therefore, it always has a great tendency to be a kind of edge. An obvious conclusion would be to relate the design of the freeway to the already existing or potential pattern or sector or district edges within the metropolis and, by design, help to clarify these patterns or edges. In this way, the freeway would tend to appear natural and unobtrusive in this role. It also would serve to bring the structure of the metropolis to a greater clarity in the mind's eye of the freeway user. Along, and as part of, existing or created edges, freeways would not be obtrusive or disruptive of the inner order and workings of homogeneous sectors and districts.

2 *Freeway purpose and multi-purpose.* One of the greatly confusing aspects of freeway location has been the inability to make a clear decision as to its purpose. In other words, is it for access or by-pass? (How significant the city's penurious quest for the golden egg of the Interstate Highway Program goose is in this basic conflict I leave for others to decide.) More often than not, a single facility cannot adequately serve both purposes. Clarity, logic and directness of route with regard to destination would serve to make a freeway seem more natural and appropriate to all.

A basic general criteria for good design is in the concept of appropriateness which indeed underlies so much of the criteria for beauty in the design of all things.

Multi-purpose refers to the opportunity to serve other than freeway automotive use such as rights-of-way for transit facilities, rail or otherwise; the utilization of air rights over railroads; and extensive industry or the utilization of land rights beneath freeways. These put the freeway in the category of assets; in other words, bringing to a given situation dual uses, economies and high efficiency of land use.



If this freeway, which has replaced a full block of housing, were conceived as part of the total environment, reasonable adjustments could be made in adjacent streets, reestablishing a pedestrian scale



3 *Relation of freeways to other movement systems such as arterial streets, points of interchange and termini for vehicles.* How often is the freeway fed by inadequate local streets which only clog and blight adjoining areas? At the terminus it dumps traffic on to an inadequate local street system unrelated to the actual points of destination or vehicular storage. While seemingly not the responsibility of the freeway designer, it is the necessity for this kind of correlation which must be understood in order for the total system to work and, in working, become desirable.

4 *Relation of the freeways to existing land patterns and activity.* Most of our cities have grown in a way which had led whole areas to become obsolete in a relatively short period of time. The urban renewal program has developed, in part, in response to this situation. If we consider the freeway as an integral part of the new city, then we must also think of the freeway in relation to the urban renewal process. Where an area is sorely in need of basic changes in function or layout and renewal is necessary, the freeway may well be integrated into the renewal process itself and the two designed as one. So rarely is there an opportunity to locate a freeway without the necessity for some kind of adjustment in the adjacent land patterns that renewal is inevitable in relation to freeway building. The question really becomes one of the extent and kind of renewal.

5 *Views and panorama from the freeway.* One of the functions of the freeway, in addition to its basic transportation purpose, is to help give an identifiable order and structure to the metropolis. This has been the traditional role of streets and ways in the city. The freeway is so significant an element in the physical pattern that it cannot help but be such a "structuring" element. One of the opportunities for good design lies in the degree to which the freeway continually helps to orient the user in his journey and, by sensitive attention to man-made and natural topography, to create opportunity for views and panoramas which help to make the city more coherent for the city dweller. A part of this criterion is the general concern for the "view from the road" and the esthetic satisfaction of the traveler.

As each of these criteria is added, its relative value must be considered. One criterion might nullify another. In order to attain a

view, we might have to increase the cost; in order to relate to appropriate land uses, we might have to ignore the view or reduce speed and capacity. In each case, however, the actual design decisions—whether to be at grade, depressed or elevated; whether it be delicately or heavily conceived in structural terms—become a function of the above locational criteria and depend on those values rather than on intrinsic design objectives for a preconceived freeway section.

Examples of rebuilding parts of the city based on the superposition of modern transportation requirements are not common. However, there are some very important and successful examples, particularly those based on the development of new subway systems. A part of downtown Stockholm, for instance, has been replanned and rebuilt consistent with, and coordinated with, the extension of a subway line. Plans for the rebuilding of a section of downtown Philadelphia are contingent upon a new route for the railroad commuter lines. In short, we cannot superimpose freeways upon an urban pattern built for another purpose at another scale without major adjustment at both levels in order to make both right. Coordinated design—and I emphasize the word "design"—of adjacent land and urban freeways creates very real and new opportunities in the city for significant efficiencies in addition to new esthetic satisfactions.

Location decision is the first act of design.

One final aspect of location criteria should be mentioned lest it be totally ignored. The social problem created by displacement of families and businesses must be considered. All other things being equal, the route which disturbs a minimum of homes should have high priority. In any case, as we should adjust land patterns to the new scale of the freeway, so we must have an adequate and comprehensive program of relocation and social adjustment for affected families. However, it must be recognized that social problems caused by displacement are essentially short-lived and are solvable by positive community social action. It would be unfortunate to compromise a proper design solution to a relatively permanent and significant piece of the metropolis because of a community's shortsighted unwillingness to ameliorate temporary social situations.

Now we come to the idea of amenity. During the evolution of plans for this meeting, the word "amenity" came to replace the word "beauty." In part, this was a product of the self-consciousness of the discussants who, when talking about beauty, searched for a more comfortable word and came up with "amenity." Actually, I think it a fortunate choice because amenity not only contains the concept of beauty as part of its definition, but includes in its meaning the idea of appropriateness and utility—two aspects sometimes separable from the idea of beauty, but basic to amenity.

However, if we accept beauty as that qualification for delighting the eye or the esthetic, intellectual and moral sense, we can in fact use the terms interchangeably.

If we can all agree that, in order to be beautiful, a freeway must not only please the eye or esthetic sensibilities, but also our intellectual and moral senses, then indeed we have laid the basis for a fruitful exchange of ideas.

Let us examine these criteria for a moment. The study of esthetics is that which attempts to deduce, from nature and tastes, the rules and principles of art. We are seeking such principles for the design of urban freeways. Some elements we deal with in freeway design are common to all the plastic arts. They include such qualities as rhythm, shape, texture, color harmony and balance. No freeway designer should be at work without an awareness of how these aspects of beauty relate to his media. But pleasure, derived from these elements alone, is short-lived.

We can use or view nothing without adding an intellectual and moral valuation to our primary emotional response. Intellectually, we demand such things as "clarity of structure." In the case of the freeway, this applies both to the structure as support and to the structure as an organizing principle for the movement system. This clarity would make the freeway highly intelligible to both the relatively static viewer from without and the high-speed user from within.

With understanding comes comfort and delight (all other things being equal). Our moral judgment demands that the freeway be suitable, appropriate and beneficial in all aspects. These esthetic, intellectual and moral aspects, adjusted in hierarchy according to the demands of the specific situation and the



New York's East River Drive seems to be natural part of cityscape because of its sensitive design and intelligent use of areas above and adjacent to it

personal values of the judge, should constitute our approach to creating the beautiful freeway. Beauty then, in fact, is not separable from, but is part of the concept of, amenity. The special concern of the idea of amenity emphasizes the moral and utilitarian aspects of the freeway. The amenity of a freeway can be judged only in relation to its environs and the needs or demands it imposes. Hence, the vital interdependency of location and amenity. What amenities can a freeway bring to a situation? Access, of course, is basic; visual pleasure should be constant; but it is the additional by-products which it can provide which, if emphasized, may be a new idea in urban freeway design.

Depending on location, amenities will vary, but some of the by-products of the freeway can take the form of basic open space for sun and light, new vistas, park land for active or passive recreation, opportunities for new activities above or below, shopping facilities, special building sites, car parking, industrial and storage uses. It must be understood that only when the above by-products are appropriate and consistent with the environment, will they be considered as amenities. As location basically affects the nature of the amenities to be considered, so conceivably would the need or desire for certain amenities, in a given situation, affect the choice of location of an urban freeway.

Design, then, is the process of melding all the opportunities and requirements into the best possible combination.

Should the freeway be elevated, depressed, at grade or in divided rights-of-way? Should it be of steel or concrete, covered with ashlar or ivy, lined with trees or shrubs? Should the rights-of-way be two hundred or three hundred feet wide;

should the design speeds be sixty miles an hour; or could it, at one point, be thirty-five miles per hour? Not one of these questions can be answered at this meeting. But, if we all agree that the answers to these questions lie within the full cognizance of each specific urban situation then, in my opinion, we will be on the right track in our discussion of design.

Urban freeways are a necessary and vital part of the urban scene. I am here supposedly giving the city planner's point of view on the design of freeways. I suggest, then, that we do design them in the real sense of the word as integral and living parts of the city. This requires adjustments at both ends. This we must do, but have not been doing!

One of the basic characteristics of America and its motivation is a primary concern with process. Our drive is more related to the doing than to the product—more to the trip than to the destination. The freeway is a very symbolic expression of this uniquely American characteristic. It is in concept a continuous system: never ending. The freeway is one of the most obvious expressions of twentieth century American values such as freedom of movement, mobility and all of its connotations, the love of speed and insistence on accessibility. Too few, involved in the urban planning-building process, have the courage to admit that the preference for driving vs being driven is a very personal but positive choice, consciously or unconsciously made by most Americans.

Let us accept this fact and design the best possible freeways as part of comprehensive transportation systems and in full recognition of the significance of our role. Let us not work in an attitude of self-conscious apology for what we attempt. ◀

Esthetic Lion-Taming in the City

by Chloethiel Woodard Smith FAIA

My assignment to prepare a statement from the architect's point of view on "What Can Be Done to Improve Urban Highways" might well be reworded. It reads too much like a subject for a treatise on *taming* freeways as if they were some wild beasts to be so improved with proper training that their effect on adjoining property (presumably occupied by civilized humans) would be changed for the better.

The title implies that a little *taming* will make people feel a bit more at ease about living next to these wild beasts. And a statement from the architect's point of view implies that we may have some ideas on Esthetic Lion-Taming, or at least be able to stand on the sidelines with our togas wrapped gracefully around us and comment on the taming process.

The freeway in the country isn't a major problem yet. True, farms get cut in half, recreation areas bisected, quiet woodlands penetrated; and bulldozers create a new geography that is sometimes less than handsome, as the great, straight, level lanes and land-devouring interchanges seek safety for increasingly speedy and powerful cars and trucks and buses. But some freeways, curving gracefully around a hill, separated by stream or grove of trees, are handsome and pleasant ways indeed. In terms of the much-discussed population explosion—a huge population on wheels—the truly *free* freeway will be generally welcomed by all.

It is the *unfree* freeway approaching and now slashing into the heart of the city that is the

problem. As more and more people try to get from ever-more-distant and populated suburbs, the extent of adjoining property affected by freeways designed to get them there is increasing alarmingly. For no matter what the most irrational proponent may argue, there aren't enough people who want to live or work along an open-cut freeway to make this solution stick.

There are those who argue that a freeway is just a new kind of avenue, that crowded traffic within a city has always existed and that people like it. I like a crowded city, for a city without people or vehicles isn't a city. But a crowded avenue is different: vehicles stop or move slowly; the pedestrian can call to a friend; drivers can speak to one another; both can see people. There is a sense of human drama, the excitement of sharing, of being part of a wonderful, complex center of life and activity.

The freeway cuts the city into islands, and around the islands, in the great walled cuts, cars form a moving mat, like a giant conveyor belt. No one is moving slowly or stops except in the impatience and frustration of a jam, for the freeway is designed for constant, high-speed movement.

At night the glaring luminaries march endlessly ahead, forming a cold, blue canyon broken only by the great trusses holding the giant signs designed for the quick, safe glance, in time to hurtle into a new canyon of light. Buildings and trees and people and all the exciting elements that make the city a city lie beyond this cold, blue canyon, unseen, unknown.

Recently I drove into the city from the St Louis airport on what is quite a new freeway, in early evening after the rush hour. I hadn't been in St Louis for some time and wanted to get the feel of it. But I couldn't see beyond the blue-light canyon; I began to wonder where I was. Last week I'd been on Long Island, the week before driving down from New York. There was no way for me to tell whether I was here or there.

At last we were downtown, and even here the avenue was cut off by the glaring luminaries from the reality of buildings, trees, people. And still I could not see or feel the city. Then we stopped at a traffic light, and there was the sudden throbbing silence, and a group of people at the corner were talking and laughing, and at last I was in the city and of the city.

The next day I returned along the same freeway in the hot afternoon sun. No walls of light made a canyon, only physical walls, low industrial buildings, great parking lots, houses and apartments turning away as much as possible from the conveyor belt. And again, I could not remember where I was. Now it isn't just the similarity of the belt itself and the cars and trucks and busses roaring along it, but the belt seems to have forced a similar kind of border architecture that is dreary and ugly and seemingly a preview of "adjacent property" development.

What do the people who live and work there see? At night, the machines of the conveyor belt and the garish brightness above it; and all day, the sound of thousands of motors, never ceasing, becoming as much a part of the geography of the city as the sound of waves along the sea.

Given a choice, who would choose to live or work along these conveyor belts? I would prefer the busiest building or avenue or sidewalk, for these are the city; these are human. Did anyone ever choose to live or work along a railroad? That was fine by comparison to a freeway for, except at the busiest switching yards or approaching the busiest terminals, the trains had schedules—and this did give a silent moment now and then.

Yes, this is a point of view, and one, I believe, that is increasing among architects and non-architects. Because of this, I am a bit taken aback by the "seminar ground rules." And not only by the last sentence which somehow implies

that a great danger lies in discussing alternate "transportation modes" or even "corridors," as if there were some evil threat to a fine and noble world of a "freeway through a transportation corridor."

You can't ignore other modes of transportation any more than you can ignore all the other elements of the city. This has been the main problem: Every expert in a special field acts like one of the blind men with the elephant. Housing developers think housing, park officials think parks, mass transit groups think mass transit and freeway planners think freeways—and no city seems to have the kind of a bold, overall thinker who can put all of this together and create a fine, balanced city.

In the case of transportation, there is a special comic war going on between mass transit and highways, and it has somehow forced all too many proponents of both sides into an idiotic combat. No rational person is about to say that freeways aren't needed and everyone will happily use public transportation only—and vice versa.

Essentially the democratic city has been a formless city. Democracy for all too many years has mistrusted the art of city building, seeing it only as an art of the past. In the United States, democratic citizens were too busy developing their productive capacities to concern themselves with the arts. Dominant building forms that served dominant minorities were viewed as costly threats to a democratic society. Consequently, its cities "happened" around places where people gathered to produce, buy and sell goods, and few there were who thought of the city as a conscious cultural effort that could enhance and make more meaningful and enjoyable the lives of all of those whom a rapidly expanding economy sought to serve.

An economy of scarcity has given way to an increasing economy of abundance, and our visions of cities have expanded. Only recently have we been able to turn our eyes away from plow and lathe and desks piled high with figures to look at our cities and timidly admit that we want more out of them than we have given ourselves.

It is interesting to note that just at the time America started to take a real look at its cities, it didn't like what it saw and embarked on a rebuilding program designed to create fine and beautiful ones. Urban designers are confronted with

a new and demanding element that tends to destroy or preclude the inclusion of the very qualities they seek to create. If the surface of the city is so destroyed by brutally paved and walled gashes that separate it into a series of islands, it will become only a city for vehicles, not a city for people, by destroying the elements in the city that bring people together and contribute to a rewarding urban life.

For many years the Bureau of Public Roads has been doing US city planning. Anyone who questioned the BPR—rich, powerful and one of Congress' favorites—might as well as have come out against Motherhood. But since America has started to rebuild its cities, there is a growing sense of dissatisfaction with this forceful and undesignated "city planning" group.

As long as the Bureau operated outside of the city, no one was very



Intersection of Virginia Avenue and proposed "E" Street Expressway cutting through Washington's Federal core. Architects: Satterlee & Smith

unhappy. But once it started slashing into the city, the phrase "affect adjoining properties" has become a pallid description of what has been going on. No one really blames the Bureau for exercising the fabulous power it had—that's human; but the time has come to tame this wild beast.

This move will require some strong characters. I can hear the Congressional hearings now as a new "strong character" says, "I am glad you asked that question, Senator. Yes, I did use the word 'beauty' yesterday and will be glad to make my position more precise . . . etc . . . Well, I have here a precise program prepared by an architect-city planner I know, and this may help to clarify my position. The summary of his study says . . ."

1 Transportation of goods and people is here to stay

2 There are many modes of transportation and probably many new ones as yet undeveloped or undreamed of

3 No matter at what speed we achieve new technical solutions, it is generally agreed that man himself is not changing very rapidly

4 But men's minds are invisioning new cities that will enhance life, and as economy makes it increasingly possible to achieve what the mind conceives, the fine cities of men's dreams will be built

5 The building of fine cities will require far more than the discipline and restraint of the great urban architect, selecting, discarding, refining; it will require a broad cultural change. Perhaps the sixties will become the decade when American cities cleaned house, discarded the old, the shabby and ugly, and the new "city beautiful" movement became more than a search for form but the discovery of the "ideal or intrinsic character" of the city and the "principle that gives unity to the whole"

6 Recent attempts to have architects "polish up" engineer-designed freeways are worthy but inadequate efforts. This remodeling process—even when remodeling is done prior to construction—is a misinterpretation of the design process. No amount of landscaping or other devices to reduce its visual impact solves the major problem: the separation of the city into islands

7 Putting all freeways underground isn't a financial problem. The mole is blind, and man may not want to do all of his moving about below ground, even if he does have lights in his burrows. There must be some travel above ground—and there are thousands of handsome solutions still untried.

8 Higher and higher speeds within the core of the city may not be the right direction; there are limits even to the number of angels that can stand on the head of a pin, and moving masses require far more space than standing masses. Maybe broad avenues and boulevards with lower speeds will be needed, and we will begin to knit the city back together again instead of ripping it part

9 Even though still a bit vague about what kinds of cities they want, Americans are getting pretty clear about what they don't want—they don't want ugly cities and most of the freeways have been ugly

10 Americans have rediscovered the fine word "beauty" and have recognized that it too is an integral part of life. The days when timid mumbling of this word automatically tagged the speaker as im-

practical, wasteful and egg-headed, if not bone-headed, are gone

Perhaps the day is not far off when leaders in every city will respond to the growing American desire for fine cities and speak out to political leaders who must respond. The increasing amount of architectural polishing up of freeways and highways will soon give way to comprehensive city design. The one requirement for movement will no longer dominate the hundreds of other requirements and desires that must be met. For US cities seeking fulfillment, their desires were well-stated years ago by a British architect:

"As a physical expression the town is a thing that is seen, and, since the visual sense is a channel to the soul, that which is seen should be as beautiful as man can make it. The town must work properly and be economically sound, but it should also give pleasure to those who look at it; the technical solutions to the functional problems must be fused with esthetic feeling. . . .

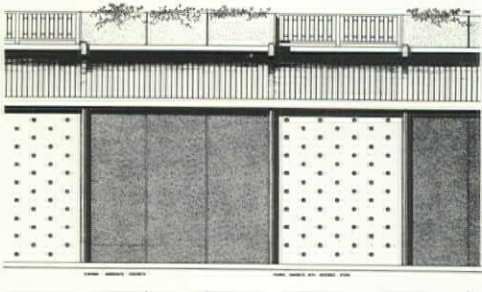
"The road system of a town, for example, provides one of the frameworks in the town's pattern, and it is often said that if its layout is determined by the scientific findings of road engineering, the plan must be a good one; that the first stage in town design is for the engineer to plan the roads, after which the other experts can come along and carry out their particular tasks. No town with an unsound road system will be satisfactory, but no road system, however scientific, will make a good town unless it is considered in terms of the other arts and sciences and unless it is itself beautiful . . . a bad road layout produces distorted building forms, and whereas this is a preplanning example, there will be countless new ones in the future if those development plans that have been dominated by road engineering are carried out. Again, in designing a main approach road to a built-up area, the problem extends from that of deciding direction to include that of adjusting the form of the carriageways to the form of the land, so that there is a fusion between them . . .

"The art of architecture has tended to become divorced from town design, the science of road engineering to become a substitute for it . . ."

A little Esthetic Lion-Taming will not solve freeways; this is no substitute for great city design. ◀



Typical pedestrian area bordering "E" Street Expressway



Retaining wall of exposed concrete created by special formwork

Concept of the Comprehensive Plan

by Matthew L. Rockwell AIA, AIP

Two weeks ago the Washington newspapers carried this quotation of an important highway engineer attending this conference: "Architectural design is going to have to be all-important in this kind of thing," he said. "We'll have our own people do basic designing, but often we probably will have a good, competent architect from the outside come in and polish it up for us."

I was encouraged that this man was interested in improving the appearance of his structures and that he planned to call upon the architectural profession. But I was extremely discouraged that it was to be only a polishing-up operation at the last stage of the project.

I detect here an implication of an attitude which I fear is becoming increasingly widespread: the concentration on the utility and appearance of short-term projects, whether buildings or highways, and the neglect of long-term planning. This is strange because at this same time when long-term planning—and its end product, the general plan—are falling into desuetude, there is an equally widespread national awakening to the sins of community ugliness. I say it is strange because I do not think there can be any effective attack on community ugliness without a general plan.

The manifestation of this conflict of contradictory tendencies in the highway field has been a sort of mass schizophrenia. When driving to work or from his city to another, the citizen feels highways are a good thing. But when a highway penetrates his neighborhood or his part of this business district, he feels highways are monstrous.

There are good reasons for this split personality and the opposition to highway programs which it generates. The first is the one which the highway engineer I quoted at the outset is attacking. The citizen reacts negatively and noisily to the fact that the design of the highway in his neighborhood is inhuman,

sterile, complicated and confusing at intersections. But the second is more significant. More often than not, the alignment disregards the location which is most significant from the neighborhood's point of view. It is out of place, and the citizen feels it even if he can't tell you why.

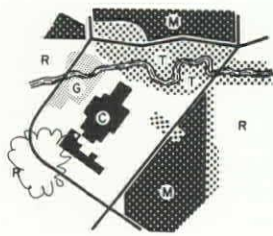
The architect who is concerned with the form of the city believes that the economics of highways must include the social costs as well as those of construction and acquisition. The sociology of highway location has seldom been more than an accessory consideration—when indeed it is a consideration at all.

How does this relate to architecture? Again, the answer lies in a deeper understanding of the importance of the general plan. The general plan is a consensus among all those concerned with development of the community as to its long-range goals and the means of achieving them. If the community is to have form at all, if it is to be designed in any meaningful sense rather than allowed to grow in an indiscriminate way, such a consensus must be reached. And if the goals thus established are to be attained, the consensus must be maintained by constant discussion and review among all parties involved—and these parties must certainly include the architect and highway engineer. If this does not happen, then our short-term projects will bring disintegration rather than progress.

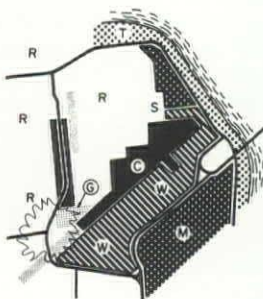
The concept of the comprehensive plan derives from a three-dimensional design relationship. This design plans for the optimum relation of the primary land uses: residential uses to commercial uses to industrial uses. As these are equated, balanced and committed to the topography of the city setting, the architect then considers those secondary uses. These are of a service nature and include the



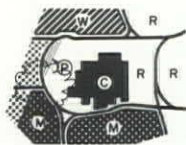
Washington, DC



Houston



San Francisco



Kansas City

- Inner Freeway Designs
- C** Central Business District Core
- M** Manufacturing
- W** Wholesaling with Stocks and Warehousing
- T** Transportation Facilities and Terminals
- A** Auto Sales and Service
- E** Public and Institutional Uses
- G** Major Educational
- P** Governmental
- P** Parks and Public Uses
- S** Strip Commercial Development
- R** Residential (Non-Transient)

utilities system, the traffic and transportation system, and the schools and parks complex. The basic uses, overlaid with, but not dependent upon, the service uses, must be related by the architect to the natural resources of the site. If there are mountains, the pattern should preserve the views from the heights; if there are river fronts, the amenity of the frontage should be preserved.

We plan for three streets: the local street, the collector street and the major street. The first two do not concern us here. The local street and the feeder or collector street have little effect upon the city plan in terms of the effect of the major street or major highway. This last is quite similar in its effect to that of the freeway. Both the freeway and the major highway are divisive. This divisiveness could be a great advantage, but is most often a disadvantage. With its Chinese wall characteristic, it restricts both growth and movement. It should always divide land uses. If this is not possible, and it must pass through a neighborhood with similar uses on both sides, it should at least do this on the boundary of the local neighborhoods. And in these situations it should do it with every possible precaution against this negative characteristic as through the provision of pedestrian overpasses and more-than-usual local street connections.

There are other influences of the comprehensive plan which bear upon freeway design and location. Among these are the following points of concern:

1 In core areas, the freeway system has spawned the "interloop distributor" as an important innovation. A highway authority recently stated that, "Under optimum conditions, the loop would avoid highly valued land and yet be located close enough to the core to provide easy access to parking areas adjacent to the core." This is only sensible, but the location should never be compromised to the extent of using less valuable land so far removed from the core of the future that the intervening area will form a problem. Remembering that the new core may be a minor fraction of the old, it is easy to say that the intervening area can be entirely used by parking, but this in turn soon defeats itself when the dimensions from parking lot to destination become excessive.

2 It is almost too obvious to suggest the importance of considering

the "generating" powers of present or proposed or potential zoning to be provided under the comprehensive plan, but at least the last type—potential zoning—is often ignored by highway planners.

3 Of all the influences of the comprehensive plan, none can be more important than its provision of reservations for public open spaces. It has become fashionable to use these open spaces for highway purposes usually when alignments through built-up areas would not only be costly but extremely time-consuming in acquisition. A mandatory provision for highways utilizing public open space should require contractual agreement providing for replacement of such public space as is utilized with an equivalent area both in character and quantity. This should be provided within stipulated periods of time following their use by these other purposes.

4 It is not the responsibility of highway planners to renew or to rebuild our cities, but it is not inconceivable that this purpose be corollary to their construction. Unfortunately, where highway construction has served the ends of urban renewal, it has done so almost accidentally.

5 The comprehensive plan has traditionally provided for natural neighborhoods. When they are ethnically based, these neighborhoods pour their own special kinds of strength into the community and thus into the nation. But if they are walled in, whether by physical or social barriers, they become ingrown and sterile. Their strength is lost to the community; they become trouble spots. Highways must not be made walls around such neighborhoods.

6 The comprehensive plan provides for a major street system. This system should provide for the elimination of duplicated routes whenever necessary. When the urban freeway makes other local routes unnecessary, the elimination of these routes and the improvement of a new local street pattern should be included in the cost of the urban freeway.

7 The comprehensive plan need not become fixed in its form so as to permit no deviation in the light of changed conditions, but it should have the sanctity of the church when it is proposed that one use be substituted for another, although it is perfectly obvious that both uses are necessary and vital to the community. ◀

The New Expressway Image

by George E. Kostritsky AIP

The city planner is usually categorized by various professions and often by the layman as one who deals primarily with negative controls to achieve a semblance of order in our complex modern urban communities.

The urban designer, however, with both architectural and planning training, is far more interested in achieving a high degree of urban beauty in a total sense, and this takes him beyond the individual physical elements designed by *single* architects to satisfy a specific client—though it is quite true that the total cannot be satisfying if the individual elements are not also superior.

However, well-designed, individual elements cannot guarantee an integrated whole. And I think this is my caution in the development of expressways, for graceful bridges, good railing detail, all the individual elements cannot be relied upon to give a good total sum.

The fight for total design is on several fronts at one time. It may be with the local department of public works, who would rather use a concrete curb as a standard city specification for all streets and feel that the extra expense of granite is unwarranted; it may be with the park department, with the state highway engineer, or even with private architects who like to perform solo and find it hard to join in as part of the orchestra.

The technical problems of the urban designer are complicated by the fact that these problems usually come under the separate jurisdictions of the executing department, and decisions affecting design of the community esthetic are diffused. And if this is true for the problems

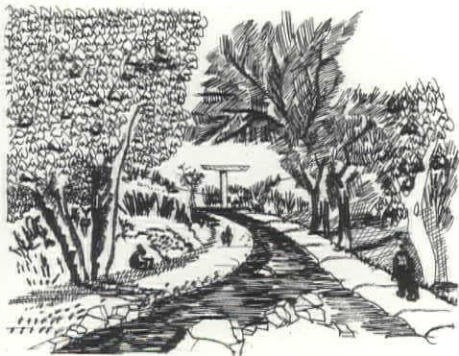
of cities, it is even more true for a state road program passing through many local subdivisions and towns, all with separate planning bodies.

Perhaps President Kennedy will wine and dine enough artists to get the point across that a thing pleasant to behold is important. Certainly, as in all other matters, elected leaders can by their own personal interest and convictions begin to appoint and support department heads who are intent on creating more beautiful communities.

But New York has Rockefeller, and he has a liking for modern artists; however, I'm not sure that he has made New York beautiful, yet he is really trying. I'm afraid that beauty in the minds of many means excess embellishment at higher costs to the taxpayer and is thus eliminated at the outset. Cost seems to be an almost insurmountable obstacle, yet it is not too difficult to demonstrate, if we must measure by dollars and cents, a higher return or yield to that project which considered form and beauty of the total project as well as its efficiency in doing the job.

Let me offer some suggestions and rephrase some earlier comments:

1 Urban freeway must be designed as a part of a total area concept and by a group of specialized individuals brought together to maximize the potential of the freeway. Let's not think negatively of minimizing adverse effects. A freeway can be a great asset and can enhance the adjoining land. The skills represented should include the urban designer and a land economist—and even an architect historian or critic. Such a team must



Leave a token pillar from former Jones Falls Expressway, and stream again becomes a delight



A natural for a promenade when you remove the retaining wall six feet above grade on upper level

be an inter-agency one, for it is more than the state highway department or the public works department who has something at stake

2 Perhaps the city planning commission or, where several jurisdictions are involved, a regional or state planning group could perform this function, and it may be that it is the best catalyst for this design approach. Certainly land use is its forte

3 Possibly a group of individual private consultants could be employed to make the preliminary recommendations to the action agency

Whichever way it is accomplished—by a much enlarged (and enlarged in concept) roads commission, or a planning commission, or consultants to one of these groups—the central theme is the *utilization of certain skills* not now represented in “freeway design.” The term itself is too limited, for you can’t design a freeway in a vacuum; if it is an area design which contains a freeway that is the issue.

Let’s examine a specific situation in Baltimore to illustrate how a highway is affecting adjoining land use and what could have happened if a broader approach had been taken.

Two years ago the Greater Baltimore Committee decided that because the Jones Falls Expressway was being built in a valley that had for sixty years been proposed as a park and was, in fact, on the city’s master plan for parks, these two projects—park and expressway—should be merged in concept; and that the expressway, which had no broad long-range objectives, should be enhanced by this planning approach. At the time the plan was prepared, the land for the expressway had been acquired and work on part of it was actually underway, so our plan was an after-the-fact one, and the expressway, with all its problems which I will document, was a given one. Even so, that expressway was accepted, and we went after tying it in, relating it, to the surrounding area, to make both the area and the expressway pleasant—and pleasant because of each other. I might say it would have been better to have planned the two in concert, but such was not the case.

This is what had already been done by part of the freeway:

From North Avenue to Druid Lake, a thirty- by one thousand-foot retaining wall was built. It extends six feet above grade on the road above, precluding any view by

property owners, pedestrians or motorists—and the view is beautiful. A natural for a promenade, but it’s too late.

At the Twenty-Ninth Street interchange, a pedestrian bridge was built—a real eyesore—and this points up the need for individual elements to be of good design, or they will forever jar the senses, no matter what the total.

And as is customary, along the steep terrain great slashes were made, which gouged the ground and removed the trees. Our experience in this was not unique.

A reservoir existed in Hampden. It was city-owned, but not now in the city water supply system: a place to fish and boat ride in the heart of the city. The cuts and fills were not balancing out so the contractors thought of saving on hauling, and, over the protests of the residents, the city fathers delivered the reservoir to the contractors. It is now a vast expanse of clay which is to be a playfield, but the water is gone forever.

A little farther north, the best alignment for the expressway was over the Jones Falls Stream, which now flows between expressway piers and no longer on its natural setting. The stream seemingly had no force of impact on the freeway, but it was an irritant.

Farther north the route went through a decayed industrial area. Here minimum land acquisition forced the expressway inches from a run-down rag plant. The good Lord came to the rescue and recently the rag plant burned down. By Belvedere Avenue the expressway was on a fill and high above the stream. Here was an area to which, for a mile, there was no access from city streets. In this area the expressway construction could have improved a meadow and created a lake so that both the adjoining properties and the city residents could have benefitted from the freeway construction. We came into it too late, but I do think a planning team could have achieved this in the initial stages. What is the cause of all this?

In summary I am saying that land use planning, site planning, with strong concept studies are needed as well as three-dimensional design studies. These should have been made all along the route of the Jones Falls.

1 The first prerequisite from the planners’ point of view is to make a valid concept study of the entire route. We can’t talk specifically of

effect on any one kind of land use—an expressway wends its way through park land, industrial, residential—but it is the concept of how to deal with it, the approach to solution, which is important. In some areas the impact on the adjacent land might be extended, in others it might be minimized. New focal points of activity could be developed along the route which could change the character or use of adjoining land.

2 And after this, it should be acknowledged that as important as the specific designs for each freeway element—bridges, piers, railings, landscaping, materials, signs, lighting—are, these details are secondary to the concept and are but one facet of the total design solution. They are the details and, important as they are, will fail if the thing of which they are but a part is not well conceived.

3 If you grant me my second point and agree that the first is valid, then my last point would be that the design or concept team, planning team, or whatever the designation, must create a strong *desirable image* of the expressway to the public, with all the visual tools that the architect and the urban designer can command so that the road and its impact on adjacent land use is understood. If it is understood, it will be appreciated by the community. It does more than move traffic, and the public must understand that we understand this and are in command of our great concrete ribbons.

Thus the Jones Falls Valley park, which was designed in concept after the fact of the expressway and which proposed such things as bridle paths, dams to create lakes for boating and fishing, sculpture gardens, wildlife trails, preservation of historic mill structures, selective commercial areas for restaurants and summer theaters, is struggling for existence. The expressway is nearly complete—in a vacuum. Most certainly it will get me to my farm faster, but it wreaked havoc as it sailed along.

Happily the city has accepted many of the GBC proposals, but unfortunately, being shortsighted, it has placed them in a twenty-year time perspective. But the public is clamoring for it—the public image was strong, the concept sound; and thus to the year 2050 we see a number of important uses in the valley, and the road is slowly being dismantled as it has lost its original purpose. ◀



4th

ANNUAL

BOOK

SUPPLEMENT



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Reviewed by Joseph Watterson FAIA



THE GREAT AGES OF WORLD ARCHITECTURE

New York, George Braziller, Inc, 1961-62. 128 pp illus 7¼" x 10" \$4.95 each

Greek Architecture by Robert L. Scranton
Roman Architecture by Frank E. Brown
Early Christian and Byzantine Architecture
by William MacDonald
Medieval Architecture by Howard Saalman
Gothic Architecture by Robert Branner
Renaissance Architecture by Bates Lowry
Baroque and Rococo Architecture
by Henry A. Millon
Modern Architecture by Vincent Scully, Jr

Apparently encouraged by the success of its series "The Master of World Architecture," published during the past two or three years, Braziller has come forth with a similar series of books on historic architecture—same size and format as its predecessor. Each book has forty pages of text, sixty-four pages of plates and sixteen pages of bibliography, notes and index. The printing is by gravure and letterpress (done in Holland), and the type face is clear and pleasing. The illustrations have been collated from many sources—some are old and familiar, others are new, at least to this reviewer. Their reproduction is, on the whole, quite satisfactory. The text, by various authors, is both scholarly and authoritative, and usually thoroughly readable—which should help the series to find a wide audience. With the great increase of popular interest in architecture, ancient and modern, to say nothing of the growth of the tourist business, these books should be an even greater success than the series on contemporary masters. Five more such books are in preparation, covering Persian, Western Islamic, Chinese and Indian, Pre-Columbian, and Japanese architecture.

Robert L. Scranton, author of the book on Greece, is Professor of Classical Archeology at the University of Chicago, and a distinguished

classical scholar. For a book intended for the general reader it is possible that his scholarship intrudes a little too much into his writing. The development of the temple types and of the orders is dissected and discussed in more detail than a general reader would find interesting. However, the classically-trained architect will delight in it, and the architect who was cheated out of his classical training will benefit from it.

Professor Brown of the Classics Department at Yale takes a quite different approach in his treatment of Roman architecture. It is interpretive, relating the building forms to the lives of the people who used them—and it is beautifully written. He emphasizes that from the beginning, Roman buildings were planned and organized around ritual—the ritual of worship, the ritual of bathing, the ritual of government, the ritual of the emperor's court. He points out that they not only took the orders and their decoration from the Greeks, but also the wood truss and the arch, which the Greeks had but timidly developed, and with these satisfied the empire's demand for great covered spaces; these were the tools which gave the Roman architects their great power to organize space. As the Roman legions marched across Europe, Africa and Asia Minor, the Roman architects followed, urbanizing as they went—architecture became the symbol of empire. Of particular interest is the author's extensive use of photographs of restorations, both models and drawings, rather than the usual photos of rather formless ruins.

An Assistant Professor teaching Roman and Byzantine art and architecture at Yale, Dr MacDonald spent two years as a Fellow of the American Academy in Rome. His treatment of Early Christian and Byzantine architecture indicates not only his thorough knowledge of the field, but his enthusiasm and deep respect for it. His descrip-



Church of Saint Ivo, Rome, 1642-50. Designed by Francesco Borromini

tion of the evolution of the Early Christian church building, as ritual and symbolism influenced the traditional basilican form, is an excellent treatise on church-planning. He says the basilica "had driving point and focus: with elemental directness and power the controlling lines and forces bore upon a distant end wall."

However, "the vaulted centralized buildings were more complex and precocious. . . . In contrast to the horizontal basilican form, they made a presence about a specific spot . . . and passed into the world of Christian architecture." Furthermore, "In some cases the walls all but disappeared, and the vertical elements formed pierced, almost skeletal frames carrying vaults above." He thus sees the period as one of great dynamic evolution for architecture, and pays tribute to the vast originality and creativity of the un-named architects of Constantine. To the author, the architects of the Late Roman Empire "met difficult and elusive problems with energy and talent, sometimes with genius. They abandoned the molding of masses for the composition of spaces." Would there were more of their quality today!

The book includes, of course, descriptions of all the well-known churches of the periods, and many not so well-known, with sympathetic interpretations of their architects' handling of masses and uses of structural techniques.

As the above-mentioned book is almost exciting reading, the next one—although by no means dull—is slower going. Its author, Howard Saalman, is Assistant Professor at Carnegie Tech and a former Fulbright scholar. He begins medieval architecture with the transalpine churches of the third century

and continues it through the fully developed Norman as at Mont St Michel and Durham, reminding the reader that this development paralleled that of Early Christian and Byzantine architecture. He points out that even the simple rectangular churches of the seventh century, as at Escomb, contain some reflection of the grand buildings of the south and east—old St. Peter's and Hagia Sophia.

The author's account is well rooted in history, but he gets his unscholarly reader possibly a little too involved in detailed archeology and painstaking analysis. As a matter of fact, some of his definitions are so involved as to be not quite clear, and he tosses about references to buildings which may or may not be illustrated in such a way as to leave the simple reader behind. He has a tendency to trip over his own scholarship—which is a compliment to his erudition, at least! But for the informed reader, his little book is packed full of information.

The author of the book on Gothic architecture, Robert Branner, Associate Professor of Art History at Columbia, has little trouble in leading his reader through a maze of churches as he traces the development of Gothic from St Denis to Henry VII's Chapel. His opening discussion of Gothic as a style of building and of the place of the Church in medieval life, is swift and clear. He brings out some points which need bringing out, to clear up erroneous old beliefs. For instance, he says "But it is misleading to think that the great cathedrals took centuries to complete. . . . When local interest was high and funds available, work was often quite rapid. Chartres, for example, was built in exactly twenty-seven years, and only minor parts of the exterior . . . were not finished." He also tells of the extensive fund-raising campaigns that were necessary—just as they are today. "The ultimate responsibility for the design and execution naturally lay with the professional architect."—no matter what he was called. With this opening, the author devotes two pages to describing the training, status and manner of working of the medieval architect, a man who a generation ago was supposed not even to have existed, except as only a sort of head stonecutter. This is a good book.

Bates Lowry's contribution to the series, "Renaissance Architecture," is perhaps the most interesting of all. (He is Chairman of the Department of Art at Pomona College.) Possibly this is because of his entirely different approach. In the first place, in spite of the inclusiveness of the title, the book is concerned only with the Renaissance in Italy during the fifteenth and sixteenth centuries. Furthermore, he tells his story entirely in terms of the architects and their influences and philos-

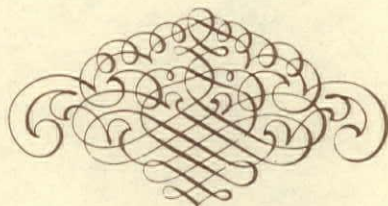
ophies, and their uses of architectural elements to create buildings intended to be experienced emotionally through the impact of their visual and tactile qualities. This sensuous approach, as opposed to the customary historical or structural approach, made the book quite absorbing to this architecto-historico-minded reviewer. He says Brunelleschi started it all, single-handedly, to be carried on by Alberti—and he spends over half of his pages telling about it. He mentions that there had been an awakened interest in classical literature for the past hundred years before Brunelleschi, but he does not mention the fact that that accomplished artist was also a sculptor, and that as such he surely must have been acquainted with Niccolò Pisano's panels in the purely Roman manner on the pulpit of the baptistery in Pisa, carved nearly two centuries before. However, that may be just a quibble. He also credits Alberti with the separation of "design" from "structure" which has plagued the architectural profession ever since. Another good book!

The book on Baroque and Rococo, written by Henry A. Millon, Assistant Professor at MIT, reverts to the standard approach—a sketch of the historical background of each century in each country, and a description and analysis of building after building, each of which is included among

the illustrations. Since this was very much the age of the individual architect, they are all presented—Bernini, Borromini, Mansart, Gabriel, Fischer von Erlach, Pöppelman—all, did I say? Alas, no. No Inigo Jones, no Christopher Wren, no John Vanbrugh—no England, in fact!

In spite of that rather startling omission, however, the book is thorough and scholarly, and the author's breakdown of each building in terms of its spaces and masses, its surfaces and decorations, do much to enliven the reader's awareness of architectural forms.

Vincent Scully, Professor of the History of Art at Yale and best-known today for his "The Shingle Style," writes on modern architecture. It has become a familiar story, and it is well retold here with the flow from Paxton's Crystal Palace of 1851 and the Galerie des Machines, sweeping down through the years of Romanticism, Richardson and Sullivan into the twentieth century. Then there's Art Nouveau and Gaudi, FLW, Behrens and Gropius and Mies, which brings us up to contemporary times with Aalto, Saarinen and Kahn—and always Corbu, in fact, a fifth of the pages of photographs are devoted to Corbu. Professor Scully is scholarly and thorough in his interpretations and evaluations of the work of the giants of the past century and a half. J.W.



MODULAR PRACTICE

Modular Building Standards Assoc. New York, John Wiley & Sons, Inc, 1962. 198 pp illus 9"x12" \$8.75
Reviewed by C. E. Silling FAIA, for the *AIA Journal*

Many architects are convinced that significant savings accrue to owner, contractor and architect when plans and materials for a building adhere to modular principles. The book "Modular Practice" was prepared expressly for architectural and engineering firms wishing to evaluate or convert to modular drafting practices.

This book is a compilation of the best modular practices in use to date as reflected by editorial team visits to forty architectural offices in the United States and Canada. It is profusely illus-

trated with excerpts of actual working drawings from offices using modular practices and is organized in such manner that it can serve as a handbook for individual draftsmen during office conversion or as an office reference for continuous use of the system. It also provides opportunity for modular offices to review how the system is being used by other firms.

"Modular Practice" was prepared by the Modular Building Standards Association (founded by the AIA, AGC, NAHB and PC) under a \$40,000

grant from the Educational Facilities Laboratories, Inc, to the Building Research Advisory Board of the National Academy of Sciences—National Research Council. It was compiled by a three-man editorial team headed by Robert P. Darlington AIA, with associate editors Melvin W. Isenberg PE and David A. Pierce AIA. This team served the objectives of the project as defined by a ten-man advisory committee of the Building Research Advisory Board. Members of the advisory committee and the editorial team were selected for participation on the project because of their recognized unbiased professional objectives. None was invited to serve because of a prior familiarity with modular practices. In this manner, objectiveness of the book was assured to satisfy the needs of architectural practitioners who have questioned the relevance and possible applicability of the system to the needs of their own practices.

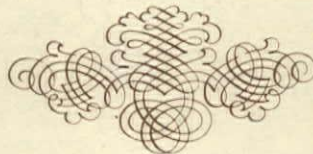
Quoting from the Foreword, "The Committee believes that modular practice can contribute substantially to the upgrading of quality, as well as to the reduction of costs of school buildings. The taxpayer will benefit by receiving more value for his dollar. The architect can design more rapidly and can produce simpler, clearer working drawings in less time. The contractor can prepare his

bid more quickly, is aided in layout and erection by the inherent precision of modular materials and coordination, and has less waste of materials during the building process."

The editors list and acknowledge cooperation and assistance in their work from architects and research institutes from coast to coast in the United States and Canada. The firms represented in that list are significant as to professional leadership.

The first chapter illustrates and explains the basic fundamentals of the modular concept as well as the graphic tools of the drafting system. The next chapter illustrates modular considerations in design and the design processes as ultimately reflected in the working drawings. Five succeeding chapters relate how modular drafting is used to define plans, elevations, sections, details, and structural, mechanical and electrical drawings. Considerations for the contractor and materials suppliers are detailed in additional chapters. Bibliography and appendices material round out a complete documentation on the research and practice of the system in building construction.

For the first time, this publication of "Modular Practice" now gives architects an available, comprehensive reference manual for conversion to the system of modular drafting.

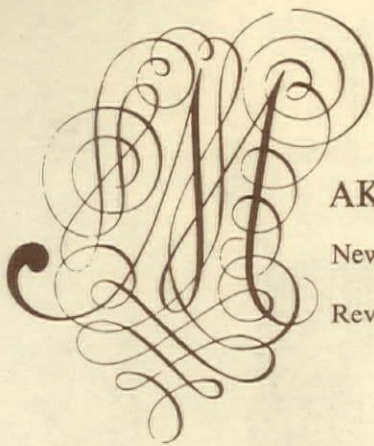


MID-CENTURY ARCHITECTURE IN AMERICA

Edited by Wolf Von Eckardt HON AIA. Baltimore, Johns Hopkins Press, 1961. 254 pp 8½"x11" \$12.50

A compilation of the winning designs in the AIA Honor Awards programs for the past twelve years, this is truly the AIA's own book. As Philip Will, Jr FAIA, then President of the Institute, says in his foreword, ". . . the reader is invited to examine the buildings which architects have judged to be among the best American architecture created during the past twelve years. . . . It is a striking representation of where architecture stands today as a full-blown American art and where it promises to lead."

There is a seventeen-page discussion, by the editor, of the traditions and current influences which have influenced contemporary American architecture. Following are 190 pages of beautiful photography of the outstanding buildings of the 'fifties, grouped by ten different building types. The appendix contains biographical sketches of all the winning architects and a thorough index. The book constitutes a record of what will undoubtedly turn out to be an influential decade in the development of an architecture in America.



MAKERS OF CONTEMPORARY ARCHITECTURE

New York, George Braziller, Inc, 1962. 128 pp illus 7¼" x 10" \$4.95 each

Reviewed by Wolf Von Eckardt HON AIA for the *AIA Journal*

Buckminster Fuller by John McHale
Philip Johnson by John M. Jacobus, Jr
Louis I. Kahn by Vincent Scully, Jr
Eero Saarinen by Allan Temko
Kenzo Tange by Robin Boyd

Having amply covered the "Masters of World Architecture" in eleven well-presented volumes, the enterprising publishing house of George Braziller has now turned to the lesser stars on the modern architectural firmament. The new series is entitled "Makers of Contemporary Architecture," a title I find somewhat reprehensible. But I grant that it serves its purpose which is, presumably, to provide a catch-all for designers who happen to be fashionable at the moment without pre-empting the judgment of history.

No one can quarrel with the fact that the subjects of the first installment of the series—Buckminster Fuller, Philip Johnson, Louis Kahn, Eero Saarinen and Kenzo Tange—"make" architecture and that this architecture is "contemporary." Actually, only John McHale writes about his man, "Bucky" Fuller, with unqualified enthusiasm. The other four authors are refreshingly and, at times, severely critical in their essays and thus make a valuable and interesting contribution to the still far too pusillanimous art of architectural criticism.

The format of the new series is every bit as handsome, well illustrated and informative for layman and specialist alike as its predecessor, which was handsome, well illustrated and useful, indeed. In addition to the text, the plentiful illustrations, the list of the subject's significant works, the biography and the bibliography featured in each volume of the "Masters" series, the new books also include statements by the "makers" themselves, which are uniformly revealing and interesting.

The quality of the texts varies, of course. McHale, as I said, is a bit panegyric in his approach

to Fuller. But in contrast to Fuller's other biographer, Robert W. Marks ("The Dymaxion World of Buckminster Fuller," 1960), this English author and artist manages to give us at least a glimpse of the charming human being behind all that dymaxion jargon. McHale's writing also abounds with the products of Fuller's highly personal and un-communicative word engineering (or shall we, in Fullerian fashion, call it "logoneering"?) such as "tensegrity," "precession," and whatnot. But McHale makes at least an effort to explain these terms to the mere layman and he does so in reasonably comprehensible English.

It is probably my own fault, then, that the effort leaves me still rather bewildered, although also full of admiration for the scope and inventiveness of the remarkable "Bucky." Fuller's thinking, as you must know, adds up to far more than the engineering of economical metal structures that are often so light that they can be toted around by helicopter. It also includes the paper engineering of universally applicable systems for controlling the human environment on the scale of entire cities.

We are fortunate, indeed, to have among us a genius who would turn physics and chemistry, not only towards human destruction but also towards human comfort. But we are equally fortunate, methinks, that all this push-button, science-fiction comfort control is still safely in the dymaxion future. Reading about the "fog gun," for instance, which would both clean and massage us at high pressure with but a pint of water, makes me very happy to have gallons of low-pressure water and old-fashioned soap at my disposal with which to wash off the cold sweat such visions induce in me. But "Bucky" Fuller, I fear, aided and abetted by Mr McHale, tends to turn his sober technological visions into a universal *Weltanschauung* which implicitly frowns on good, old fashioned bathtubs.

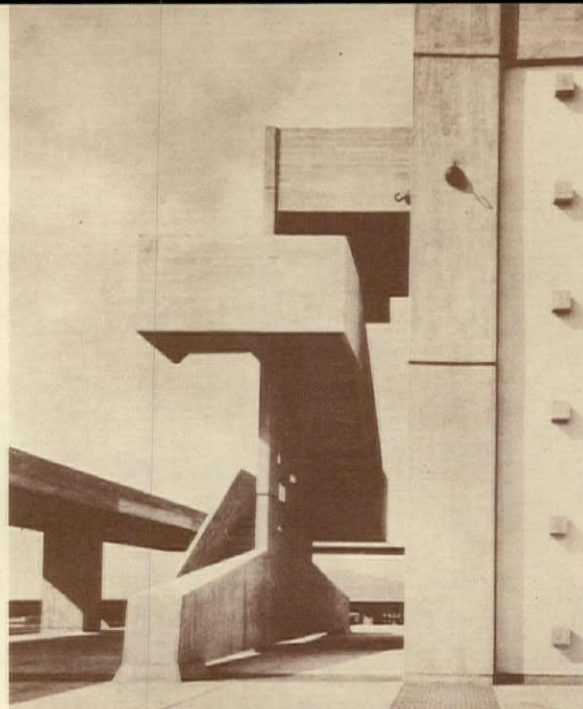
As to geodesic structures, I hold with Philip Johnson who said: "I have nothing against discontinuous domes, but for goodness sakes, let's not call it architecture." Unless, of course, some architects come along, as did Murphy and Mackey, with their splendid "Climatron" at St Louis, and give the thing an architectural purpose and an entrance.

The essay on Philip Johnson by John M. Jacobus, Jr, an Assistant Professor of Art and Architecture at the University of California, is critical and interesting but, unfortunately somehow, literally, misses its subject. Jacobus writes learnedly about Johnson's buildings and their place in the art historical scheme of things, but for all he tells us, they might as well have been designed by a sprite. Of the, after all, very real, effervescent, witty and highly articulate Philip Johnson there is hardly a word. In the few words devoted to him, Jacobus writes about Johnson with a detachment as though, like some medieval stonemason's, his identity were already lost somewhere in the dust of time. This is too bad, for I am sure Johnson's personality and personal development has a great deal to do with his decidedly personal art.

And I further suspect that his art is less time-bound than most, just because Johnson, in his dual role of critic and creator, has never put on blinders against the confusing turbulence of this age but sees and experiences it all quite intensely. Like a buoy he seems to ride the waves of modern art, but his anchor reaches deep into the calm realms of true creativity. None of this is even hinted at in Jacobus' treatise. And Johnson's dramatic departure from Less-Is-More-Classicism and his discovery of history are all but ignored and certainly belittled. But all is not lost. You will find some of Johnson's stimulating personality bursting through the excerpts of his own writings appended to the book. The passages are well selected and pertinent.

Louis I. Kahn as a person, in contrast, comes through with great vividness in Vincent Scully's volume. Scully is a brilliant writer, of course, and he manages to explain not only Kahn's work in terms of the man, but also the man in terms of the work. This, it seems to me, is the way artists should be written about.

Scully has certainly helped me to understand Kahn's recent architecture a little better, particularly since he wisely skips Kahn's own, more often than not obfuscating, verbalizations. It doesn't quite convince me yet that beyond originality and fashionable acclaim, the Richard Medical Research Building is really great architecture, but Scully doesn't seem entirely convinced either. Scully is, however, persuasively convinced that Kahn's patient search for a truly creative approach to archi-



Kagawa Prefectural Government Office, Takamatsu, Japan from Kenzo Tange by Robin Boyd

ture is thoroughly genuine and that his man is most probably just at the beginning of what may, indeed, be a significant contribution.

That, too, is the essence of what Allan Temko says about Eero Saarinen, whose tremendous promise was so cruelly and prematurely cut short last September. Temko, too, writes extremely well and some of his passages are almost poetic. Yet he never writes to make verbal music (which at times seems to tempt Scully) but always has something to say that is well thought out and stimulating. His is the most critical of the essays here reviewed.

I got the feeling, in fact, that Temko may have tried a little too hard *not* to eulogize Saarinen and to avoid any taint of sentimentality. His comments are, of course, always well reasoned and he always considers a building in terms of how well it solved its unique problems esthetically, functionally and structurally. I thus cannot really argue with his criticism of Saarinen's work, certainly not with the facts Temko musters with such diligence. Yet I feel he is often a little too harsh. It's probably a relative matter. In a school where mediocre students are given overly good grades, it isn't fair to suddenly apply fair standards to a brilliant student.

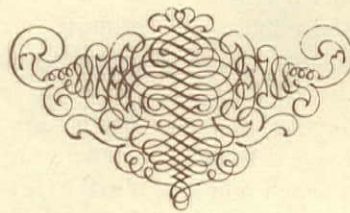
At any rate, I saw the TWA terminal at Idlewild just before reading this book and found it among the few great architectural experiences I had in this country. To call the building "a failure," as Temko does, carries a stern critic's unsentimental incorruptibility too far.

Robin Boyd's text on Kenzo Tange is equally unsentimental which, in this case, is a wholly welcome change. There has been a tendency in recent

years to blindly idolize everything Japanese, in part because of its cute Mikado-quaintness and in part because we feel badly about Hiroshima. Tange's reputation has, of course, gained considerably by this tendency. One wonders, and so, implicitly, does Boyd, who is a practicing architect in Melbourne and knows his Orient, whether Tange's fame would be quite so great had someone else designed the Hiroshima Peace Memorial. Leafing through the illustrations of this, the first comprehensive monograph on Tange, I get the impression that the Memorial may be his best and, certainly, most engaging work. From then on Le Corbusier's strong influence takes over as brutally brazen as the most brutally brazen of the *maitre's* own work.

Boyd's text, reinforced by Tange's own words, deflates any false and romantic notions about a resurgence of ancient Japanese traditions in

Tange's architecture. The very opposite seems true in fact. If Tange is a significant "maker" of modern architecture, and he may well be, this is so precisely because he shuns counterfeit "Japonica" like sin and is very pragmatic and very world-minded. He seeks no Zen esthetic, whatever that may be, but practical answers to Japan's practical problems. Boyd succeeds extremely well in giving us an understanding of Japan's architectural dilemma—"on one side decaying towards stereotyped modernism and on the other adhering to fatalistic realism"—and of Tange's great honesty amidst all this Disneyland corruption. He also gives just emphasis to what may turn out to be Tange's most brilliant concept: The scheme to expand Tokyo by building over the waters of the Bay—a planning solution which sounds as bold as it appears necessary if strangulating congestion is to be avoided.



THE FIRST BOOK OF ARCHITECTURE

by Lamont Moore. New York City, Franklin Watts, Inc, 1961. 82 pp illus \$1.95

Reviewed by N. Carl Barefoot, Jr for the *AIA Journal*

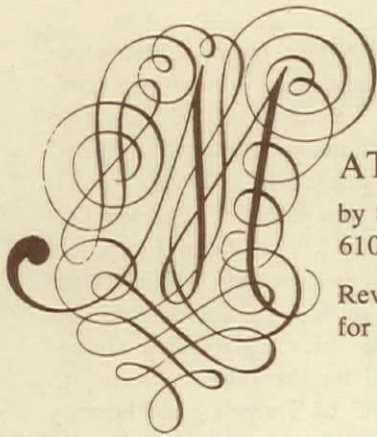
Here is our old friend, Lamont Moore ("The First Book of Paintings," "An Introduction to the Appreciation of Pictures"), giving the interested layman an easy-to-take course in architecture and its appreciation. He has done well.

Rather than starting, as most introductions to architecture do, with the beginnings of architecture in Egypt and bringing us up-to-date with first one example, then another, Mr Moore has grouped his architecture into types. There is a section on architecture for worship, which ranges from Stonehenge to the present day Chapel of Notre Dame; a section on architecture for living, from the American Indian to Mercator Square in Amsterdam; a section on architecture for earning, ranging from a New England Mill to New York's International Airport; there is architecture for governing, with examples from the Palace of Versailles to the UN Building; architecture for pleasure and learning, from the Colosseum to the

Guggenheim; and finally Mr Lamont concludes with a walk around St Mark's Square in Venice, just to illustrate his opening statement, "Architecture is the art of enclosing space for some human purpose."

This is an excellent book, easy to read, and most informative for the layman who wants to begin to understand architecture and thereby develop an appreciation for it.

One drawback: The reproduction of the photographs (all black and white) in the book is miserable. With a book that must, because of its subject matter, depend a great deal on the visual presentation, it would seem that the publisher would take greater pains to see that the pictures fairly sparkle. The same fault was found with Lamont's "First Book of Paintings." Maybe by the time he does his next "First Book" the pictures will be better. Meanwhile this one, except as noted, is highly commended.



MATERIALS FOR ARCHITECTURE—An Encyclopedic Guide

by Caleb Hornbostel. New York, Reinhold Publishing Co, 1961.
610 pp 8¼" x 10¼" \$20.00

Reviewed by Hyman Cunin AIA, Associate Professor, Howard University
for the *AIA Journal*

In the introductory remarks, Dean Kamphoefner of the School of Design, North Carolina State College, says of this volume "A book of materials for architecture, produced by scholarly research and scientific inquiry has been long overdue as a handbook, dictionary and encyclopedia for the serious and thoughtful research-minded modern architect."

This volume on materials is a treasure-trove of information, gleaned from a multitude of publications; from handbooks prepared by manufacturers and trade associations and institutes, from manufacturers' data, from research reports and other authentic data published by individual specialists, by private as well as public research and testing laboratories and agencies, and by universities in their research programs. Vincent Kling calls this "a refresher study which examines all the old and most of the new materials at our command and most definitely challenges the imagination to find diverse and new combinations for better buildings."

The format of this book is in itself a major achievement. Subjects are presented alphabetically, and the index locates secondary items at a glance. Thus, information becomes quickly available. Where appropriate, subjects are treated uniformly under the sub-headings "Physical and Chemical Properties," "Types and Uses," "Application," and "History and Manufacture." Application includes, presumably where that information is available, "What to Watch Out For," "Do Use" and "Don't Use," in which invaluable practical advice is presented. Information from the original sources has been condensed and reproduced in charts and drawings which are generally easy to comprehend, making data relating to specific forms of the material readily comparable. Truly, Caleb Hornbostel has here performed a prodigious time-saving service for which many architects will be extremely grateful.

Despite its many virtues, I question whether certain information is presented in as clear a manner as it might be. For example, I wonder why the text which explains drawings on page 101

does not differ in character from the usual text, or why "continued on page 102" is not noted at the bottom of page 100? That would have avoided confusion for me, and doubtless for most other readers.

Then there are the footnotes. The reader is left to his own devices to discover that items starred in tables titled "Uses of" are explained in the body of the written information under the discussion of those "uses," whereas all other tables have such items explained as footnotes to those particular tables—a far more direct location for explanatory notes.

There are also proof-reading faults. For example the reversal of the information relating to "tangential" and "radial" shrinkage, in tables W5 and W6, of the chapter on "Wood."

Perhaps the author did not have all his material double-checked by the experts just prior to publication. Certainly one is led to wonder whether he took enough precaution to avoid obsolescence in some of the information given. In his own preface, Mr Hornbostel notes that he has avoided reference to, for example, specific ASTM standards for two reasons, one of which is "that the ASTM and other specifying agencies are constantly retesting materials and shifting their code numbers (thus making any book that lists them become dated very quickly . . .)" That this is a wise precaution and that the designation of the item itself might also change is attested to in the chapter on "Mortar." The ASTM designation of types of mortar has been changed in the few years which it took to prepare this work.

As to the detailed drawings, the author has presented much useful information, and explained many manufacturing processes, too, in a uniform manner, generally readily comprehensible and of great interest to the profession. Some of the details undoubtedly bear checking, however. For example, in Figure B12, good practice normally dictates that finished grade be below the level of the through-wall flashing. There are differences of opinion, perhaps, but should not the through-wall flashing above the head of the window in Fig-

ure B13 be stepped? Of course, these drawings show techniques incidental to the subject, "Brick," under which heading they are found. They might have been omitted had the author not been interested in presenting more, rather than less, of related information.

In his preface Mr Hornbostel welcomes "any further constructive suggestions and additional information that will help make this book more valuable to those for whom it was written." There is more useful information which the architect should have about some of the subjects treated in this volume, and there are more items which are awaiting treatment. That such lacks exist is doubtless common to all first editions of any compendium of information of this nature. I trust that manufacturers especially will heed the author's request, and provide additional data which Mr Hornbostel should include in forthcoming issues of this work. For example, it would be tremendously helpful if architects had at their fingertips, much more information than is currently available about the range in, or average life or durability of, many products, also maintenance and renewal problems. Architects should insist, more and more, on having the mystery removed from materials, the brick and mortar out of which we create, in works such as this.

I would like to make one more suggestion to the author; that he issue supplements and revised indexes to cover them, perhaps annually, and that he reissue this work in its entirety only infrequently. In this manner, the architect might have a constant supply of useful data as it becomes available, in concise form, and geared to his ever-expanding needs.

In conclusion, and to dispel all doubts as to this reviewer's over-all impressions, I'd like to add that, despite its imperfections, this is an invaluable adjunct to the library of every architect, as indispensable in his work as are "Graphic Standards," "Sweet's" and others of his reference material.

OF DIVERS ARTS

by Naum Gabo. (Bollingen Series XXXV 8)
New York, Pantheon Books, 1962. 205 pp illus
7¾" x 10¼" \$7.50

This is the long-awaited book version of the A. W. Mellon Lectures in the Fine Arts delivered in the National Gallery of Art in Washington in 1959. The six lectures are presented beautifully in text and over seventy illustrations (fifteen in color) in a distinguished example of typography and book production. The pictures range over the whole history of art.

We have written before at some length on this artist in reviewing the fine monograph on his work.* In the informal and appealing talks collected in the present volume he speaks for the artist to a public which does not in the main understand what an artist is, does not understand the motives which impel him to create objects, how he approaches such creative expression and, to some degree, what they mean. This last qualification "to some degree" is the reviewer's—due to a conviction that the meaning of art, like that of poetry, depends upon what you bring to the experience. Less and less does this seem an intellectual attitude—it may depend on innate sensitivity of the individual rather than years of academic cultural study.

Of course Gabo's main message is the gospel of *Constructivism*, the form of art expression he practices. He is modest in his characterization of himself as "only one representative of the species of men called artists" but no less firm in his conviction and control of his several media and in his delight in organized complexities of space.

This is a poetic book but Gabo denies a mathematical basis for his forms (despite the old theology of Cocteau who says: "The poet does not dream—he counts"). Gabo's concepts of perception evolved through his studies, seem scientific, aware of "recent" theories of psychology, in fact art of this individually searching sort leads the science which formulates an explanation. In his second lecture he tilts headlong with the CP Snows who would separate art and science—and then continues with one of the simplest and most concise expositions of the course of art away from natural representation toward Constructivism. It is not that he denies nature—he sees through the limitations of the single view into the miraculous multiplicity and continuity of nature in the individual consciousness of man. This, too, is what we meant by "what you bring to the experience."

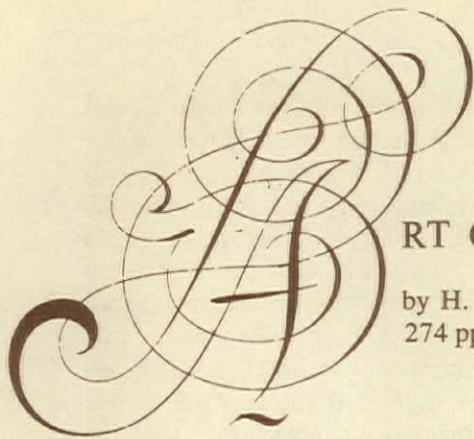
"... when a painting or a sculpture needs to be supplemented and explained by words it means either that it has not fulfilled its function or that the public is deprived of vision..." "... for the artist, a drawn line is ... an inward movement of our consciousness."

Because Gabo believes that colors change "in relation to the frame of our vision and its axis—to right or left or up and down from it..." he has certain paintings which (like sculpture) are meant to be viewed from any one of their sides, or in motion.

A final statement, most significant to us, is that art "... attains its full stature by what time and people make of it."

E.P.

* Gabo, Harvard 1957—see *AIA Journal* March 1959: 57



ART OF ANCIENT AMERICA

by H. D. Disselhoff and S. Linné. New York, Crown Publishers', Inc, 1960.
274 pp illus 7" x 9¼" \$5.95

Three titles in this fine "Art of the World" (non-European cultures) series were reviewed in earlier issues of the *AIA Journal** under the American imprint of McGraw-Hill. Originally published in German by Holle Verlag, the series has now been taken over by Crown and additional titles on China, the Middle East, and the Stone Age have appeared, so far in seven of the sixteen to be offered. The only change seems to be omission of slipcases, otherwise these inexpensive volumes continue the excellent text-printing (in Holland) on soft matte paper, the beautiful tipped-in color-photo plates and clear marginal black-and-white drawings (nearly 150).

Sigvald Linné, of the Natural History Museum in Stockholm, who has participated in Mesoamerican archeological expeditions, writes ten chapters on the art of Mexico and Central America, from prehistoric beginnings through the Maya and bridge cultures of the Isthmus. The advent of radioactive Carbon-14 dating has somewhat revised chronological ideas about these areas and although archeologists and ethnographers live from day to day in disputation with each other and themselves over origins, routes, influences, data and potsherds, it now seems accepted by more and more of them that some Stone Age originals of Mesoamerica came from Asia via a Bering isthmus—later cut by a rise in sea-level due to Ice Age melting (about 9000 BC). There is still controversy about influences between South and Mesoamerica, and between South America and South Pacific.

Linné's treatment is primarily chronological and, while it emphasizes ceramics and sculpture, enough is said and illustrated of architecture to characterize it in a general way.

In the early sixteenth century the Spanish conquistadors under Cortés found a civilization which seemed of great antiquity. There were over 2500 years of advanced cultural development by others behind these Romans of the "New World."

The Maya still remain enigmatic—"the world's most important Stone Age culture . . . the Greeks of America."

Today, despite increased efforts of Mexican archeology over the last generation there are still many unexplored areas and unanswered questions. Great new areas of ruins are discovered continually—who knows what treasures, missed by grave-robbers, are still waiting to be found. The author cautions visitors on this—elaborate fakery of antiques is common.

The latter half of this volume is devoted to the art of the Andean countries and is written by Professor Dr Hans-Dietrich Disselhoff, Director of the Museum of Anthropology in Berlin. Pizarro was the opposite number of Cortés here and the climactic Inca correspond to the Aztecs, both only short-time rulers before the two conquests. The similarity of the Peruvian coastal belt to Egypt is noted, the rivers ("twenty small Niles") and irrigation making it habitable desert, the dry climate a contrast with the isthmus however which resulted in preservation of other artifacts, notably some of the most exquisitely woven polychrome textiles ever known. (Paracas and Nazca were 1700 years pre-Inca—Tiahuanaco after AD 1000.)

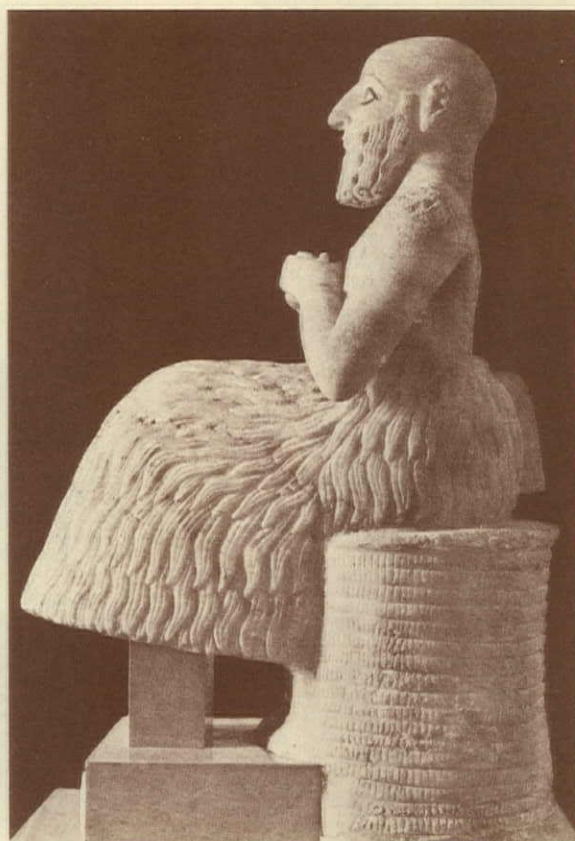
As discussed in an earlier review of one of this series, there is an important distinction between the forms of an essentially religious art which makes a connection with "the world of gods and spirits" and the forms of our tradition in western art cut loose from such symbolic meanings. There are startling parallels between these Peruvian findings (as illustrated by drawings from the Berlin Museum of Anthropology) and possibly contemporary figures from archaic Greek vase-paintings. How much of this is due to the graphic tradition of German archeological artists? These sprightly bent-knee figures in short tunics are certainly strongly reminiscent of Greece. Other decorative patterns on ceramics recall Africa.

Peruvian ceramics, no less than textiles, are masterful in design and color. An essential difference of the second part of this book is the

* India, July 1961 p 60
Indonesia, November 1961 p 87
Africa, November 1961 p 88



Mayan stucco head. Palenque ca 450 Museo Nacional de Antropologia, Mexico City



Sumerian (Mari) dignitary Ebih-il alabaster with eyes of lapis lazuli ca 2500 BC 52 in. high (Louvre)

metalwork, acknowledged to have started from Peru. Gold was known in Mesoamerica only after AD 1000—here 1500 years earlier. Farther north in Ecuador (one part of Greater Peru under the late Incas) there were even examples of platinum alloyed with gold—long before this high-temperature metal was usable in Europe. *Cire-perdu* casting was also known to these artists. The cyclopean masonry (16') of the Incas also remains a marvel to visiting architects. Again there are many unexplored areas, now under government control, and centuries of looting for treasure.

Although these texts are well written (translated by Ann E. Keep) an attempt has been made to popularize the style in the detailed captions for illustrations. While most of them give dates, dimensions, sources and present locations with commendable thoroughness, comments occasionally seem less than scholarly. It is strange, for one example, that the traditional tump-strap (harnessing the forehead), used also by North American Indians to aid in carrying large loads, is called "a humorous note."

The maps are barely adequate diagrams but other aids, chronological tables and indices are well-developed. One particular value of this series for Americans is the extensive and beautifully-reproduced illustration of European collections.

E.P.

ART OF THE MIDDLE EAST

by Leonard Woolley. New York, Crown Publishers', Inc, 1961. 259 pp illus 7½" x 9½" \$5.95

This last book by the late Sir Leonard Woolley, for some decades the authority on the archeology of this area, is the sixth of the "Art of the World" series. Some nine are still to come. This volume continues the high standard which began in the original German and Netherlands production. The more than sixty color illustrations are tipped-in and the author confesses he was finally tempted to agree to do another book on the subject by the prospect of color. It is excellent for small objects, less good for out-of-doors subjects but there are not many of these. The black-and-white marginal drawings (73) are a still less fortunate, exceedingly scratchy technique.

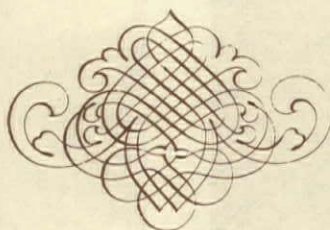
The Middle East, in this context, includes the countries later known as Anatolia, Syria, Palestine, Iraq and Elam, which is part of Persia, together with the entire Arabian peninsula. An essential point of similarity was that none of these countries was self-sufficient. Each was urged to

commerce or conflict in this span from earliest times to AD 500. Geographical differences are extreme, concisely treated here with a summary of history.

There is a wealth of fine sculpture illustrated as well as small metalwork of all descriptions. Not much architecture but Sir Leonard makes several perceptive and fascinating observations from his vast scholarship. The Ziggurat at Ur (before 2000 BC) had "no single straight line, vertical or horizontal"—surely an amazing instance of a precursor of the Greek use of entasis. The King of Ugarit's letter to the King of Mari (1800 BC) will strike a contemporary note for

any architect. ". . . He has heard that the King of Mari has just completed a wonderful palace, and [like an insurance tycoon of today] asks for an introduction to that monarch as he is thinking of a new palace for himself and would like to get suggestions from the Mari building"! Seven of the seventy magazines beneath the Caucasian citadel (ca 700 BC) of Karmir-*Blur* were for wine and contained 360 enormous pots holding a total of 350,000 liters!

As in the other volumes of this series there are a useful chronological table, brief glossary, references, index and adequate diagrammatic map—and note the price. E.P.



ENGLISH COUNTRY HOUSES—LATE GEORGIAN 1800-1840

by Christopher Hussey. London, Country Life Ltd, 1958. (USA: Essential Books, 16-00 Pollitt Drive Fair Lawn, NJ) 255 pp 9¼"x12½" \$20.20

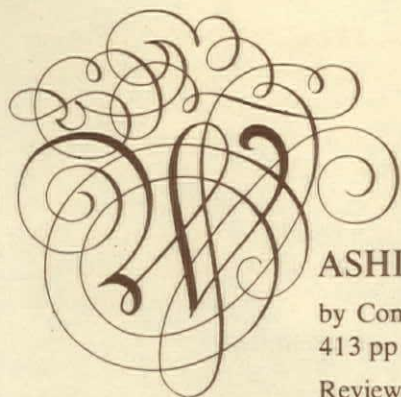
The third in a series (the first two having covered Early Georgian 1715-1760 and Mid Georgian 1760-1800), this volume reminds us that at the turn of the century what we know as "Georgian" architecture was still going strong, yet the era of a fluctuating and self-conscious public taste and of the cult of personalities was beginning. This was the heyday of the country gentry, "typically a generation of extrovert sportsmen, of sound classical education and eccentric sensibilities. To a remarkable degree their abundant zest was directed to appreciating, on the whole with discrimination, the freedoms opened in the arts, as in other directions, by the new liberalism."

The twenty-two famous houses included range from the severe Greek Revival and the elegant Regency to the incredible but always beautiful Gothic Revival fantasies. They are the work of Holland, Soane, Nash, the Wyatts, the Reptons, the Cockrells, Burton, Salvin and others less well-known. Each is fully illustrated with photographs from *Country Life* that still delightful British

magazine which should be more widely read in this country; each is described historically and architecturally, by an author who is probably the outstanding authority on the British country house.

Mr Hussey, an Honorary ARIBA, is the author of several books and countless articles, and writes with zest and enthusiasm, as well as a rich knowledge of his subject.

Aside from their nostalgic beauty, what do these country houses mean to us today? Well, in this reviewer's opinion, in the first place "nostalgic beauty" is sufficient justification in itself for this book; and in the second place, we can do well to study these great houses for their magnificent siting and their studied relation to landscape—a part of design too often disregarded in these bulldozer days when it is only too easy to re-shape the site to fit the building, disregarding what it may do to its relationship to the surrounding area—to say nothing of the complete disruption of the ecology of the region. J.W.



WASHINGTON—VILLAGE AND CAPITAL, 1800-1878

by Constance McLaughlin Green. Princeton, Princeton University Press, 1962.
413 pp illus 6" x 9¼" \$8.50

Reviewed by Mary H. Rockwell for the *AIA Journal*

Almost as fascinating as her book is the source material upon which Constance McLaughlin Green has drawn. Washingtonia collections are vast and scattered. Her thirteen-page bibliography gives proof of the enormous amount of research which went into this highly readable book.

In "Washington—Village and Capital, 1800-1878," Mrs Green has digested for the thoughtful reader, as well as students, engineers, architects and planners, most of the available material of the period. When she passes lightly over some subjects, her voluminous footnotes on every page provide opportunity to pursue inquiry further.

Spiked with anecdotes as well as statistics this book should be of great interest to anyone with the slightest historical inclination, and native Washingtonians may be amazed at the wealth of information condensed from personal letters, diaries, memoirs, travelers, descriptions, and the files of local newspapers as well as official records.

From the inky black, muddy streets which greeted the arrival of Congress in 1800 to the founding of the AIA in 1857, little progress was made. "The city L'Enfant had laid out on a scale to represent the genius of the new republic had in fact attained little aesthetic distinction." Only . . . "some handsome private dwellings scattered from the Navy Yard to the section about the Octagon House and about the square named for Lafayette in 1825 were pleasing to the eye . . ." and "the beauties of the country-side underscored the unkempt appearance of the capital itself . . ." Most of the Mall was a wasteland of swamps dotted with clusters of sheds along the canal. Not until the end of the century did L'Enfant's enduring plan begin to be fulfilled. City planning and urban esthetics, architecture and the first century of Washington society are happily mingled with filth, violence, and a cantankerous Congress.

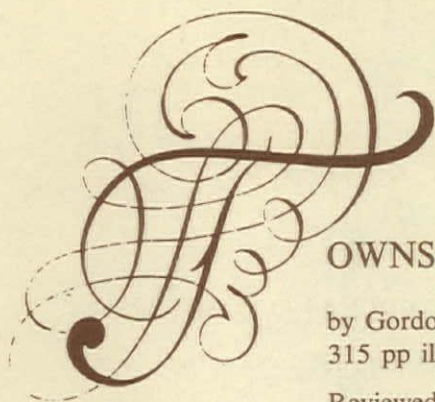
Rapport between Congress and the local community does not appear to have changed much since 1850.

The B&O Railroad fracas is a classic example. "Not until 1852 did the city fathers permit locomotives to run into the city; for seventeen years the engines had to stop outside the city limits, whence horses hitched to the 'steam cars' had drawn passengers and freight to the sheds at 2nd Street and Pennsylvania Avenue." In 1854 the Railroad Corp was granted permission to lay tracks in the city as long as they did not run on Pennsylvania Avenue. When the Congress reconvened in December of 1855 members were astounded to find a nearly completed railroad line traversing the Mall at the foot of Capitol Hill. Years later, Daniel Burnham was largely responsible for persuading the railroad to give up its valuable site on the Mall.

There are wonderful descriptions of Washington during the Civil War; of the desperately needed improvements in sanitary conditions, transportation and housing which took place after the War. Public school and social welfare programs, then as now, lapsed far behind other cities. On the other hand, Mrs Green devotes a good deal of time to the growth of "a self-conscious Negro community . . . possessing a degree of cultivation and sense of responsibility unequalled at the time."

Washington's quandries in the 1850's epitomized the problems American cities would face for the next hundred years.

Mrs Green's work, made possible by a grant from the Humanities Division of the Rockefeller Foundation, will be followed by a study of the growth of the city from 1879 to 1941, and the two volumes should be a valuable addition to the few books available on the history of the Nation's Capital.



TOWNSCAPE

by Gordon Cullen. New York, Reinhold Publishing Corp, 1961.
315 pp illus 7½" x 9½" \$10.00

Reviewed by Henry S. Churchill FAIA, AIP for the *AIA Journal*

Some years ago Vitruvius set down some general principles about site location of cities, in terms of health and convenience, which are not much to be improved upon; and the bureaucrats in Madrid gave the Conquistadores those precise instructions about orientation and layout in the New World that make Lima, today, so much more livable than Philadelphia. None of these people, not even Alberti, the great theorist of the Renaissance, was much concerned with esthetics, or with those specifics of design which we call civic art or ugliness or the function of the architect. For to the dedicated artist, and the architect then was an artist, there could be no creation without whatever beauty is born of passion.

I mention this because Gordon Cullen's "Townscape" is the latest in a series of curiously related analytical theses which start with Camillo Sitte's "The Art of Building Cities" and all of which are concerned to a greater or less degree, with art. Although Sitte's work was first published in Vienna in 1889 it was largely ignored outside of Europe until the early part of this century when it became widely known in England. In the United States it was unknown outside the "Garden City" group until Charles Stewart's admirable translation (the first complete one in English), published in 1945, gave it new Anglo-Saxon life. This is an example of the American architect's cultural lag, his lack of interest in sources and theory.

Long before this Sitte's book had enormous influence in England on the planners of the Garden City movement. This was in reaction to Beaux-Arts formalism, a delayed professional reaction in favor of the cult of the romantic and picturesque. It gave psychological support to what, to the contemporary architect, was not "art" but disorder. It gave authority to the English love of the casual, which worked so well for the social theories of the Garden City school. It served particularly Sir Raymond Unwin's blending of human and social considerations into the planning of new communities as preached by Ebenezer Howard. True, the Italian town was not the English village, but neither of them was the geometrical imperson-

alism of the eighteenth century and the then current academic teaching.

Then in 1946 Thomas Sharp's brilliant little work "The Anatomy of the Village" presented another step in the analysis of the picturesque and the possibilities of getting it on purpose. But the applicability of his principles was not adaptable to the American concept of the single detached house and the fifty-foot setback, and besides the day of the "New Town" was already collapsing into the curvilinear cliché of Levittown and exurbia.

The New Towns and some of the larger suburban growths had been designed as a whole, and were at least possible of complete artistic structure under control of a single directing force, whether one person or a team. The concept was unitary and three-dimensional and necessarily architectural. The picture changed and became confused when so-called Urban Renewal became the victim of the pseudo-scientific planner who replaced humanity with statistics and was without competence in three-dimensional vision. It was easier to deal with an average than with extremes. The idea of creative design was lost in the complication of dealing with the complications and limitations imposed by existing conditions and the immature economic ideas of the planners. The resulting mess has been a call to the architects to "do something" about the ugliness of our new urban enclaves and even about city deterioration as a whole. Consequently, large blasts of hot air have been let loose and vigorous diatribes have been written. These have had no effect at all on the administrative bureaucracy which is basically responsible for "doing something." (Whatever may or may not be done along Pennsylvania Avenue will have little effect elsewhere.)

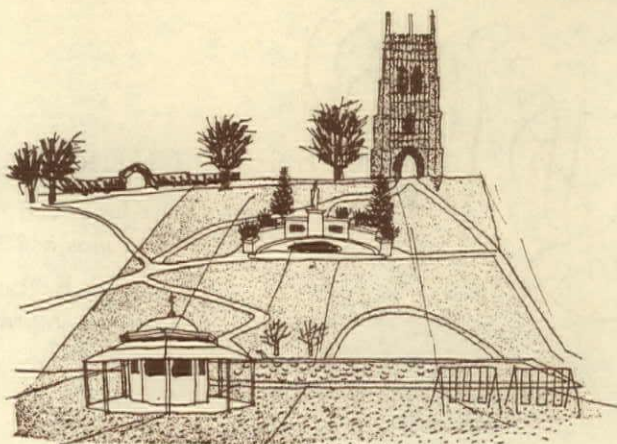
In 1953 Sir Frederick Gibberd's "Town Design" was published, the most constructive text on the subject that I know. In French, Lavedan's great work on Urbanisme is historical rather than architectural, and Gutton's "Conversations sur l'Architecture" is a magnificent general work, but because of its world-wide scope is not a text for

the specific. "Town Design" is both more specific and more purposeful in its approach. It develops, and uses with great effectiveness, the "progressive" visual presentation of the aspects of civic design. The combination of photographs directly related to plan is admirably worked out to illustrate the text, the unfolding of vistas and the shifting of broad architectural relationships. These are again almost all of the English picturesque type of town. Classic design and Renaissance formalism get little consideration as possible components of solutions to problems of today. This is in the tradition of British art generally, the lyric and the human always having greater strength than the formal and logical. Be that as it may, Gibberd's book is the best—almost the only—claim to value as a text-book on the design of towns that has been written in English.

It remained for an American, Keven Lynch, to try to close the gap between the step-by-step approach of the previous efforts to deal with urban design, and to give a strong psychological foundation to it. He demonstrates brilliantly that a city has, for the inhabitants as well as for visitors, an "image" which is principally visual, although sounds and smells have a place too. These remembrances of things past, for that is what they are, are primarily locational and practical, rarely esthetic except incidentally. The observations he has put together are of great value to the designer because they bring into foreground consciousness much that is taken for granted and so unobserved.

Gordon Cullen's "Townscape" puts together Gibberd and Lynch, the specific and the general, into some exceedingly interesting analyses of actual design, of existing small towns, "new towns" and urban bits. Cullen's strength is that he can draw, and not just draw but project upon an existing scene an image—in the literal sense—of how it might look if it were different. He is also in active practice, and has knowledge of what is feasible and what is improbable. Thus the differences he points to in the first part of the book are small changes, changes of single buildings, of related objects, plantings, textures—things which ruin or make pleasant the minor scene, and which are often the essence of what we call "ugly" but fail to attribute to the right source, preferring to "think" in terms of destruction and re-building, which are our semantic equals of creative construction. The whole first half of "Townscape" is on this small scale, a sort of "How to Look" that might be made very interesting to laymen, particularly if used as a sort of supplement to Rasmussen's "Experiencing Architecture." For there is no point, really, in yelling outrage! when nobody sees anything to be outraged about.

Perhaps this technique of the Casebook, as Cullen

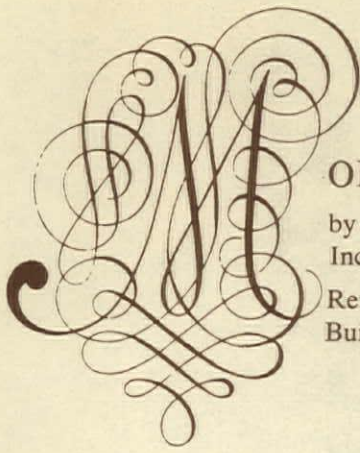


calls it, could be adopted for a popular "Guide to Our City" to be gotten out by the local AIA chapters, much after the fashion of the little guides which have now become customary for conventions. But what I have in mind should be strictly *how to see what we have*, the bad with the good, so that they would furnish education by discrimination. They could be used as school texts too and therefore not be condescending.

The plans and suggestions for the solutions of design problems in certain towns and cities which comprise the second half of "Townscape," are worth very careful reading. There are eight of these "town studies"—I know of nothing quite like them in this country except, in a minor way, my own studies of Germantown, in Philadelphia, made in 1956 and 1958. But those have only a similar philosophy, and lack the excellent superstructure of Cullen's constructive proposals. I recommend particularly the analysis of proposals for the St Paul's area. The assumption that the re-design of the area be based on what a person actually would encounter if various proposals were executed rather than on what the design says would happen so beautifully on paper, results in a small masterpiece of urban design criticism. I mention this article and the one on Westminster because they deal with very real design problems in a large city, and it is the Large City that seems to be the preoccupation of the US architect who Thinks Big. A big city is made up of small things.

"Townscape" is a book to be read, not just looked at. Not "read through" like a novel or a text, but the notes and discussions and the pictures are absolutely necessary one to the other.

Cullen is a regular "analyst" for the *Architectural Review*. The Forum has run occasional pieces of a critical nature, mostly dealing with individual buildings rather than town design. These articles have been on the whole rather apologetic in tone, hoping nobody's feelings will be hurt. If carried over to the anonymous "city," a sharper and better job could be done, much to the benefit of all those whose responsibility is lost behind the term "city planning."



MODERN CHURCH ARCHITECTURE

by Albert Christ-Janer and Mary Mix Foley. New York, McGraw-Hill Book Co. Inc, 1962. 333 pp illus 8¾" x 11½" \$9.75

Reviewed by Kenneth E. Richardson AIA, Chairman AIA Committee on Religious Buildings for the *AIA Journal*

Religion and architecture are two of the most controversial subjects which appear in our society. Combined in a treatise on contemporary religious architecture, they demand from the authors great skill, perception and genuine humility, and from that person who would criticize such a book, an understanding of the magnitude of the task and restraint both in praise and censure. Nevertheless, this subject, today's religious architecture, needs attention if organized religion is to be a strong and positive force in the community. Most of it reveals insecurity, vacillation and a refusal on the part of those responsible for it to face changes which have occurred in the living process.

Authors Albert Christ-Janer and Mary Mix Foley, in a book entitled "Modern Church Architecture," have attempted to view the current scene, trace its development architecturally, and relate it to changes which are being made in the liturgy itself. In format they have attempted to balance the photographic presentation with methodical discussion of the specific buildings and religious movements in general. They have tried to create a book which will have meaning for the clergy, for architects and for those non-professional persons seriously interested in religious buildings. They have sought to make their book a cross-section of the latest thinking in Europe and the United States. In presenting comments on buildings of the several faiths, they have endeavored to be impartial.

Success in controlling these multi-directional forces has been understandably varied. This makes it a more realistic book because it is doubtful if all the foregoing goals can be coordinated: the subject matter is too volatile. Some omissions are felt but, like the blank space around lettering, carry almost as much weight as though they had been mentioned.

It is a book which should be read carefully and completely in order to appreciate the continuity from one section to the next through which device the authors relate historical architecture with contemporary. It is much more than a picture book with subtitles. Two sections, especially,

should be well studied. They are statements by Catholic and Protestant leaders upon the need for developing a religious architectural heritage of today and ways by which this can be accomplished:

"If the veritable traditions of the liturgy are not warped by exaggerated elements of devotion nor by misunderstanding of the spirit of the norms set forth by the Church, artist and architect will once more feel the joy and liberty of being the children of God, and the Church will fulfill her mark of universality. It is at this point that considerations of architectural style and the temporalities of history are irrelevant: the architect and the artist are left totally free in their expression of the house of God according to the materials currently available, the spirit of the people and the time in which they live. Such freedom lies within the bounds of discipline and purpose."

—Rev Edward J. Sutfin and Maurice Lavanoux

"Today, genuine Protestant church architecture is possible, perhaps for the first time in our history. For the early experiments were too swiftly engulfed by eclecticism to act as evolutionary factors in developing a recognizable Protestant architectural language.

"Even today, however, many congregations and ministers still assume that the choice between modern and imitative-traditional architecture is merely a matter of taste and preference. They fail to see that only by the creation of new forms can Protestant churches achieve an honest expression of their faith.

"This expression should be made real, even if many experiments are necessary and some end in failure. An element of risk is unavoidable in the building of sacred places, just as a risk must be taken in every act of faith." —Dr Paul Tillich

Throughout the book the photographs are well integrated with the texts. A few are very powerful, revealing both the spirit of the architecture and talent of the photographer. Many of the buildings have been published previously but hitherto unpublished photographs of some have been secured by the authors. The chapter entitled "The

Search for the Artist" realistically appraises the matter of selecting non-church artists for church work. It also contains photographs of a delightful chapel decorated by Jean Cocteau.

Forty Christian churches, monasteries and seminaries are presented. Included with some are expositions by resident pastors concerning the development of their church designs and the degree of acceptance of the buildings by their congregations. These are important statements for architects, since they reveal the need in each project for the architect to educate the pastor and congregation upon the building processes and historical architectural background. Some expositions also are an unfortunate commentary upon the fear of change which permeates much of religious thinking.

Two implications become apparent as the book is read: The European church designs evidence deeper spiritual feeling than those in the United States, due mainly to the less rigid and formal manner of handling space. The latter seem to lack an equal degree of conviction. Belluschi's St Thomas More in Portland is a possible exception. A statement recurs to the effect that a church should be a refuge from the brutal "outside" world, yet paradoxically the most convincing designs are bold and alive, inspiring one to action instead of retreat.

The authors have yielded to two questionable procedures: They often describe the abilities of a specific architect or qualities of a given building in eulogistic phraseology as though they were attempting to "sell contemporary architecture." They have shown several churches each by two architects (Saarinen and Belluschi; Belluschi, especially). These men are very able architects; but the strength of a book of this nature should lie



partly in the broadness of its base. As partial compensation the names of three "unknowns" are introduced: Callister, Hammarstrom and Sovik.

An appraisal of any book should include acknowledgement of what the authors did not intend it to be or do. It is not a statement dedicated to the avant garde but is a conservative presentation of buildings actually built or soon to be constructed. It is not a book whose contents, like a pill, can be swallowed with the guarantee of producing a "perfect" church. While the book may be directed primarily to clergymen and church building committees, there is much in it for architects. It is the kind of book an architect, beginning a church project, should present to the chairman of the committee. In fact, the architect and chairman might read it together. It would benefit both of them.

SEATTLE CITYSCAPE

by Victor Steinbrueck AIA. Seattle, University of Washington Press, 1962. 192 pp illus
7" x 8½" \$3.95 (paper) \$4.95 (cloth)

When this reviewer left Seattle to join the *Journal* staff in August, he made sure Mr Steinbrueck's delightful volume was among the books packed for shipment to the East Coast. This was done not simply out of sentiment, but for the more important reason it is a worthwhile addition to one's architectural library. "The book," in the

author's own words, "attempts to develop awareness of the esthetic, educational and dramatic experience of the city, proposing the challenge that an urban environment should be worth what it costs the people."

To be sure, publication was timed to coincide with the opening of the Seattle World's Fair, and



undoubtedly it has served as a fine guidebook (addresses are given wherever possible for places and projects) to those searching both the worthwhile old and new buildings in the locale; and a good many more fairgoers probably returned home with copies as souvenirs.

But this is by no means a provincial book. Even the subtitle, "Sketches and Observations," does not tell the whole story. To really appreciate the work, you must appreciate the author-artist, a Professor in the College of Architecture and Urban Planning, University of Washington, who is, in a sense, Puget Sound's answer to Lewis Mumford.

A number of the sketches originally appeared in the weekly *Argus*, "The Northwest's Journal of News, Comment and Opinion" where Mr Steinbrueck, with his pen and often biting commentary, has attempted to get his fellow-citizen to really see the city: to discriminate between the good and the bad, the appropriate and the inappropriate, the genuine and the phony. On more than one occasion he has been a voice crying in the wilder-

ness as he courageously set forth on some esthetic crusade, be it concerned with freeways or the controversial new city hall.

Through his keen, critical eye, the author takes the reader (more accurately, the viewer) on a tour of the city and its environs—not a guided Gray Line Tour by any stretch of the imagination, but a casual, rambling sort of jaunt. It may lead to the Queen Anne Counterbalance, "a vista and a panorama familiar to all Seattleites," or possibly to "a comfortable pedestrian space" close to downtown that the average city dweller somehow has never experienced. With this as a starting-off point, Mr Steinbrueck continues on the way to the majority of the most notable buildings in the Greater Seattle area, giving meaning to the old, sometimes justifying the new, but never deliberately pushing *good* architecture down anyone's throat.

However, in a three-page essay he calls "Image of a City," the author lets it be known where he stands on the matter. "From the biased penpoint of this book, it seems clear that none has participated more effectively in forming the man-made physical environment than have architects. Other forces have found expression, of course, but the buildings and the structures that provide the rhythm and texture of the city are the result either of the work of architects or their influence. It is true that much of the mass of building of any American city is accomplished without the full participation of the architect, but none is without his influence. When the culture is so well developed that fine architecture is the natural expression of the social climate, there will be more hope regarding man's destiny."

That is why this is more than a "picturebook" in the usual sense of the word and why it is one of the few of this type that is well worth the price.

R.E.K.

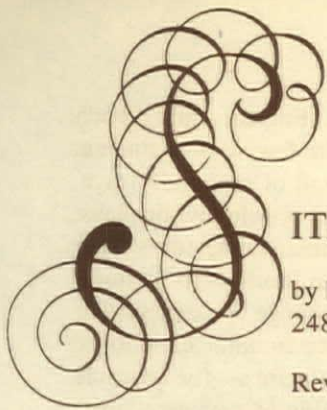
THE SKETCHBOOK OF VILLARD DE HONNECOURT

Edited by Theodore Bowie. New York, George Wittenborn, Inc, 1962. 80 pp 6" x 9" paper covers \$3.00

At last here is an everyman's edition of this famous sketchbook, sixty-three out of the sixty-five plates in the original—the two missing contain recipes! Apparently active from 1225 to 1250, this observant French architect noted many things in his notebook—figures, draperies, animals, details of cathedrals which he observed under construction, instructions for the cutting of vari-

shaped voussoirs, how to roof a chapel, how to build a catapult and a perpetual motion machine (better men than he tinkered with that one!) and many Gothic details.

There are translations of his notes for each page of drawings, and comments by the editor, all of which make it a very attractive little book—a good gift suggestion.



SITE PLANNING

by Kevin Lynch. Cambridge, Mass, The MIT Press, 1962.
248 pp illus bibliog 6½" x 9½" \$8.00

Reviewed by Paul Spreiregan, Head of the AIA Urban Project

Kevin Lynch's superb new book, "Site Planning," has been published at a most opportune moment. No longer is there any hesitation among designers to limit the scale of their thinking. Gordon Cullen's "Townscape" affirms the importance of arranging the tiniest details. The last Urban Design conference at Harvard affirms the notion of three-dimensional design on a metropolitan scale.

In his first book, "The Image of the City," Professor Lynch expounded on the characteristics of city environment relevant to people's perception—the things that people really notice. In "Site Planning," he deals with the specifics of designing that environment—the conscious and artful arrangement of land with all of the implications entailed. Site planning is practiced by architects, planners, engineers, and landscape architects. It is distinct from all of these fields in that it is "... the organization of the external environment up to the largest scale at which it can still be subject to unified and complete control . . ."

The book is divided into two sections—one on fundamental techniques and the other on their application, detailed technique.

The first section elaborates on site planning as an art serving many people, the analysis of a site according to its purpose, the location of activities, systems of circulation—their various advantages, limitations and implications—visual form, light, air, noise and the problems of controlling site development. Summarizing this section is an excellent and highly realistic description of the whole process of site design.

The second section elaborates on the design of residential areas, special places, the street, utility layout and planting. It is complemented by comprehensive technical information including slopes, drainage, road alignment, space requirements, climate, soil, planting and methods of cost estimation.

Professor Lynch has explicitly avoided giving rigid standards of design as the basis of site planning. These, he explains, paralyze creative thought, become clouds of dogmatism, and obscure the ultimate objective of site planning—making our little worlds better places for people to live in.

Instead he has presented the idea of a site as an arena of full human life. Site planning must begin with an understanding of this arena in all its aspects. It continues with the practical application of good engineering common sense to assure that the arena will indeed function. For rigid standards Professor Lynch has substituted general rules of thumb—complete enough to avoid oversight and sound enough to insure good results.

"Site Planning" is the result of a compilation made for students. Like many good books originally intended for a specific audience, it has broad appeal. Practicing architects might do well to point out sections of the book to their local planning boards, city commissioners and clients. The League of Women Voters will do well to discover it quite soon, too.

This fine book of good sense and practical ideas is a definite addition to the slowly advancing art of designing our environment. It leaves the reader with a good amount of practical knowledge and a deep sense of the poetry which we can create in our man-made environment—a sense of poetry so inherent in its author.

SPACE FOR LIVING

by Sylvia Crowe. Amsterdam, Djambatan NV, 1961. 140 pp illus 9½"x12" \$10.50 (Available through Vanbekhoven Books, PO Box 2199, Grand Central Station, NY 17)

Reviewed by Henry S. Churchill FAIA, AIP
for the *AIA Journal*

In 1960 the International Federation of Landscape Architects held its seventh biennial conference in Amsterdam. It had for its theme "Landscape Architecture and the Allied Arts and Professions." From the papers given at this conference Sylvia Crowe has put together the handsome book, "Space for Living."

Although this is necessarily a symposium it manages to avoid the principal faults of such miscellanies—repetition and irrelevance. Perhaps this is because of the strength of the introductory paper by the President of Honour, G. A. Jellicoe, in which he discusses the interrelationships implied by the theme. He envisages a Table for Eight: the Philosopher, who provides the broadest kind of over-all approach, and his sub-category, the Town and Country Planner whose technical approach must also be one which is broad and not specific. There is the Horticulturist, whose knowledge is based on the biological sciences, and his opposite, the Engineer, whose knowledge is based on static science; the Architect, the closest associate of the Landscape Architect, and the Landscape Architect, each claiming jurisdiction over environment; and the Sculptor and the Painter who are, so to speak, accessories after the fact.

The over-all picture presented is interesting. What most impressed me was the value nearly all the contributors placed on the poetical aspects of landscape, whether the landscape of the open country and distant view or the landscape of the more formal, architectural kind. Growth and change within a controlled pattern of natural resources and ecology provide the technical heart of this poetry. It is to these basic, but much neglected, facts that the modern landscape architect addresses himself; it is in response to criteria so derived that the others present at the Table become sensitive collaborators.

Only the engineer misses the point. The brief offering by Dr Walter Steinle of the Technical University of Stuttgart is concerned with such obvious specifics as that the outside of a curve, not the inside, should be planted. There is lip service to the lovely, because of the company he keeps, but it is obviously not really basic to his thinking. The engineer seems to be hopeless, to require beating down, no compromise being possible since he is apparently incapable of cooperation. In the 1860's Viollet-le-Duc had a terrible time keeping *Ponts et Chaussées* from driving a main highway through the nave of the admirable Romanesque church at La Charité-sur-Loire.

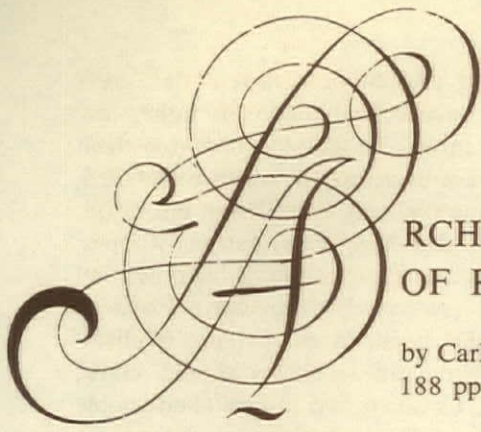
Peter Shephard, who is an architect, a landscape architect, and a city-planner writes under the heading "The Landscape Architect and the Architect," but he seems more of a gardener than any of these professional titles would seem to indicate. It is Lawrence Halprin who writes interestingly and perceptively about the place of the landscape architect in the field of planning. So does Gerda Gollwitzer, who writes about "Plants, Climate, and the Landscape." She somehow has much to say about the architect and the relation of landscape to formal structure, and the evolu-

tion and differences of the English and French approaches. She is one of the few who comments on the townscape and, instead of crying Outrage, notes that the use of lights, of window-displays, moving signs and other commercial features have changed our reaction to color, both as to its quality and its intensity. This change is very similar to that which has taken place in what used to be called the "tactility" of architecture—for example we no longer react unfavorably to masonry "resting" on a sheet of plate glass. The landscape architect, aware of this color change, deals differently with his floral palette.

Three of the articles are about the landscape design of "new land"—the recently redeemed polders of Holland. This has been true regional design, comprising the design of communications; the location, size and layout of villages, towns and farms; the amounts of woodlots and industrial sites—the creation of a new world against, and in relation to, a strong historic past. Prof. A. Glickson whose part in a somewhat similar regional reclamation of land from the Israeli desert is so well-known, gives an informing and comprehensive study of the problems. These include, of course, all of the eight facets of the Table, but Glickson pulls these together into simpler, and perhaps more basic groupings such as cultural and ecological, both resting on a still broader base of "biosocial" factors—the microbiology of soil, the water cycle, the psychological need for some deeper relation between man and land than the mere parceling out of "uses" connected by highways.

There is a good deal of wisdom in this book. The architect, who is so fond of sounding off about his cultivated omniscience, can find quite a lot to think about. There are other ways of looking at Man's Total Environment than through the glasses of the Director of Geometrical Layout. This book reveals—or at least it did to me—once again that urban growth (suburban, if you prefer) must be subject to broader and more sensible controls than any we have now if we are not to go on ruining thousands upon thousands of acres of land. "Subdivision" controls are generally senseless—they are the misapplication of second-hand principles of geometry which have become acceptable to second-rate municipal authorities. Nor is it a question, only, of economics and population. These approaches have an essential value for a specific problem at a particular time. The problems of the proper development of wide areas of land lie much deeper, and this book gives at least an insight into them.

The book is well printed, and the illustrations are pertinent to the text. With the exception of the piece by Kuro Kaneko, the translations are excellent, but the proofreading is sloppy.



ARCHITECTURE AND ARCHITECTS OF ROCHESTER, NY

by Carl and Ann Schmidt. Rochester, Rochester Society of Architects, 1959.
188 pp 46 illus 5¼" x 8¼"

Patiently and with love and care, Carl F. Schmidt of Scottsville, New York, has for years been recording the old architecture of up-state New York, an area rich in fine buildings and traditions. Architect, scholar and local historian, he has devoted all his spare time and all his spare dollars to measuring, drawing, digging in archives, photographing, writing and publishing. During the past twenty years he has produced, to this reviewer's knowledge, no less than eight books, and scores of articles, lectures and public appearances.



In its May 1958 issue, the *AIA Journal* published his article "The Cobblestone Houses of Central New York State," based on his book "Cobblestone Architecture"; and again in March 1960 we published his "The Octagon Fad," also based upon his book of that name. Other books have been entitled "Greek Revival Architecture in the Rochester Area," "The Cobblestone Entrance," "The Post-Colonial Entrance in Rochester, New York," and others of a similar nature. Not unsung nor unknown—for Mr Schmidt is very well known throughout his state, yet his work should be brought to wider attention, for the houses he has recorded were the prototypes for thousands of others throughout the Western Reserve and on into the Northwest Territory, as the culture of the

East was carried deeper into the hinterland by settlers from the already-becoming-crowded New York State area.

The volume at hand was published in conjunction with the celebration of New York State's "Year of History" (1959) and the Rochester Society's fortieth anniversary. It contains a detailed sixty-page history of the early buildings of Rochester, with photographs of a few of the early architects and of many of the early buildings and a few recent ones. There is also a list of architects and draftsmen, with biographies, who have lived and worked in the region.

All architects interested in the Greek Revival and in regional history and styles, will find Carl Schmidt's books a rich storehouse. Those which may be still in print may be ordered directly from the author in Scottsville, New York. J.W.

SCULPTURE ON BUILDINGS

by Urs Boeck. New York, Universe Books, Inc, 1961. 208 pp 8⅝"x11⅜" \$12.00

The author seeks to restore sculpture to its original setting—as a part of architecture. Ever since Lord Elgin brought the Parthenon sculptures to London, he says, museums have taught us to look at sculpture as isolated pieces rather than as integral parts of a building. Here are well over two hundred excellent reproductions of fine photography, starting with the Lion Gate at Mycenae and continuing down through the ages to the chimney pots of Gaudi and Henry Moore's brutal frieze on the Time-Life Building in London. Much attention is paid to the incredibly beautiful and almost hidden building sculpture of the Gothic era. For that section alone, the book is a find—and a must for those who seek out sculpture.

I, MICHELANGELO, SCULPTOR

—An Autobiography Through Letters

Edited by Irving Stone and Jean Stone. Garden City, Doubleday & Co, Inc, 1962. 283 pp illus 6"x9¼" \$4.95

No doubt intended to appeal to the widespread readers of "The Agony and the Ecstasy," reviewed in these columns a year ago, the letters of Michelangelo will reach a wider audience, for there are many to whom the appeal of this tragic-pathetic-dynamic figure, one of the great men of all-time, is irresistible. And yet, he was not a letter-writer. Some great men have left behind thousands of letters into which they poured many thoughts never expressed by more formal means. But not Michelangelo. Most of these let-



The Infant Jesus

ters are concerned with the minutiae of his crowded life—details about ordering marble and materials, quibbling over costs, his relations with his patrons and his family, his constant straining against his lack of funds and overwork. Yet despite their lack of noble sentiments, they are tremendously revealing. They reveal, even more

poignantly than Mr Stone's novel, the great artist's almost slavish devotion to his father and his ungrateful family—he literally supported them all, set them up in businesses in which they failed, scolded them and patiently bailed them out again; his really skillful handling of his patrons—popes, cardinals, dukes and the wealthy of his time; and his love for his new friends—Francesco Granacci, a painter and his boyhood companion, Giuliano da Sangallo, whom all architects should know, Tommaso de' Cavalieri, handsome and noble Roman esthete, and Vittoria Colonna, the mature love of his life.

These are the letters which Mr Stone commissioned Dr Charles Speroni, founder of the Italian Department of the University of California, Los Angeles, to translate for him—a remarkable feat of scholarship, to translate sixteenth-century Italian vernacular (for Michelangelo was not, in the conventional sense, an educated man) into twentieth-century English-American vernacular. The editors have furthermore taken certain liberties with the letters: First of all, they have attempted to arrange them in chronological order, which was difficult since many were not dated; they have deleted "repetitive" material; and eliminated a few which contributed little to the "story." Scholars will not like this. But Mr Stone is a novelist, a story-teller, and as he made Michelangelo live again and the stones of Florence and the paving blocks of Rome ring again in "The Agony and the Ecstasy," so his version of the letters of this great man invoke for us again his spirit and that of his times.

J. W.

THE GREEK STONES SPEAK

by Paul MacKendrick. New York, St Martin's Press, 1962. 470 pp illus 5½"x8¼" \$7.50

Subtitled "The Story of Archaeology in Greek Lands," this is a companion book to "The Mute Stones Speak," by the same author, reviewed in the *Journal* in December 1960. The story extends in time from Troy before King Priam to Athens after the Roman Emperor Hadrian; and in space from Asia Minor to Sicily. It tells not only the saga of the ancient Greeks, but the story of archeology as well, from Schliemann to Carbon 14 tests. Meant for the interested general reader, of course, the story is well told, aided by 175 plans and photographs, which on the whole, seem to be reproduced somewhat better than in the previous book.

Principles of Economic Feasibility for Architectural Projects

by William G. Lyles AIA

Through systematic application of a few simple principles of economic analysis, architects can determine the degree of financial soundness of construction projects—as an important and necessary phase of comprehensive architectural practice—before beginning the design phases

*Architect's responsibilities
for economics of projects*

What responsibility does an architect have to his client or prospective client to advise him concerning his need for architectural and related services? Should an architect knowingly accept a commission for an unsound project or venture?

Certainly architects, both for themselves and their clients, should know at least enough about the financial aspects of projects to recognize one that is obviously unsound financially and to recommend against services that do not appear warranted or to advise their clients when additional professional studies appear to be needed.

Clients want tangible profits

Most "seasoned" practitioners will agree that usually little is to be gained—and very often much to be lost—by encouraging or pursuing a project that is likely to prove economically unsound for a client. The most beautiful design usually loses its luster when the owner discovers that he can borrow only half as much as he expected, when he experiences a loss, or when he fails to make a reasonable return on his investment. If architecture is to expand as a profession, it will most likely be through the performance of services that result in tangible profits of one sort or another to clients—profits greater than could be realized without the use of architectural services—and by avoiding all situations where the architect's services are likely to prove a liability. This premise would seem to be fundamental to the whole question of comprehensive architectural services.

Obviously these principles are more directly applicable to commercial and industrial work than other kinds. But in most cases, in all types of work, it is usually worthwhile to give at least some degree of objective consideration to the cost of projects and their justification prior to proceeding too far with design.

There are perhaps few, if any, architects who accept a commission without giving some thought to the question of whether the project is sensible or feasible, or who fail to make diagnoses of one sort or another. However, all too often such diagnoses are superficial, framed to fit what the client wants to hear or thinks he wants to hear and are made without objective analysis.

The economic soundness or *feasibility* of a project or venture can only be determined by some form of *financial analysis*. As commonly used, these terms imply studies in great detail involving taxes, depreciation and many other areas in which the average architect generally is not well versed. However, some architects are presently equipped to offer very competent services in these fields, usually for a separate or additional fee. If competently performed, such studies certainly should be considered as extra services because a thorough job usually involves professional knowledge in the fields of economics, accounting and law. The present article is not concerned with *financial analysis* and *feasibility* from the viewpoint of an economist or accountant. Instead, it is concerned with a simplified form of preliminary appraisal of economic feasibility which most architects should be able to master with a little study and help from readily available sources. Such a preliminary appraisal should be expected only to reveal glaring economic deficiencies or to place the architect in a position to recommend a more detailed professional study with some degree of intelligence.

Except in the simplest cases, and these are rare, quite a bit of work is necessary to make even a preliminary economic analysis. This fact should be explained to the client, together with the fact that he should be prepared to pay for this work along with other preliminary services, even though the project might be subsequently abandoned. The amounts of special charges, if any, for the preliminary analysis should be governed by the depth of the analysis and whether or not it is being made as a special service for the owner.

The economic feasibility of a project is usually determined by three things: project cost, financing and return on investment. The last named, of course, involves the other two.

There is an inclination sometimes to consider the project cost and the construction cost as synonymous, particularly since architects often refer to the building itself as the project. This is actually far from the case when the financial aspects of a project are being considered. In addition to the construction cost of a building, the project cost includes a number of other factors. These are usually land, equipment, professional fees (architects, engineers, consultants, attorneys, etc), taxes and insurance during construction, interest during construction (i e, interest on capital advanced or invested during construction) and any other items that will be required to place the building in use. An allowance for unforeseen contingencies must always be included.

Need for financial feasibility

Financial analysis by architects

Feasibility determined by project cost, financing and return on investment

Project cost not the same as construction costs

With the exception of construction cost, these items can usually be determined, or reasonably approximated, by discussion with either the owner or a reputable real estate agent or with both. The items named are ones with which almost everyone is familiar but which are often overlooked in the early stages of a project.

Estimating construction costs

A reasonable estimate of construction cost is usually the largest and most important item. The architect is the only person who can judge how and when a reasonable determination of probable construction cost can be made. And unless the architect is extremely familiar with the problem at hand, it will usually be necessary to formulate a program and the basic schematic plans, at least, before attempting even a first preliminary estimate. Perhaps more problems for owners and the architectural profession are caused by immature, ill-considered estimates of construction costs than any other aspect of practice.

Need for reliability of cost estimating

Improvement of the reliability of architects' cost estimates would do much to improve the standing of, and respect for, the profession. Experienced owners sometimes hold back a hidden reserve to make up for anticipated deficiencies in architectural estimates because they believe, and with good cause in some cases, that architects habitually underestimate construction costs. Estimates must be realistic. However, there should be no hesitation in recommending and making special charges for quantity surveys and detailed preliminary estimates when they appear to be needed.

At any rate, if even the most preliminary kind of analysis of economic feasibility is to be made, all items that make up the total project must be considered in the degree of detail that would appear to be warranted in the individual case.

Construction financing

The financing of construction projects is a technical field which is always in a continual state of change like all other markets. This is not a field for novices, nor one in which the average architect can reasonably be expected to be expert. However, there are a few simple indicators which architects can use in order to intelligently examine the broader aspects of financing.

Need for equity or long-term leases

In almost every case, the owner must have a substantial equity to invest in a project—usually somewhere in the neighborhood of a third of the cost—and sometimes considerably more. This equity may be in land value, in cash, or in other tangible assets committed to the project. There is only one substitute for equity: strong financial commitments through responsible long-term leases or otherwise so that the lender is fully protected against loss. However, such instances are rare. The owner who is expecting to "mortgage out" (i e, finance his operations completely on borrowed money) should be considered questionable, at best. Mortgaging-out may have been possible at one time, but this is almost never the case today, even in programs underwritten by the government.

Sources of information on financing

On the subject of the financing of projects, a number of sources of information are readily available to the architect. A great deal can be learned through discussion with local lenders: mortgage brokers, building and loan associations, banks and other

investors. And of course, there is much to be learned from owners themselves. The financial aspect of construction projects is a field which an architect may explore to such depths as he may desire, usually to the benefit of his clients and himself. But whether he is financially inclined or not, the average architect should know enough about the broad principles to be able to tell whether or not the proposed financing of a venture makes sense and to find sources of professional help when needed.

Return on investments

The return on the investment is the most difficult facet of an economic analysis. Generally an economist—or at least an accountant—is needed to do a proper job and even then there are often many questions that are difficult, if not impossible, to answer. So many assumptions and long-range projections are involved that sometimes the whole process looks like simply a guess. But the return on investment is obviously the “meat in the coconut.” And even a preliminary analysis based on perceptive observations and reasonable assumptions is far better than what would actually be a blind guess.

Analysis of financial return

Basically the process involved in analyzing financial returns is quite simple. The gross income from the project in a given period is calculated; all expenses during that period are subtracted, and what is left, if anything, is profit. Of course, income taxes, depreciation and a great number of other things come into play in the determination of the true final profits. In this case, the relationship between the profit and invested capital, or equity, is usually considered as the “return.” The return from the project and its security compared with returns from other possible investments of comparable security will generally determine whether or not the project will be an attractive investment.

Analysis of leased or rental projects

The assumptions required for an analysis of a leased or rental project usually involve, among other things, knowledge of such variables as the market for the space, rentals that can be anticipated, allowances for vacancies, operational and maintenance expenses, and taxes and insurance. These factors are averaged or projected over a long period of time, generally the life of the mortgage. Projects constructed for the use of the owner himself usually involve other considerations but are generally comparable with rental projects because the most important question in such cases is usually whether it would be more advantageous to own or to rent.

Taxes and other considerations

Analysis of income taxes and other considerations that have a bearing on the relative attraction of an investment to an owner require an intimate knowledge of the owner's financial position and his other operations and expectations. Obviously, on most projects, the architect cannot be expected to have all of the necessary background and knowledge required for detailed analyses of all of these factors. However, through discussion with the owner, real estate brokers or managers of comparable buildings and a sensible accountant, the architect should be able to make a reasonably reliable decision on whether the project is a lemon or not; whether some specialist is needed to evaluate the project further; and, if so, where such an expert may be found.

An economic feasibility study

Once an architect follows this procedure on a few projects, the principles will begin to make sense, and facts will be learned that will simplify the process when it is used in the future.

In the case that follows, the owners wished to consider the feasibility of improving and expanding an existing printing plant as compared to replacing the plant with a new office building. As it turned out, four economic feasibility studies were made: one of a projected new office building and three different versions of remodeling and expansion of the existing facilities. In each case, diagrammatic plans were made for the sole purpose of approximation of areas in order to arrive at estimated costs and rentals. The expectation was that if the project should materialize after the feasibility studies were completed, the diagrammatic plans would be used only to set the general limits of areas and costs for the actual design of the project.

The actual figures for each of the four schemes, along with the applicable diagrammatic plans, are reproduced in the pages following. After a review of the alternatives and upon the recommendation of the architects, the owners went ahead with one of the remodeling jobs studied rather than the new office building. The relatively large equity required and relatively low return indicated in the office building analysis, combined with some questions on the market for office space, were the basis for the decision. Thus, the architects ended up with a rather small remodeling job (Scheme D on p 75) rather than a commission for a new building (Scheme A below). But in this particular case, the analyses pointed toward this particular decision.

1 Building Areas

a Gross incl. mechanical, service (sq ft)	105,000
b Net rentable (sq ft)	
Commercial—first floor	6,000
Commercial—basement	3,000
Offices—loft	22,000
Offices—suites	52,000
<hr/>	
Total net rentable area (sq ft)	83,000

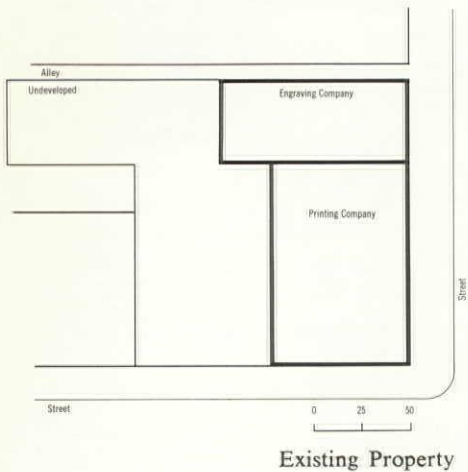
2 Estimated Project Cost

Land	\$ 150,000
Construction (105,000 sq ft @ \$15.25)	1,600,000
Movable part. (eight floors @ 600 lin ft)	150,000
Architectural and engineering fees	110,000
Interest during construction	45,000
Taxes and insurance during construction	4,000
Legal	1,000
Miscellaneous and contingencies	25,000
<hr/>	
Total estimated project cost	\$2,085,000

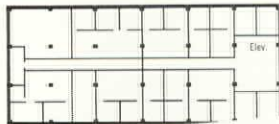
SCHEME A—OFFICE BUILDING

As in diagrams, next page, ground floor and half of basement—commercial, three loft floors with approx 7,300 sq ft net rentable each; eight office floors, subdivided with 6,500 sq ft net rentable each; first class building, though not elaborate; maximum flexibility of use; rental per sq ft \$3.25 for loft space and \$3.75 for suites with full services but parking extra; land value of \$150,000 for building proper, exclusive of parking

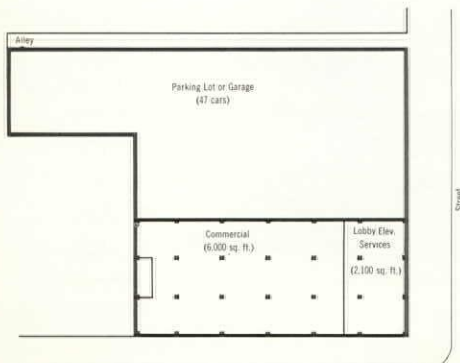
SCHEME A—OFFICE BUILDING (Cont'd)



Typical Lot & Floor Plan
(7,300 sq ft net; 8,800 sq ft gross)



Typical Suite Floor Plan
(6,500 sq ft net; 8,800 sq ft gross)



3 Possible Financing

Project cost	\$2,085,000
Mortgage at 60%	1,250,000
Equity required	<u>\$ 835,000</u>
Land	150,000
Cash required	<u>\$ 685,000</u>
5¾%—20-yr mortgage of above amount assumed.	
Annual amortization, interest	\$105,300

4 Estimated Annual Gross Income

Commercial—6,000 sq ft @ \$2.25	\$ 13,500
3,000 sq ft @ \$1.00	3,000
Loft space—22,000 sq ft @ \$3.25	71,500
Suites—52,000 sq ft @ \$3.75	195,000
	<u>\$283,000</u>
Less 5% vacancy	14,000
Est annual gross income	\$269,000

5 Estimated Annual Operating Cost

Operating expenses (including all services—\$1.00 per sq ft rentable)	\$ 83,000
Property tax	21,500
Insurance	5,000
Replacement reserve and miscellaneous	6,000

Total annual operating cost \$115,500

6 Amortization, Depreciation, Income Taxes, Profit

Annual gross income	\$269,000
Less annual operating costs	115,500

Annual net income \$153,500

7 Possible Return

a If mortgaged: Annual net income	\$153,500
Annual amortization, interest	105,300

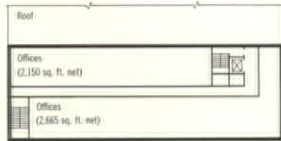
For annual income taxes and return—first 20 yrs \$ 48,200

After debt service, this amount equals 5.77% of equity of \$835,000 during first 20 years; \$153,500 annual net income equals 18.38% on \$835,000 equity after 20 years.

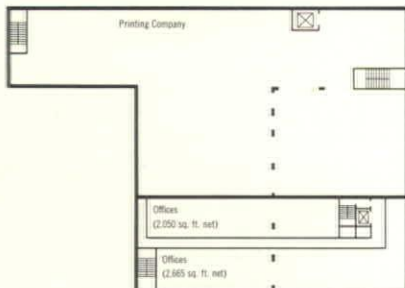
If owner financed, annual net income of \$153,500 equals 7.36% return on \$2,085,000 project cost or would amortize cost with return of 6% for 28 yrs 3 mos.

SCHEME B—REMODELING, EXPANSION

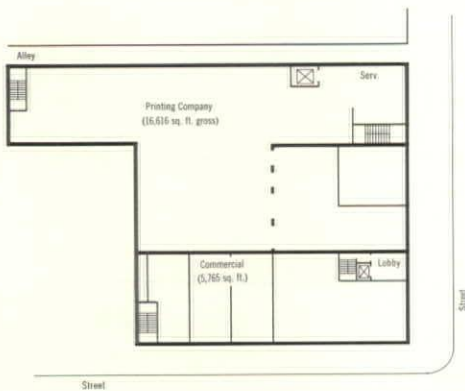
As shown in diagrams, development of three floors commercial space on corner; removal of engraving building; remaining space on lot for printing plant



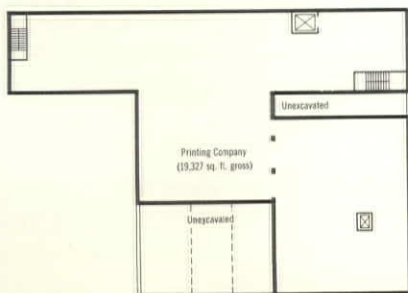
Third Floor Plan



Second Floor Plan



First Floor Plan



Basement Plan

1 Allocation of Space (sq ft)

Printing (gross areas)		
Basement		19,327
First floor (including offices, etc)		16,616
Second floor		16,616
<hr/>		
Total (sq ft)		52,559
Commercial	<i>Net</i>	<i>Gross</i>
Basement	—	—
First floor	5,765	7,125
Second floor	4,715	7,125
Third floor	4,715	7,125
<hr/>		
Totals	15,195	21,375

2 Estimated Construction Cost

Space occupied by printing co	\$313,000
Space occupied by commercial	300,000
<hr/>	
Total	\$613,000

3 Economic Analysis of Commercial Space

a Development cost:

Construction	\$300,000
Movable partitions	20,000
Architectural and engineering fees	19,000
Interest during construction	9,000
Legal and incidentals	5,000
<hr/>	
	\$353,000

Value of land	50,000
<hr/>	
Total project cost	\$403,000

b Estimated annual gross income

Ground floor—corner 2,750 sq ft @ \$3.50, services	\$ 9,620
Ground floor—3 shops 3,015 sq ft, without services	6,600
Second floor—2,665 sq ft @ \$3.25, services	8,660
Second floor—2,050 sq ft @ \$3.00, services	6,150
Third floor—same as second	14,810
<hr/>	
	\$45,840

Less 5% vacancies	2,290
<hr/>	
Approx annual gross income	\$43,500

c Estimated annual operating cost

Operating expense—12,445 sq ft @ \$1.00	\$12,500
Property tax	3,500
Insurance	1,000
Replacement reserve	1,000
<hr/>	
Total annual operating costs	\$18,000

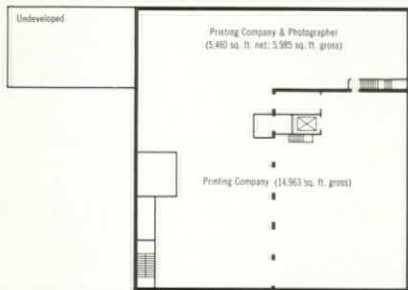
d Amortization, depreciation, income taxes, profit

Annual gross income	\$43,500
Less operating costs	18,000
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Annual net income	\$25,500

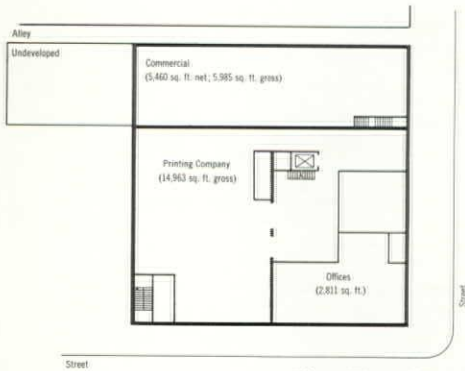
e Possible return on investment
 \$25,500 for \$403,000 project cost = 6.33%

SCHEME C—REMODELING, EXPANSION

As shown in diagrams, development of existing printing building; rebuilding of engraving building with first floor for commercial, second for printing and photographer



Second Floor Plan



First Floor Plan

1 Allocation of Space (sq ft)

Printing co (gross areas)		
Basement		14,017
First floor (including offices, etc)		14,963
Second floor (including photographer)		20,948
<hr/>		
Total (sq ft)		49,928
Commercial	Net (sq ft)	Gross (sq ft)
First floor	5,460	5,985

2 Estimated Construction Cost

Space occupied by printing co	\$275,000
Space occupied by commercial	90,000
<hr/>	
Total	\$365,000

3 Economic Analysis of Commercial Space

a Development cost	
Construction	\$ 85,000
Movable partitions	5,000
Architectural and engineering fees	5,700
Interest during construction	2,300
Legal and incidentals	1,000
<hr/>	
	\$ 99,000

Land value (divided with printing co) 21,000

Total project cost \$120,000

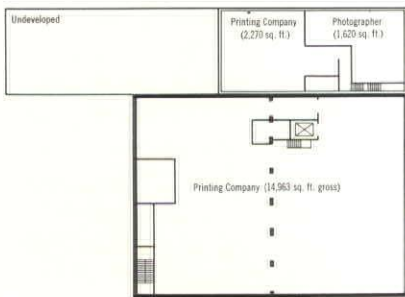
b Estimated annual gross income	
5,460 sq ft @ \$3.00 (with services)	\$16,380
Less 5% vacancies	820
<hr/>	
Est annual gross income	\$15,560

c Estimated annual operating cost	
Operating expenses 5,460 sq ft @ \$1.00	\$5,500
Property tax	1,000
Insurance	300
Replacement reserve	200
<hr/>	
Total	\$7,000

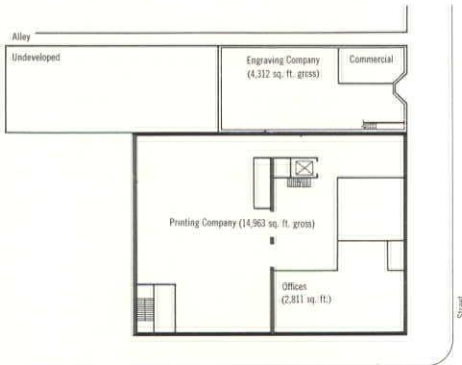
d Available for amortization, depreciation, income taxes and profit	
Annual gross income	\$15,560
Less operating expenses	7,000
<hr/>	
Annual net income	\$ 8,560

e Possible return on investment
\$8,560 for \$120,000 project cost = 7.19%

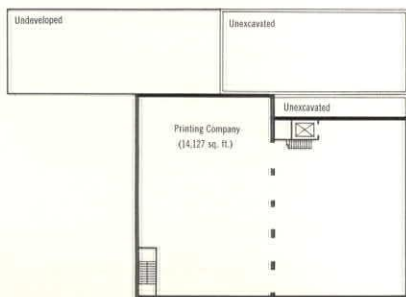
SCHEME D—REMODELING, EXPANSION
As shown in diagrams, development of existing printing building and adjacent lot; engraving building unimproved



Second Floor Plan



First Floor Plan



Basement Plan

1 Allocation of Space (sq ft)

Printing co (gross areas)	
Basement	14,017
First floor (including offices, etc)	14,963
Second floor (printing co building)	14,963
Second floor (engraving building)	2,270
	<hr/>
	46,213
Photographer-engraving building	1,620
	<hr/>
Total (sq ft)	47,833
Commercial	
Engraving and florist	3,890

2 Estimated Construction Cost

Space occupied by printing co	\$225,000
Commercial (existing)	—
	<hr/>
Total	\$225,000
Gross rental from existing commercial space	\$4,460

Some architects or others may say that the simplified approach to the analysis of economic feasibility of construction projects described here has inherent dangers. Certainly this would be true if the procedures discussed were not used with discretion and judgment. However, the procedures described have proved to be extremely helpful in the practice carried on in the author's own office.

Of course, it would be even better if all offices were equipped to perform even more detailed economic analyses. It is to be hoped that as time goes on a number of architectural offices will prepare themselves to perform such studies in greater depth than has been discussed, with the aid of specialists on their staffs or with outside consultants. However, it would seem doubtful that this will ever be the case with the average practitioner. Perhaps it would be enough for most practitioners if they were well enough informed to understand and use the kinds of broad economic principles described here, if only for reaching reasonable preliminary conclusions on the feasibility of projects. This degree of understanding would do much to expand the usefulness of the architectural profession.

The important thing in the economic areas of practice, as well as in all of the other phases of comprehensive services, is that architects recognize their limitations and avoid getting into fields in which they are not fully qualified. Economists, accountants and the other professionals with whom architects must work in the accomplishment of comprehensive services deserve to have recognition of the full status of their own professions, just as do architects. The architectural profession must seek increasingly fruitful methods of working with these other professionals if its services are to be expanded toward comprehensive architectural practice.

There Were Some Changes Made

by James S. Sadler AIA
Executive Director, NCARB

► The new NCARB Circular of Information No 3-62 was printed in two parts in the September and October issues of the *AIA Journal*.

The new Circular describes in a comprehensive manner the NCARB procedures and requirements. To accomplish this, it is of necessity not a brief document. Very few people have less time to read and digest an official printed document than a busy architect—and even fewer people are offered more reading matter to occupy those brief periods of time that are rarely available. Unless you were unusually familiar with NCARB procedures and requirements that were in effect prior to the adoption of this new Circular, you may have wondered “What changes are involved?”

If all of the changes involved were reviewed, an equally formidable article would result, but it might help to review briefly some of the changes.

In the classification of the applications for an NCARB certificate on the basis of written examinations, the requirement of at least three years of diversified practical training in the offices of registered architects who are practicing as principals, to be acquired after termination of the required academic training, was not changed basically, but the wording was changed to clarify the fact that this training is to be acquired under architects who are practicing as principals. Training that can be substituted for this requirement is detailed in the new circular, and some of the changes in regard to the types of experience that can be substituted are discussed in the following paragraphs.

One significant change is the acceptance, under prescribed conditions, of employment experience acquired prior to the termination of academic training as a substitute for some of the post-graduation experience requirements. The applicants that are affected by this change are those who worked for architects during their vacation periods while they were attending college, the students in co-op curricula that acquired office experience as a part of a combined academic and practical training program, and those applicants who had to interrupt their education but returned later to complete their academic training. Allowable credits for this type of experience vary with the amount of academic training that had been

completed at the time the employment training was acquired and with the length of separate periods of employment.

Table F-2 of Circular of Information No 3-62 presents the percentage credits allowed in a manner that can be more easily understood than by a written description of the credits available for this type of experience. However, it is important to note that this type of experience cannot be substituted to satisfy all of the training experience requirements. The applicant's record must also show that at least one year of the training requirements was acquired after the termination of his academic training.

Also important is the fact that only employment periods in the offices of registered architects who are practicing as principals can be used for this type of credit and that to be credited in this classification each period of employment must have been for a duration of at least three months. The employment periods must occur after graduation from high school, and if the employments were on the basis of less than forty hours per week they must be converted to an equivalent forty-hour work-week with no additional credit allowed for more than forty hours per week. For this type of experience one hundred per cent credit is extended only for periods of continuous employment that were twelve months or longer in duration.

Among the more readily apparent changes that are included in the new document are provisions to extend some experience credit for teaching in architectural schools. However, this does not mean that teaching experience can be used to make up the entire experience requirements. A high percentage of the men who are now teaching in architectural schools or have previously taught architectural courses also have a substantial amount of experience acquired by working in the offices of architects who were practicing as principals or in their own architectural practices. It is not a matter of a complete substitution of teaching experience for experience acquired in architectural offices. Substituting teaching experience for office experience is now allowed to a maximum extent of one year of credit and it is calculated at a fifty per cent credit allowance.

As an example, an applicant with an accredited degree in architecture and two years of diversified experience in the offices of registered architects practicing as principals could use two years of

teaching third-, fourth- or fifth-year architectural courses in an architectural school accredited by the National Architectural Accrediting Board to complete the basic three-year experience requirements through a credit allowance of one year for his teaching. The quality of his teaching experience and the value of this experience toward preparing him for the practice of architecture would be confirmed with the employing architectural school as carefully as his other experience was confirmed.

Other types of teaching can not be credited directly, and if an applicant needs credit for teaching in schools that were not accredited by the NAAB or if he has taught architectural courses that were not at the third-, fourth- or fifth-year college level, the NCARB Board of Review would need to approve the amount of credit that could be extended.

During the past few years the Council has encountered a surprisingly large number of applications for an NCARB certificate where the applicant could meet the educational and all other requirements, except that he acquired state registration as an architect in less than three years after he received his degree and went into practice as a principal before completing three years of experience under the guidance of any employing architect who was practicing as a principal. Therefore, these applicants needed some credit for their practice as a principal to offset the lack of the full three-year training experience requirements. Before the adoption of Circular of Information No 3-62, these cases had to be referred to the NCARB Board of Review for a determination of the credit that would be allowed for practice as a principal under these circumstances.

Keep in mind that we are not referring now to an application in the senior classification where at least ten years of full-time practice is one of the basic requirements. For applications in the senior classification, favorably confirmed practice as a principal is and has been directly creditable when the provisions that define the practice of architecture as a principal are met. We are referring to the younger men who could not establish the basic requirement of three years of acceptable training between the date of their graduation from architectural school and the date that they entered practice as a principal. NCARB Board of Review decisions on this type of application established

a fairly regular pattern that fifty per cent credit would be allowed for practice as a principal when credit for favorably confirmed experience in practice was needed to complete the basic requirements for training experience.

Also for this type of application, it was important to know if the practice as a principal had been as a member of a firm where other principals were more experienced architects and were available to provide a continuation of the guidance and counsel that would normally be available to a young man in an employment status. The new Circular includes provisions to extend credit for practice as a principal as a substitution for some of required training experience. Periods of practice as a principal can be now credited at a fifty per cent credit allowance with a maximum allowable credit of three years when it is used as a part of the basic training experience requirements.

One other condition can prevail in which the Council is in an unusually favorable position to evaluate the probable training value to a younger applicant of his practice as a principal. This occurs when his period of practice as a principal has occurred during a time when one or more of the other members of the firm were holders of an NCARB certificate. Under these conditions the Council has on file complete information on the education, training and continuing practice of the members of the firm that have NCARB certificates and the credit allowance to the applicant for his practice as a principal can be increased. However, the total allowable credit under these circumstances is still limited to a maximum of three years.

To be credited directly in the classification of the written examinations, practice as a principal must have been occurred during a continuous period of not less than six months and such experience cannot be used as a complete substitution for the basic training requirements. The applicant's record must also show that at least one year of practical training was acquired in the employment of registered architects practicing as principals. This is in addition to any credit allowed for practice as a principal toward meeting the training experience requirements.

These are three of the changes that are included in the new Circular of Information No 3-62. They allow a greater percentage of the applications to be processed by the Council offices without referral to the Board of Review. ◀



Crowded World

► My experience in building research has led me to seek a philosophical base for what we propose to do about the problems of physical environment.

From my smattering of ignorance of the broadest concepts of history, I note that the really profound turning points have not been caused by conquest or discovery or the acts of single powerful individuals. This may not be strictly true in a *scientific* sense when we consider the impact of an Einstein. But in a socio-economic sense, I believe it is true.

Possibly the first great era of change of mankind was a span of about five centuries when several great teachers influenced society permanently (at least until today) with their philosophies which became the foundations for the world's great religions. These individuals, regarded as holy by their followers, appeared in the world at the time when mankind was becoming too numerous to remain nomadic and people had to learn to live with each other in day-by-day proximity. These lessons must be relearned by each generation because the non-nomadic situation continues.

A second (or *the* second) major turning point was the industrial revolution, a very recent occurrence in historical time. The discovery of how to multiply man's productivity with machinery upset the applegart for a while and put many people out of work through a series of dislocations. Ultimately the benefits of increased productivity created many more jobs. Some people say that we are now entering a second phase of the industrial revolution when automation will run us through the same ringer again. This highly probable development might objectively be regarded as a second act of the same play by those who do not suffer dislocation.

During the period of the first industrial revolution there was a relief valve in many parts of the world due to the fact that land remained for settlement or colonization. In our own country the man with "gumption" who would escape an unhappy environment loaded his family into a covered wagon and headed west, unwittingly providing the material for many twentieth century movie and TV scripts. Other countries sent their colonists

to other lands, though not always to places that had any room for other than a ruling class.

This brings us just about up to date.

An old friend of mine, self-made and rugged individualist to the core, used to blow his stack over the early proposals for slum clearance in the days of the New Deal. I was never sure whether this was only his way of criticizing Roosevelt or his reaction to one of the problems of his fellowmen. But he *did* maintain that any man worth his salt could extricate his family from a slum if he wanted to and, of course, could name a dozen famous people who did.

Nevertheless, it seems to me that the fellow standing on the subway platform or at the bus stop on his way to work today wouldn't know what in the world to do if a depression took away his job. In this crowded world, whose ponderous economy functions on such a broad scale, it would do him no good to load his belongings into his car and head in any direction. Slum dweller or suburbanite would face the same problem.

Are we in the midst of a third major turning point in civilization? I think so. Its challenge will be to solve complex problems of economics and environment for a world full of people. On the one hand men must create an economy which translates productivity into a reasonably stable state of well-being for people willing to work. On the other, men must design a physical environment, chiefly urban, which gives every child a good chance to grow into useful citizenship and inspires him with the beauty which our civilization is capable of producing.

Among the men who must pass this miracle are architects—architects with knowledge and understanding of some things until recently beyond the scope of their profession. They must join with the creative leaders of other disciplines in charting the future of education, the future of building research and the nature of national legislation intended to cope with the problems of urban environment. Recommended reading: "A Program for Building Research in the United States," Building Research Advisory Board, 2101 Constitution Ave, NW, Washington 25, DC. \$1.25. W.H.S.

The Surgical Center

A Proposal for the Reorganization of the Surgical Service

by **Robert Hyde Jacobs, Jr AIA**

Last in a series of three basic studies of the design of the operating suite. Mr Jacobs is Director of the Office of Hospital Research, which is sponsored by New York Chapter AIA Committee on Hospitals and Health and created by research grant awarded by the US Public Health Service * in June 1960

► The architect generally expresses his understanding of the hospital as a composition consisting of a large and dominant block of nursing units supported by subsidiary forms representing the treatment facilities and the service elements. This expression is based upon our concept of the hospital as a domicile, a place of temporary residence for the ill. Here the ill are collected, assigned to a fixed location, and to them are brought the medical services and the nursing care that offer the promise of health.

There is much truth in this domiciliary conception. It does reflect the traditional pattern of patient care. But it is not the whole truth. Increasingly, medicine has developed treatments so specialized, so highly developed, that they themselves must be centralized and the patient within the hospital brought to them rather than the treatment being brought to the patient.

Physical therapy and X-ray services, for example, find it expedient to bring the patient to their specialized departments. Out-patient services circulate their patients through a variety of treatment centers often shared by in-patients and the more recent development of progressive patient care moves the patient through a series of specialized nursing units.

The operating room is the earliest and still the most important of the

hospital's treatment centers. In the form of the surgical suite, it is the nucleus of the hospital's surgical service.

The modern hospital owes much to the concepts of industrial engineering; hospital research today, whether in facilities or in administration, looks upon the hospital not as a collection of spaces but as a complex of systems: work systems, service systems, communication systems, supply systems, even patient systems. Out of this kind of thinking have emerged, for example, the modern food production and distribution systems, and a host of others. In the hands of the architect each of these "production processes" once developed is given spatial form and is fitted into the conceptual whole.

It is only natural that the emphasis has been upon those systems that most closely resemble industrial processes. These are the sub-systems that support patient care, not the patient care system itself. But in the hospital it is the patient who is the prime unit of production, and wherever the patient moves through a treatment process this is in fact a patient service system and may be analyzed and designed as such.

If we view the surgical service in this light we see that it is a patient service system consisting of five phases:

diagnostic
preoperative
surgical
recovery
convalescence

Each of these phases is, of course, supported by a great variety of sub-systems, with each sub-system providing some essential service to the patient system. In current practice, only the work of surgery and recovery is centralized, while the work of diagnosis, preoperative preparation and convalescence is decentralized with the nursing units. It is clear that this arrangement ignores the functional relationships of the system's processing phases.

We are proposing, therefore, the innovation of a *surgical center*, created by concentrating, in one closely integrated unit, the preoperative preparation phase, the surgical phase and the recovery-intensive care phase, to provide more properly for the intimate relationships that exist among these phases and their supporting sub-systems.

While the outstanding innovation proposed is undoubtedly the introduction of a special unit for preoperative preparation, it should be emphasized that we are not proposing merely the addition of this new unit to the old surgical suite, but the redesign of the operating and recovery facilities as well, to create in the surgical center a completely integrated entity.

We expect that improved patient-handling methods resulting from the proposed reorganization of the surgical service will benefit the patient in better patient care and permit more effective employment of the hospital and surgical staffs.

Technical

Reorganization should achieve the following specific results:

ease admitting problems

speed the urgent case to operating room (OR)

*permit improved OR scheduling
increase bed capacity without a
corresponding increase in surgical
beds*

*reduce fluctuations in surgical
nursing demands*

*improve efficiency of surgeons,
anesthesiologists, nurses, techni-
cians and OR attendants*

provide for outpatients

eliminate use of stretchers

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reduce time required for pre-operative procedures

improve quality of surgical preparation

eliminate re-preps

insure prompt delivery of patient to OR

eliminate patient waiting in OR avoid elevator delays and extended transport routes

improve patient's emotional environment

reduce preoperative contamination of patient

help control the entrance of contamination into the OR suite

While each of these considerations is important, and the concept might have been approached from the point of view of almost any one of them, the genesis of our idea was an interest in providing a greater measure of environmental control over the bacteriological contamination of the surgical suite. Since this is also a useful vantage point from which to view the surgical service as a patient-handling system, the first concern of the following discussion is the role of the patient delivery system in surgical contamination; this is followed by discussion of other factors.

Infection Control

The environmental approach to control of wound infection is concerned with two rather distinct aspects: one is to prevent entrance of microorganisms into the surgical suite and the operating room within the surgical suite, and the second is to destroy and to discourage growth of those microorganisms that inevitably will find their way into the surgical suite.

As microorganisms are not self-propelling, their entrance into the suite must be associated with some means of transport. Three transport mediums are available: the atmosphere, objects and people. Through elimination of windows use of double doors, pressurization and effective filtration, air as a means of microbiologic entry can be controlled. Much less has been accomplished in control of people and things.

Introduction of people and things into the suite can be described in terms of four working systems:

information
personnel delivery

materials-equipment delivery
patient delivery

- the information system is concerned primarily with proper design of administrative areas of the suite to permit adequate control of face-to-face contacts between persons within the suite and with persons outside the suite

- the personnel delivery system is concerned with proper design of locker room areas to permit use of effective personnel decontamination procedures and is the subject of a separate report (see Surgical Suite Locker Room Design and Procedure—*AIA Journal*, September 1962, pp 83-85)

- the delivery of materials, supplies and equipment may be accomplished in a variety of ways and is the subject of a continuing study. In every case, however, delivery is accomplished by means of a reception and distribution center (interchange area) in which some decontamination process may be accomplished

- the problem of the patient delivery system is more complex:

THE PATIENT DELIVERY SYSTEM

Even the most casual observation of current patient delivery systems indicated that these systems serve to introduce with each patient a load of microbacterial contamination to the surgical suite. Some of this contamination is obviously pathogenic, and the possibility of its finding its way by one of many possible routes into the wound of the patient or of a subsequent patient is too great to be ignored. As a workable solution can only be found in the context of the total system of the surgical service, the following discussion will necessarily explore many aspects of patient-handling and surgical administration.

Patient Origin

Occasionally patients may be delivered to surgery directly from the emergency suite for procedures that cannot be performed in emergency. Such patients are generally considered "dirty ones." As the volume of such patients is generally very small, special handling (isolation techniques and terminal disinfection) is feasible, and they probably contribute little to incidence of wound infection. More typically, emergency patients requiring surgery are admitted to the hospital. That is, they are delivered

to a nursing unit where they are handled in much the same way as other surgical patients.

Most hospitals handle a considerable number of ambulatory patients in surgery for cystoscopy and other minor procedures. These patients may come from an outpatient department (OPD) that does not have facilities adequate for their treatment, and their presence in OR is a source of embarrassment to the surgical department. Some hospitals require these patients to use stretchers or wheelchairs to limit their movement, but the obvious solution for these patients is the introduction of a decontamination process similar to that proposed for surgical personnel.

Patients for major surgery are of course typically admitted to surgery from the nursing units. In the very small hospital only two nursing units may be available: obstetrical and medical-surgical. Thus, only four points of origin are involved: the medical-surgical unit, the OB unit, emergency and OPD.

But in the larger hospital these points of origin will be greatly increased as every nursing unit will be responsible for supplying at least some patients to surgery. Thus, while the largest number of inpatients may come from surgical floors, some patients will come from medical floors as their surgical diagnosis may not have been determined prior to admission.

In addition to the obstetrical unit (Caesareans), the large hospital will frequently have a pediatric unit and an orthopedic unit, and some hospitals have convalescent units, chronic disease units, TB or other isolation units, a psychiatric unit and a nursery from which an occasional newborn must be received. A typical two-hundred-bed hospital might have, for instance, an emergency department, an OPD, two medical units, three surgical units, two maternity units with separate nurseries and a pediatric unit. Even though no other special units are provided, this gives a total of twelve points of origin for the surgical patient.

Decentralization of Preoperative Preparation

This diversity of points of origin is a critical factor in the patient-delivery system. At each of these points of origin some sort of preoperative preparation must be per-

formed, ranging from the simplest procedure to the most elaborate workups and preparations. At each of these points of origin the medical, technical and nursing staff must be trained to perform these procedures to the satisfaction of the surgical department, and at each of these points of origin these procedures must be coordinated in such a way as to be completed in time for delivery of patient to surgery. Were it not for the fact that preparation of outpatients is generally highly simplified and that the bulk of inpatients come from surgical nursing floors, such an arrangement would prove impossible.

If any one of the many prescribed steps in patient workup or preparation is omitted or poorly performed, only two alternatives are possible. Either the surgery is performed anyway, to the possible detriment of the patient, or the surgery is rescheduled. As neither alternative is in any way acceptable, the strictest control of preoperative procedures is needed. But as these procedures are being performed by a diversity of people, in a diversity of locations, strict control is hardly possible. This situation may be one of the weakest points in our system of surgical services.

Some Complexities of Patient-Delivery

The more demanding and immediate problem is: how the patients should actually be delivered to the suite. The overriding necessity is, of course, that the patient be delivered at the time required. Any system that does not succeed in the timing required is bound to be unacceptable. If the patient does not arrive by the time the OR team has assembled and is ready to work, considerable disruption may ensue. Not only is the surgeon required to wait but the schedule of all other members of the team is affected. A long delay or a series of delays in a busy surgical suite could well cause a number of complications requiring last minute reassignments of room and staff and even rescheduling.

To make sure that this never happens the OR supervisor is inclined to require that the patient be delivered well in advance of the time needed. From an administrative point of view this is a satisfactory solution, but it is severely criticized as a medical-nursing prac-

tice. Generally the patient waits on a stretcher in the surgical corridor. Change in posture is not feasible and as the waiting becomes more and more prolonged, some physical discomfort may ensue.

Furthermore, the psychological condition of the patient may suffer. The patient's natural apprehension may begin to rise and a condition of tension replace the relaxation that may have been induced by premedication. In time the effect of the premedication may wear off and further medication may be needed. The patient is in the peculiar position of being surrounded by the most expert medical and nursing talent and yet, in a sense, abandoned. This is a busy place; people are moving back and forth, snatches of conversation are overheard, unnerving sights may be seen, but no one assumes personal responsibility for the patient.

Waiting rooms for stretcher patients have been advocated and stretcher storage alcoves in which patients can be kept are often provided, but these do not offer any real solution to prolonged patient-waiting.

The conscientious surgical supervisor tries to handle delivery of patients in such a way that patient-waiting is reduced to the very minimum that will not endanger delays. This may be accomplished in a number of ways. The following example taken from observations in a New York hospital, while not necessarily typical, illustrates how the larger hospital may handle this problem.

In this hospital, patients are fetched and delivered by the operating room attendants (orderlies). Each attendant receives in the morning a list of patients who will be his responsibility. These patients generally are assigned to the same operating room. Thus the attendant has primary responsibility for a particular operating room.

Shortly before the beginning of the first operation on the schedule, attendant takes a call slip, covers an OR stretcher with a fresh sheet, takes a cotton blanket and a body strap, and proceeds to the floor on which his patient is located. The attendant wheels the empty stretcher to the nursing floor, delivers call slip to charge nurse, proceeds with stretcher to patient's room, helps patient transfer to stretcher, wraps patient in blanket and fastens body strap. He then returns to nursing station, checks patient's chart and takes patient together with chart

down the elevator, through the corridors into the operating suite and directly into the operating room, and if all has gone well, arrives precisely at the moment when the operating room is ready to take care of the patient.

Attendant then assists patient in transferring from stretcher to surgical table, assists staff in positioning patient on the table and generally makes himself useful to the OR staff during set-up period and even, on occasion, throughout entire course of the operation.

If the attendant's services are not needed during the course of the operation he may, instead, go about other responsibilities. Nevertheless, at a point in the course of the operation, generally during the closing of the wound, the attendant leaves the operating room, takes a stretcher, clean sheet, blanket, etc and proceeds to fetch the second patient in the same manner as he fetched the first patient. Timing of this second patient delivery need not be based upon the schedule but may slightly precede or follow the prearranged schedule, depending upon the exact length of time taken by the first operation. It is the attendant's responsibility to observe these variations of schedule so that unnecessary delays are avoided.

On delivery of his second patient to the corridor of the surgical suite, the attendant steps into the postoperative recovery unit, picks up a recovery bed, pushes it into the surgical suite and parks it outside the door of the operating room. By this time, if he has gauged his timing correctly, the operating room team is completing the dressing of the wound. Attendant moves the recovery bed into the operating room and assists in transfer of patient to postoperative recovery bed, moves patient directly from operating room to recovery unit and returns to assist operating room staff in cleaning up operating room and setting up the room for the next procedure.

As soon as this is completed, attendant moves the next patient, who has been meanwhile waiting in the corridor, into the operating room, and the next operation begins. This system does require a waiting period for all but the first patients on the day's schedule. One might assume that the attendant could postpone fetching the second patient until after the first patient has been delivered to postoperative recovery. This is not practical because the attendant dare not

risk delaying the second operation by limiting the time in which he can fetch the patient to the period between operations. Furthermore, this would absent him from the surgical suite at the very time when his services are very much needed.

This whole procedure is usually efficient and succeeds—in the great majority of cases—in delivering the patient in time to prevent any delays (and usually does not result in overlong patient-waiting). Furthermore, these procedures require a minimum of administrative control. Once the schedule is set, the attendants assume their responsibilities for the entire day's schedule and do their work with skill and judgment.

If such delivery systems succeed administratively, they do not succeed bacteriologically. To our knowledge, no measure has been made as yet of the volume of bacteriological material that is introduced by such a system, but certainly contamination must result. Each trip the attendant makes out of the suite, through the public corridors and elevators to the nursing unit and back, makes its contribution to the contamination he is carrying on his skin, his hair, his clothes, his shoes and his stretcher and its bedding.

Perhaps of greater importance is the contamination load his patient may be carrying. Even though he may have been washed, shaved and dressed in a fresh gown, he has had ample opportunity, while lying in bed in the nursing unit, to pick up contamination. This bundle of contamination (attendant-stretcher-patient), unlike any other person or thing, moves without interruption into the surgical suite, through the surgical corridor and directly into the operating room itself, ignoring all zoning barriers and avoiding all protective procedures.

Many variations are possible, but the only basic alternative is to have patients brought as far as the surgical suite by nursing-floor personnel, rather than fetched by attendants who come from within the OR suite itself and return into it. In this variation, contamination of the OR attendant is eliminated, and a patient reception area in which patient is transferred to a clean OR stretcher and in which some kind of patient decontamination can be performed becomes feasible.

Such an arrangement could be practical in the very small hospital

where only one or two principal points of patient origin are involved. This is the delivery system developed by Dr Ralph Adams, in use at Wolfboro Hospital in New Hampshire (fifty-five beds), and a similar delivery system is under consideration by the Architectural and Engineering Branch of the Division of Hospital and Medical Facilities, USPHS, for a four operating-room suite prototype. The latter proposal envisions a patient transfer area under the visual supervision of an OR secretary, divided by a low barrier into clean and soiled areas. It would be important to know at which point this kind of delivery system becomes administratively impractical. This might best be measured in terms of numbers of points of patient origin, but other factors such as tolerance of patient-waiting and administrative skill are, of course, involved.

The larger hospital simply cannot rely upon a large variety of floor nursing staffs to deliver patients precisely when needed. This is not a slur upon the reliability of the nursing staff. Nursing floors are commonly understaffed and the staffs have many, often conflicting, responsibilities. They too have crises, emergencies, diversions from routine. Even if these staffs were alerted to the necessity of delivering patients at the scheduled time, the system would break down because the inevitable variations in the OR schedule could not be anticipated without an unreasonable complexity of communications.

The alternative of dividing the OR attendants into an "in" group and an "out" group seems hardly more feasible. A considerable increase in number of attendants would be required and the out attendants would find that a large proportion of their time would be spent in nonproductive tasks or in idleness. Furthermore, it still would be necessary for the operating-room attendant to gauge the precise moment when the next patient would be needed and then to communicate this fact to the out attendant. In many cases, one could assume the out attendant would not be available and the system would break down unless the most elaborate machinery were set up.

To require attendants to change into fresh scrub suits every time they delivered a patient would create an abominable delay and remove the attendant when his services were often urgently needed.

PREOPERATIVE CENTRALIZATION AND ITS EFFECTS

The solution would seem to lie in eliminating the diversity of points of patient origin. This would be accomplished by establishing a special nursing unit just for pre-op patients adjacent to the surgical suite.

Effect of such centralization on patient-delivery is obvious. As all pre-op patients would be in this unit under control of one nursing team, responsibility for delivery of these patients to operating room on schedule could safely be assumed by the nursing unit. To take care of variations from schedule and insure precise timing in delivery of patients to operating room, the OR attendant or circulating nurse would alert the pre-op nursing unit by means of a direct-line telephone or other two-way intercom system shortly before the next patient was needed. The pre-op unit would deliver patients to the interchange area on demand, where they would be picked up by attendants who would be dressed in scrub suits and never leave the suite.

Effects of pre-op centralization on other services, personnel and facilities are equally important, offering the possibility of solving numerous other problems and dilemmas.

Nursing Care

Centralization of patient work-up and preparation functions in a single unit would make possible the proper and coordinated conduct of this work under the single nursing responsibility of a specially trained staff. By these means, the dilemma of the surgical patient whose preoperative treatment has not been satisfactory may be eliminated.

Medical Care

The specialization of the medical profession is reflected in specialization of nursing units. Thus the attending physicians, residents and interns generally know in what part of the hospital they will find their patients. Pediatricians go to the children's ward, orthopedists to the orthopedic unit, obstetricians to the maternity unit, etc. In some larger hospitals these specialty breakdowns are carried even further into special disease units or portions of nursing units into which patients of a given medical specialty are concentrated. Such segregation may result in poorer bed

utilization but has advantage of giving the opportunity for developing more specialized nursing care and considerably improving efficiency of medical staff.

Although as specialized as any branch of medicine, the surgeons do not always benefit from these specialized units to the same degree; they may find their pre-op patients scattered in any of the nursing units. This makes conduct of surgical rounds exceedingly inefficient. Complaints by surgical staffs are confirmed by studies conducted by the USPHS Project W-59 (AIA-AHA, Collaborative Research in Hospital Planning) which indicate that travel time in the hospital by medical and surgical staff personnel may constitute the largest single element of inefficiency in the hospital's communications system.

Concentration of all pre-op patients in a unit adjacent to surgery should do much to improve the efficiency of the surgeons as this would succeed in concentrating the bulk of their work in two centers: a surgical center, including pre-op, OR and post-op intensive care, and the surgical nursing units.

Anesthesiology

The field of anesthesiology is in a state of rapid development with the result that the way in which this service is organized within the hospital varies radically from one hospital to another. While some hospitals still do not use anesthesiologists, relying entirely upon the surgeon and his assistant, the nurse anesthetist, there is an increasing trend to require the use of an anesthesiologist to perform the more difficult work and as a consultant or as a supervisor of all anesthesia. Other hospitals have given up nurse-anesthetists entirely and have all their work (except some of the locals) performed by anesthesiologists or by residents in anesthesiology.

In either case, the anesthesiologist plays an important role in pre-op workup of patient. His problems, however, differ from that of the surgeon. While he usually does not have office hours outside of the hospital, he generally carries a much heavier operating-room schedule. It is difficult for him to schedule his work in the operating room and still find time to interview and work up his next day's patients. Generally, he would prefer to administer anesthesia in the morning, take care of his patients

in recovery as needed and then work up the next day's patients in the afternoon. If he is scheduled to be in OR in the afternoon, this sequence is delayed, and his work may have to extend into the evening.

These problems are intensified by difficulties of making rounds. Unlike the surgeon who may find his patients grouped by specialty, the anesthesiologist must generally take his patients in strict rotation, as they are scheduled in OR. Thus he often finds his patients widely scattered throughout the hospital. The pre-op unit would eliminate the making of rounds for the anesthesiologist, as all his work would be concentrated in the surgical center. Benefits of increased efficiency could be well used by the anesthesiologist, who is generally in short supply and therefore overworked, but might in some cases be of direct benefit to the hospital by permitting treatment of many more patients without increase in anesthesiologist personnel.

Laboratory Testing

Concentration of routine blood tests and urinalysis in the preoperative unit offers possibilities for improvement of the efficiency of these procedures.

Bacteriological Environment

It would be a peculiar surgeon who prescribed for his patient a ten-hour treatment in a pathogenic atmosphere prior to his performing the surgery. It is a condition of current surgical services that this "treatment" is inadvertently prescribed for almost every patient.

It has repeatedly been shown that the focus of contamination in the hospital is the nursing floors and, more specifically, the convalescent patient and staff who customarily nurse these patients. It seems foolhardy in the extreme to introduce the pre-op patient into this environment. The great majority of pre-op patients enter the hospital without resistant staphylococcus. The day they spend on the nursing floors preoperatively gives the opportunity for resistant staphylococcal microorganisms to contaminate their skin, their bedding, their operating-room gown and their nasopharynx. As patients would enter the pre-op unit directly from admitting office, this source of contamination could largely be avoided. The patient who is known to be infected would, of course, be

placed in an isolation room and receive isolation nursing care.

Some patients, of course, would always enter the pre-op unit from the nursing units, but at present certain groups of patients, whose hospital bills are paid through insurance or by the municipality, enter the hospital for diagnostic workup even though they are ambulatory and could as well have this work done in an outpatient department or outside the hospital entirely. It is unfortunate that such patients are required to leave their homes and jobs and occupy beds sorely needed by nonambulatory patients.

The possibility exists of using the facilities of the pre-op unit as a diagnostic center for ambulatory patients and even expanding the surgical center to include a nursing unit for patients requiring long-term diagnosis and workup. While changes in administrative policies that would affect this situation are possible, they are somewhat beyond the scope of this report. In the meantime, the possibility exists of arranging the pre-op unit so that patients entering the unit from nursing units could be segregated from other patients to reduce possibility of cross-infection.

The resulting situation would create a condition where pre-op procedures could be devised that would constitute a decontamination process not possible under present circumstances.

Blocking contamination of the surgical suite and reducing infestation of the pre-op patient by use of a pre-op nursing unit might well prove to have a greater effect in reduction of post-op infections than any other precautionary methods now being advanced.

Emotional Environment

One of the principal complaints heard from post-op patients is the unpleasant memory they carry with them of their pre-op experiences. In spite of the fact that some attempt is made to separate pre-op from post-op patients, the situation commonly exists where a pre-op patient becomes the roommate of a patient who has just undergone surgery. If that patient is disturbed, in pain, etc, this may well undo the reassurances that have been given the patient as to what lies ahead for him, and he is likely to assume that the post-op patient who lies beside him is a preview of his own future condition.

What clinical effect this may have on the patient we do not presume to judge, but that this is a frequent, disturbing and memorable experience is common knowledge. The pre-op unit would go a long way toward eliminating this kind of experience. While this unit would contain a wide variety of patients, ranging from those basically healthy to the very ill, none of these patients would serve as a preview in the mind of the patient of his future condition.

Perhaps not enough is known concerning emotional problems associated with anticipation of surgery, but reports have been received that would indicate that groups of pre-op patients tend to relieve rather than intensify each other's fears; loneliness and inactivity set the stage for apprehension. The fact that most patients would be ambulatory and that some nonambulatory patients could be given wheelchairs suggests the possibility that the unit could be designed with an emphasis on lounge and activity areas rather than on bedrooms alone, and that in such a setting efforts could be made both in design and management to create a happy and relaxed atmosphere.

SURGICAL SERVICE CAPACITY

Consideration of a pre-op nursing unit cannot proceed without an evaluation of its effect upon overall capacity of the surgical service. It is, of course, the aim of hospital administration to operate its surgical facilities to maximum capacity consistent with good patient care. To maintain a perfect balance among all the complex factors is a virtual impossibility.

Every hospital surgical service has its bottleneck. It may be lack of surgical beds, or lack of operating rooms, or lack of post-op recovery beds, or lab facilities, or almost any physical facility needed by patient or staff. On the other hand, the bottleneck may be caused by a shortage in any of the many staff categories. Usually there is one factor that consistently limits capacity of the service, but in some hospitals the limiting factor may shift from one thing to another. One day it may be an OR nursing-staff shortage, the next day a lack of beds; another day there may not be enough anesthesiologists to go around, etc. When this situation occurs, administration becomes extremely complex, but it is a sign that the service is functioning at relatively high ef-

iciency. Although ample facilities may be desirable, any facility or staff category that never is in short supply is obviously wasteful.

It is perhaps ironic that the hospital that operates with overgenerous physical facilities is not likely to operate as efficiently as the hospital that has balanced but inadequate facilities. The hospital with more operating rooms than it needs invariably tends to build up a staff sufficient to service every operating room it has at 9:00 am, even though by 1:00 pm its operating rooms are all empty and the staff is employed at useful but less productive tasks. This arrangement may make for better working conditions and even better patient care but is bound to raise surgical costs.

If the hospital has a surfeit of beds the tendency is to segregate patients into ever-increasing subdivisions. Added to the usual divisions are subdivisions of clinical specialties and nursing care such as a diabetic section, a convalescent section, etc. Result may make for superior teaching and patient-care but, if rigidly adhered to, considerably increases hospitalization costs through added nursing, house-keeping and maintenance expenses.

Not only must each of these subdivisions be staffed, regardless of the census of the subdivision, but the entire hospital tends to suffer from the vagaries of day-to-day demands. Such a hospital will tend to utilize its overgenerous facilities to meet peak demands. Thus it suffers from a wildly fluctuating census which destroys any chance for economic operation. To some degree every hospital must choose between operational inefficiencies of overgenerous physical facilities and inadequate service resulting from overlimited physical facilities. But finding the appropriate compromise between these two extremes is not the only answer. Through superior hospital management and planning it should be possible to provide superior patient service at high staff efficiency.

Pre-op Nursing Management

Offhand, one would suppose that the addition of a pre-op unit would result in the usual poorer utilization. We do not believe that this would necessarily be the case. If the pre-op unit received all surgical patients except outpatients on the day before surgery, the unit would have a night census equivalent to the maximum daily OR inpatient

capacity. After 8:00 am, the census would begin to drop as patients leave for surgery, but their places would soon be taken by outpatients and new patients coming in for preparation for their next day's surgery. Thus a fairly uniform census could be maintained throughout the day. Just as the small hospital cannot economically manage a post-op recovery unit, a small hospital might have difficulty in staffing a small pre-op unit, but the larger hospitals with a daily surgical capacity of twenty to thirty patients would probably find a single team of nurses could be kept very busy by such a unit.

Bed Capacity

Furthermore, as a majority of patients would enter the unit from admitting office and from nursing units to which they would not return, a radical transformation of the surgical service will have taken place. We think today of the hospital as a combination of nursing units and diagnostic and treatment facilities. Patients reside in the nursing units from which they make occasional excursions into one or more of the treatment facilities and return. Bed capacity of the hospital is not affected by capacity of treatment facilities or by how much patient time is spent in them (Fig. 1).

The pre-op unit makes it possible to change this into a more direct pattern. The pre-op unit, unlike our present post-op units, becomes—together with OR and post-op—a part of hospital bed capacity (Fig. 2).

For the typical patient who would be admitted directly to the unit, no bed elsewhere would be required until his departure from the recovery unit. This advantage would not be gained for those patients who were assigned to a surgical floor for diagnostic workup, as their beds would undoubtedly be reserved for their return to the unit; but full advantage could be gained for patients from medical or other special units to which they would not return after surgery.

Cyclic Nursing Demand

A hidden factor in the nursing management of surgical floors might bear investigation. This is the difference between unit census and actual number of patients who are on the floor and require nursing attention. Good admitting practices can succeed in maintaining a high and fairly uniform census, but little control is possible over a number

of patients on the floor. Excessive fluctuation of patient-load may be largely responsible for those terrible days of which nurses complain when all the lights on the nurses' call seem to be on at once and those occasional quiet days when nothing much seems to happen. This condition may be accentuated in hospitals having a long-term-stay post-op recovery unit, providing intensive care. The pre-op unit would, of course, eliminate these fluctuations in nursing demand and permit better nurse utilization.

Admitting Procedures

A pre-op unit should have the effect of easing admitting procedures. If size of pre-operative unit has been calculated on basis of maximum OR capacity, there always will be a place for the patient who has been scheduled for surgery. In hospitals running with high bed-occupancy rates, the patient scheduled for surgery may find on the day of arrival that no bed is available. Knowing the repercussions due to failure to admit a surgical patient, the admitting office will of course make every effort to get the patient in. This may result in assigning priorities, assigning patient to an unsuitable unit, or delaying admission and upsetting pre-op procedures.

While it would eliminate these problems, the pre-op unit does not solve all admitting problems. Obviously, the hospital must not admit more patients than it can take care of, but the pre-op unit gives a cushion of time of about a day after admission before the patient's bed is actually needed. In hospitals having a twenty-four-hour post-op recovery unit, this period can be extended another eighteen hours or so, if necessary. This is because the night census in a post-op recovery unit (POR) is very light in comparison with its day census, since most patients only use the unit for anesthesia recovery. Thus there is ample room to keep the patient overnight in POR if no bed is immediately available.

The Urgent Case

Well-run hospitals, of course, know when to dispense with routines and give the really critical patient the immediate attention he needs. This is something the public does not seem to understand. The person who has assumed responsibility of getting a patient whom he believes is in a critical condition to



Figure 1

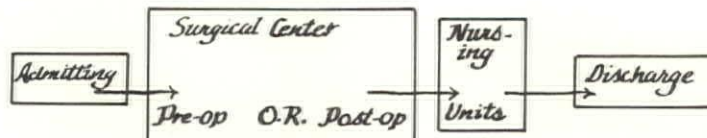


Figure 2

the hospital is in a state of high tension. He tends to exaggerate the severity of the patient's condition and the importance of time. He believes that "every second counts" while, in fact, no particular urgency may exist. Confronted with the "business as usual" attitude of the hospital, he is frustrated beyond all reason. This can indeed be a traumatic experience.

While many life-saving procedures can be performed in the emergency room, there are cases that require difficult surgery, which can better be performed in the surgical suite. If the case is really urgent the patient can go directly from Emergency to OR, but the hospital, of course, would always prefer to admit the patient first. This is not a rapid process at best nor can the patient be easily separated from his visitor at this point. Delivery of such patients directly to a pre-op unit would not only avoid disrupting routines on nursing floors but would actually speed up processing of patient, as well as give the visitor the sense that his patient was being taken care of promptly and efficiently.

WHAT WOULD THE PREOPERATIVE UNIT BE LIKE?

As no experience with the proposed method of handling patients is now available, specifics concerning the unit cannot be clearly defined. We could assume as a start that the unit would essentially duplicate a standard nursing unit in that most of the same needs would have to be met. Thus it would have need for a nurses' station, a medi-

cation center, clean and soiled utility rooms, various types of bedrooms, etc. However, the opportunity would exist for specialization of this unit in the interest of better patient care and nursing efficiency.

Location

A location adjacent to the surgical suite is, of course, essential to reduce to the minimum the time required to deliver patient into surgical suite and to prevent contamination through use of public halls and elevators. Connection between the two should be through an interchange area. Direct access to unit from surgical suite would be a convenience to surgeons and anesthesiologists. No direct access back into OR should be provided, however, as we must assume the pre-op unit to be a contaminated area (Fig. 3).

Capacity

We have assumed that the preop unit will serve as the gateway to OR for all patients. If other means of access are provided for certain categories of patients, responsibility again becomes divided and administrative complexity increases. We have further assumed that to prevent bottlenecks, capacity should equal maximum surgical-suite capacity. This does not mean, however, that the unit must have enough bedrooms to match maximum daily OR capacity. On the contrary, as maximum daily surgical suite capacity can be reached only on days when a large number of very short procedures are per-

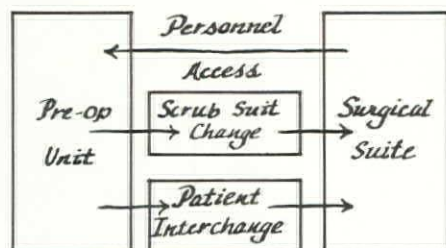


Figure 3

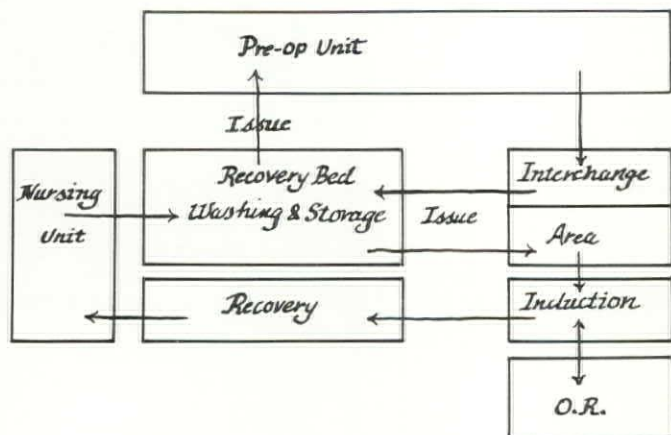


Figure 4

formed, we can assume that many patients on those days will be outpatients requiring no bed at all, or inpatients whose workup and preparation is highly simplified.

Unless these patients are scheduled for surgery the first thing in the morning, they may not require an overnight stay in the unit at all. Thus, the night census in the unit could actually be expected to be rather small preceding days of maximum surgical capacity. In addition, the needed capacity will be affected by the new pre-op system's influence on OR scheduling.

For example: hospitals for some time have been under criticism for under-use of their OR staffs and facilities during afternoon hours. This practice is generally explained as an accommodation to surgeons who prefer to operate in the morning. Other factors, however, may be involved. If, for instance, anesthesiologists are not available in afternoons because they are interviewing their next day's patients, afternoon scheduling will be severely limited.

Improvement in efficiency of pre-op procedures could have the effect of increasing the number of patients who are prepared in the morning for surgery in the after-

noon. These patients would be seen by the anesthesiologist in the morning. He would need only to step into adjacent pre-op unit for this purpose and his afternoon would then be free for work in the OR. Consequent improvement in OR scheduling would be an influence in capacity calculations for the pre-op unit.

Patient Accommodation

Thus it can be seen that design of the unit will be based upon needed capacity by types of patient accommodation rather than merely by total capacity. Following pertinent factors will need to be determined:

- number of overnight patients
- number of day patients
- period of stay for both night and day patients

These factors are based on classification of types of workup and prep procedures and the expected OR scheduling system.

Beds will be needed for nonambulatory patients and for patients who will spend the night. While nonambulatory patients could receive their workup and prep in their own beds, it would be most

inefficient to provide ambulatory patient with a bed when his procedures could best be handled by use of a chair for interviews and an examination table for whatever prep is needed.

Recovery Beds

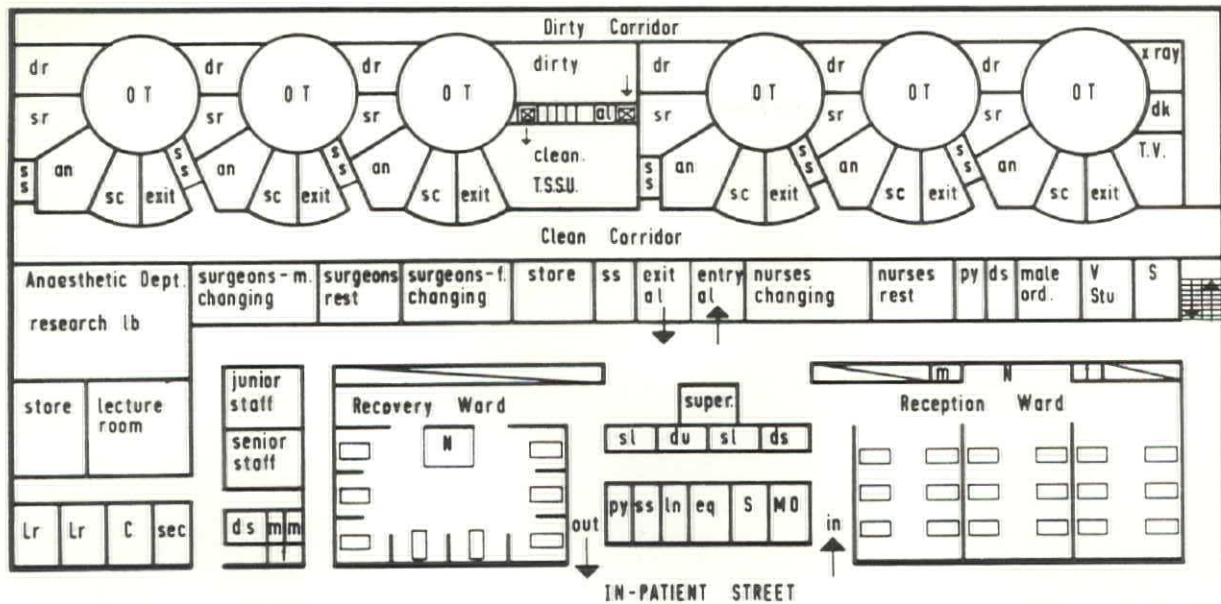
Development of the recovery bed has proved itself in use for post-op care. It succeeds in combining functions of a patient bed, an examination table and a stretcher. Extension of its use to handle all patient transfers is an intriguing possibility in the proposed surgical system.

Upon discharge from post-op recovery, the patient would be wheeled in his recovery bed to a surgical nursing unit and transferred to a regular hospital bed, but the recovery bed, instead of returning to POR, would be delivered to a special washing and storage area. This area would be located adjacent to pre-op unit and patient interchange area. It would issue freshly disinfected recovery beds to the pre-op unit for use of patients in the unit. Recovery bed would serve patient in his workup and prep and overnight stay. Its versatility would be as advantageous here as it is in POR. On delivery to surgery the patient would be wheeled to interchange area and transferred to a fresh recovery bed issued from same washing-storage area. Thus, one bed-servicing center would serve both the pre-op unit and surgical suite.

From interchange area the patient would be wheeled by an OR attendant directly into induction room for transfer to operating table.* On completion of the operation, the table is again moved to induction room, patient is transferred back to bed, and bed is wheeled to entrance of the post-op recovery suite. There recovery bed is picked up by recovery nursing staff, positioned in recovery room or in intensive care, and the cycle is complete (Fig. 4).

It should be noted that this system eliminates use of stretchers, requires no patient transfer after surgery (except, of course, from the

* Hospitals that do not have induction rooms adjacent to their operating rooms would have the option of transferring patient in the operating room or in corridor outside. Though little used today for general anesthesia, induction rooms offer a place outside operating room for final skin scrub and patient interview. Movement of table between operations has the advantage of permitting complete washing of floor between each procedure, but most tables need better wheels if they are to be used in this way



Ninewells Hospital, Dundee—Robert Matthew, Johnson-Marshall and Partner, Architects, Edinburgh. Detail of the Main Theatre Suite of Six Theatres. Each theatre is identical in layout. The theatre and recovery wards form the outer functional unit. The changing rooms, etc. form a physical barrier between hospital and theatre complexes. The dirty corridor lies at the back and does not communicate directly with the theatres. The department of anaesthesia, with its teaching and research accommodation, is sited within the suite. Reproduced with permission from *The Lancet*, July 28, 1962, "Operating Theatre Design," D.M. Douglas.

al	Air-lock	lb	Laboratory	S	Sister
an	Anaesthetic Room	ln	Linen Store	sc	Scrub-up
C	Consultant	Lr	Lecturer's Room	sec	Secretary
dk	Dark Room	m	Male Lavatories	sl	Sluice Room
dr	Disposal Room	MO	Medical Officer	sr	Sterile Room
ds	Domestic Service Room	N	Nursing Station	ss	Sterile Supply Store
du	Dirty Utility	OT	Operating Theatre	super	Supervisor
eq	Equipment Room			TSSU	Theatre Sterile Supply Unit
f	Female Lavatories	py	Pantry	V	Visitors

table) and prevents entrance into the surgical suite of beds or stretchers from recovery.

Visitors

Handling of patient visitors in recovery unit can be exceedingly irksome to staff. Their presence at times can be useful (pediatric surgery), and their insistence can sometimes not be denied. Their hazard as a source of contamination can be exaggerated, however, and if their presence is otherwise desirable, they probably should not be excluded on those grounds.

The fact is that, like any nursing unit, the recovery unit is necessarily a contaminated area. Principal danger is not in increasing this contamination, but that this contamination will enter the surgical suite where it may find its way to the wound. This can only be controlled by limiting access from recovery room to surgical suite by routing personnel back through locker rooms or, where more con-

venient, through special gown-changing rooms.

As access from pre-op unit to surgery is also controlled in this manner, the presence of visitors in this unit would create no particular contamination hazard. They could be permitted if desired.

WORK PREVIOUSLY DONE

We think it significant that in 1957 discussions were held by the administrative and the surgical and nursing divisions of Montefiore Hospital in New York on the subject of a pre-op unit. These discussions resulted in a proposal for a research program leading to the establishment of a pre-op unit at Montefiore. While this program has not as yet been initiated, strong support for it is still felt at Montefiore.

Our recommendations were made without the knowledge that this idea had been previously proposed and were based entirely on our functional studies in the hospitals. It is interesting to note that while

the genesis of our thinking was an interest in solving the problem of contamination, the 1957 proposal derives from an interest in reducing delays and improving prep techniques. The fact that these two proposals were made independently of one another, yet correspond so closely, tends to confirm our feeling that this proposal has real merit and should be further pursued.

A review of the literature prior to 1957 revealed nothing published on such a unit although a report has been received of a presurgical unit in use in the USAF Hospital at Lackland Air Force Base, San Antonio, Texas, organized by Colonel Arthur B. Tarrow, USAF (MC) in 1953. We have, however, received word that a similar proposal is under study for the new Rochester Methodist Hospital in Rochester, Minnesota. Interest is also being shown in Britain where plans incorporating a pre-op unit for the Ninewells Hospital in Dundee, Scotland, are well advanced. ◀

Environmental Control

—Lighting

by **William M. C. Lam**, *MIT (architecture)*,
Coordination of Lighting and Architecture

This paper was presented at the Seventh Annual Summer Workshop of the Council for the Advancement of Small colleges—a seven-year-old organization of approximately sixty small four-year private nonprofit colleges. The Workshop, held on August 1962 on the campus of MIT, had as its theme "Environment for Learning in the Small College." To increase quality and understanding of this environment, educators, architects and specialists from related fields, including Mario Celli AIA, member and Eric Pawley AIA, Staff Executive of AIA Committee on School Buildings and Educational Facilities, met for five days of discussion, lectures and inspection tours of recent college architecture. This is the first of several important presentations at the Workshop which will be published in the AIA Journal

► My definition of "good lighting" is a very simple one—"a visual environment appropriate and comfortable for the purpose." With this criterion, measurable *only* by people using their own eyes and brains, I think all of us can agree that most buildings today are badly lighted—and in my opinion, reduced cost of electricity and improvements in light sources may make our environment more hostile rather than better.

This paradox of backward advance through technical improvement is true in other sectors of our civilization as well. In each case, understanding of principles and deciding on proper objectives are more needed than more "efficient" devices.

All concerned with improving the luminous environment must begin by understanding the nature of light and of human responses to it—physiologically, psychologically and esthetically. Unfortunately for college administrators, architects and electrical engineers, even for illuminating engineers, gaining a balanced understanding of principles has been most difficult under the barrage of inconsistent pseudo-scientific claims. Even good research data has reached general

circulation in a form distorted for effective sales promotion purposes, according to what the traffic will bear, rather than as data to be combined with other facts in professional judgment.

If you agree that good lighting is a good total visual environment, what must you do to achieve it?

College building committees must:

- learn enough about light to program objectives rather than numbers—see following program for self-education

- recognize that lighting design is not "engineering," but as "design" must be the responsibility of the architect

- urge the architect to try for the best; modest funds provided for evaluation of test installations of new design can pay off substantially, in cost as well as better buildings

Architects must design and be responsible for lighting to an extent not now common. They cannot pass along the responsibility of determining lighting objectives, quantitative as well as qualitative, since these objectives are interdependent, and the decisions involve:

- forecasting use of building—activities, space arrangements, etc
- interrelating daylight and electrical illumination
- balance of budget factors
- exact design as a factor of comfort—determining if the environment becomes visual "noise" or "music"

They cannot pass along the responsibility of design:

- non-designers (electrical engineers) cannot be expected to design
- all elements must be manipulated—plan, structure, materials, colors, window placement and treatment, as well as lighting equipment. Sometimes built-in furniture may offer the best solution
- design relationships (gradients, shadows, pattern and alignment) are more exacting than quantitative guidelines

Architects have the right general background for this responsibility, since lighting

- is all visual
- requires judgment similar to other architectural aspects of a building such as determining space, materials, structure, acoustics

Observation of Light— a Checklist

Long before modern instrumentation, Leonardo da Vinci wrote: "Every concave place will appear darker if seen from the outside than from within and this comes about because the eye that is outside in the air has the pupil much diminished, and that which is situated in a dark place has the pupil enlarged . . ."

Observations and analyses of this type, related to corollary lightmeter* measurements, is the first and most important step towards achieving good lighting design. If you make the observations in this checklist and are able to explain the phenomena, then you will be on your way to being able to program lighting realistically and specifically—and by being able to disprove unjustified claims and code restrictions to prevent others from restricting your design freedom.

* lightmeter recommended: new General Electric #213 priced at about \$20.00 and available through GE district offices or through electrical distributors. This meter has a semi-logarithmic scale (rather than linear) and will measure from 1 to 5000 footcandles, therefore is suitable for measuring both indoor and outdoor conditions

Group 1: illumination level vs visibility—does footcandle level necessarily determine visibility?

- note your ability to see objects within the shade of a building from within the shadow, then from a distance outside of it
- observe your ability to see a dark country road with your headlights and compare with seeing under daytime conditions with the sun in your eyes, when driving west at dusk, or with active shadow patterns (from trees or buildings) across the road
- compare the visibility of the most brightly lighted store windows during the day with the most dimly lighted windows of your house at night
- measure (with meter) the illumination level and observe your ability to read in various locations throughout your home—repeat *daytime* and *nighttime*; try candlelight
- to judge minimum conditions necessary for safety in circulation, observe the value of one candle in a light-colored room; compare with dark-walled corridor with sky visible at one end
- look at any object silhouetted against window or bright lighting fixture. Look at same object from other directions
- test your ability to see under changing light levels:
—at walking speed, indoors from sun to shade, in and out of your house
—at driving speed, in and out of tunnels
- note any difficulties in working in rooms with uniform measured footcandle level throughout room, and in those with non-uniform illumination levels; observe your ability to see at various parts of desks lighted principally by daylight (when variations of 300 to 500% are common)
- place reading material on window sill and observe visibility; look at same material with your back to window and at various distances from the window

*Group 2: apparent brightness vs measured brightness**—a fixed relationship?*

- observe rooms under various conditions: sunny day, overcast day with and without supplementary artificial lighting, and at night. Note when room appeared bright or dark, relative apparent brightness of various surfaces, and if supplementary illumination was "required" to insure visibility of formal "tasks" or because room felt dark. Note rooms which seem "dark" during day, but "too bright" at night.
- at night, find rooms with glaring lighting fixtures; observe glare of same fixtures during the day
- in a room containing several lighting fixtures, note apparent brightness of a fixture when it alone is on and when all are on
- compare apparent brightness of various rooms with equal measured illumination levels, but different color combinations; include a white room along with a brick or walnut paneled room
- observe apparent brightness of various outdoor scenes—narrow streets, open fields; sunny and overcast days, etc. Compare with night conditions

Group 3: orientation

Beyond the commonly stated lighting objectives, it is usually desirable to provide a lighting environment in which the occupant is unaware of the light source, or in which the light pattern seems desirable.

Test this "theory of orientation"—"Comfort and pleasure in the informal task of orientation is largely related to the clarity of orientation facts, the consistency of those facts with what you expect for that space and activity, and freedom to view unconsciously the meaningful visual facts without distraction. This condition is achieved when the illumination comes from a luminous environment which gives the desired orientation."

- on an overcast day with snow on the ground, look at a horizonless expanse, then compare with views containing definition of horizon by trees or snow fences
- look at view through window from a distance, then standing at window; look at view through venetian blinds or sun screens

• look out an (upper floor) window so that an overcast sky alone is visible. Compare comfort when your view is lowered so that trees, buildings or other orientation facts are also visible

• compare, during day and night, viewing of signs with dark letters on luminous white background vs those with luminous white letters against dark background or sky

• compare your reaction to street lights arranged in a pattern which clearly defines curves with similar lights when the pattern is confusing

• compare your reactions to a windowless candlelit restaurant at noon and at night

• at an airport or railroad station, compare your reaction to brightness of signs at counter area, with that of busy pattern of fluorescent fixtures overhead

• to predict "distraction," study means of getting attention. Compare the use of dramatic patterns such as black and white (or yellow) stripes or checkerboards to call attention to dangerous road obstructions with the distracting effect of similar patterns created by light fixtures or windows in some buildings

• note comparative attention-drawing power of "dark windows" of a white building during the day vs illuminated windows at night

• note your reaction to the solid "cheeks" of a skylight, compared to seeing a luminous fixture panel of similar brightness; which visual facts seem more "natural" and less distracting?

• note your reaction to the view through a window, compared to a glass block wall or luminous panel of same average brightness

Group 4: specific conditions for visibility

• note carefully when cast shadows help or hinder your understanding of what you see

• note when non-uniform gradients define three-dimensional objects

• note when raking or grazing light is help or hindrance

• continue for various specific conditions. ◀

** brightness = illumination (footcandles) × surface reflectance (%)

Editor's Page

Oh Canada, Oh Zeckendorf

Invitations to the "grand openings" of new buildings come frequently to my desk—as they do to any editorial desk. I have very rarely accepted them. But when I received one from William Zeckendorf not long ago, to attend the opening of "Place Ville Marie," his big project in Montreal, I succumbed and took the one-day jaunt.

There were seventy-five or a hundred newspapermen from all over the country, and assorted architectural editors, headed for the press conference at 11 AM. Somehow, at the airport, I was herded into a big black Cadillac instead of a bus, and I found myself with a group from Pei's office, so I spent the morning with them, going through the building literally from cellar to garret. It's big, it's handsome, it's—or will be—bustling.

It's really not just a building, it's a "complex." The forty-four-story Royal Bank of Canada building, with its 1,584,000 square feet of rental area, stands over four subterranean floors which extend under the entire plaza, so there is almost as much floor area below ground as above. The lowest level is occupied by the CNR tracks and station platforms, much like lower Park Avenue. The upper level is a "shopping promenade" of 160,000 square feet, and in between are two levels of parking and truck access. On the west side of the site is a four-story building, with another soon to be built. A fourth building is to be built "some time," occupying part of what is now the Place.

The seven-acre site used to be a choice residential section during the past century, until the CNR took over. However, as long ago as 1945, a plaza there was proposed by Jacques Greber, the now-venerable city planner who designed Philadelphia's Parkway. Mr Zeckendorf was brought into the picture in 1955 by the president of the CNR, and in 1957 the master plan of the entire area, prepared by I. M. Pei & Associates, was accepted by the railroad and the property leased for 99 years to Webb & Knapp. After landing three or four big tenants, including the Royal Bank of Canada and the Aluminium Co of Canada, the way

was clear to arrange the financing and start building.

Sited toward one corner of the three-block area, the main building sets on a three-story limestone-faced podium about 375 feet square, and rises a sheer 616 feet above the Place, cruciform in shape, sheathed in aluminum—Canadian aluminum. Although the building literally faces in four directions, the front faces the open Place, which is slightly raised above street level. At present the Place is roughly 325 by 350 feet, but the future building will reduce its width to a little over 200 feet. Economics or no economics, it's too bad that building has to be built, for the Place is a fine open space now, and cutting it down will do it serious harm. Furthermore, the grimy classic facade of the Sun Life building across the way forms an effective foil for the shiny metalism of the Dominion's tallest skyscraper. The new building will block the contrast. There will be another loss: Standing among the flags and fountains of the Place, one can now look diagonally across at the Baroque facade of St James' Cathedral, with its giant figures silhouetted against the sky (proudly acclaimed locally as a one-third scale replica of St Peter's in Rome!). That rich contrast too will be lost. The architecture of cities *lives* by contrasts. All aluminum or all limestone or all white marble, they pall.

The Place itself is well designed and extremely effective. One might wish, however, that instead of four small courts, sunk into the shopping promenade level, there had been one big one—perhaps there were practical or economic considerations which prohibited it, but also, perhaps such considerations should not have been allowed to govern such a major design decision. The main building towers shimmeringly above the Place, the fountains play and the flowers bloom—yet one wonders what is missing. Without the four flags and the red jackets of the two bands, it would be cold. Above the podium, at the base of the tower, two stories of aluminum louvres extend all around the building. Here on the front, overlooking the Place and above the entrance to the bank, the dull expanse of louvres cries for treatment—a point of emphasis. Forty years ago it

would have been a cartouche; today it could be the great seal of the Dominion of Canada, or of the Royal Bank of Canada, in full polychrome.

The ground floor sweeps through the building with fine vistas through the banks of elevators clear from one side to the other. With a ceiling nearly sixty feet high, the columns rise with a tremendous thrust. And down back of the elevators there is a slot of space perhaps eight feet wide, well over a hundred feet long and full ceiling height—it has the dynamic power of the aisle of a cathedral. The two banking rooms of the Royal Bank are on the second floor, reached by escalators. There is an attempt to introduce daylight through nine deep-well plastic skylights, which has the effect of lightening the ceiling if not illuminating the room. The placing of the bank's clerical department in mezzanines on three sides of the rooms makes one wonder if the use wasn't thought up after the design produced the space. And, if Messrs Pei and Cobb will forgive me, again one feels the lack of warmth and color. Perhaps the bank should distribute brightly colored sweaters to its pretty girls.

The official ceremonies were at four o'clock in the afternoon in the Place Ville Marie, with everybody who is anybody in Montreal present. Mr Zeckendorf presided, Son Eminence Le Cardinal sat on the platform, the Premier of Quebec said a few words in both French and English, His Worship the Mayor said a few words in both French and English and the presidents of the Royal Bank, the CNR and Webb & Knapp (Canada) Ltd, said a few words. The most thoughtful remarks were made by Henry N. Cobb, Pei's partner-in-charge, and it was good to see the architect receive his due recognition. Finally Bill Zeckendorf declared, in English, that the Place Ville Marie was now open to the public. Following there was a monster cocktail party on the untenanted forty-first floor, with sunset views of the entire city, spreading from the St Lawrence to the Mount Royal.

I left the party at six to catch the airport bus. Checking with TCA first, I learned the plane was an hour late, so I sat and strolled in the Place—a very pleasant place. Later, I sat and strolled for another hour and a half at the airport, finally taking off for home on a different airline. That's how travel is these days.



THE ARCHITECT AND THE CITY

The 1962 AIA-ACSA Seminar Papers presented at the Cranbrook Academy of Art. Part I

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INTRODUCTION

Teachers from forty-eight schools of architecture in the United States and Canada gathered at the seventh annual AIA-ACSA Teacher Seminar at Cranbrook Academy June 11-22 to discuss the accelerating revolution in architecture and education.

After the last paper had been read, after the summation delivered and the final discussion ended, the ten-day program revealed in its concern an emerging realization and a new mentality about the opportunities to be grasped at all scale levels within the city-making processes of today.

That there should be no manifesto, no Athens Charter produced by this group was a recognition of the inadequacies of the Functionalist expression of an idealized society. The participants were wary of any dogmatic formula for urban life or urban form. No one suggested abandonment of our inheritance, the nineteenth century city. No one evoked the ghosts of Broadacres or La Ville Radieuse.

The task seemed clearly identified: restructure the old fabric of the city without destroying its fundamental value; create a framework for new growth capable of guiding and coordinating a thousand individual acts; design connections between old and new scales with transitional continuity; and re-examine the nature of the basic cells, the micro-scale thematic units of our lives. However, if the task was made clear, both the method and the image of the new city were blurred.

That the content, the processes and activity systems of our cities must be rediscovered and expressed in physical form was the strongest recurring theme among many divergent and convergent points of view. The description and dimension of this content proved extremely elusive to the end.

At one point, Oscar Newman (Nova Scotia) impatiently asked how it was possible to even con-

sider form when we haven't as yet come to an understanding of the content of today's society.

This is the dilemma of our profession: that we must of necessity act on the basis of totally inadequate knowledge. But despite the reliance on fragmentary knowledge, Holmes Perkins emphasized that, "Ours will be the decisive role in the creation of tomorrow's environment." In his keynote address brilliantly identifying the future role and responsibilities of the profession, he called for increased capacity to meet new demands through the broadening of liberal education, intensification of professional training, increased specialization and an extensive program of research.

The comprehensively structured program developed by David Crane grouped speakers from the fields of architecture, city planning, landscape architecture, history, real estate, art and education into three series to discuss "Determinants of City Form," "The City Designer in Practice" and "Directions in Education for Urban Design." A condensation of the papers from the first group is presented herein, while the balance will be included in the December issue of the *AIA Journal*.

With reluctance to fragment their internal consistency, the content of each paper has been kept intact, though drastically reduced in length. It is hoped that some of the flavor and style and richness of the originals will be evident despite the editorial distillation process. To attempt to convey the essence and value of a convocation of this nature in a few compressed words is a rather hopeless task. The intangible value lies immeasurably hidden beneath the friendships made, the ideas and experiences exchanged, and the reflective synthesis of new horizons and new attitudes of each participant. The memorable experience will live on within all of us, and we shall return to Cranbrook in spirit each mid-June. Dean Thomas Mackesey's moderating leadership through perception and humor imparted strength and continuity to the seminar presentations and discussions.

Many thanks are due Mrs Edith Franchini for her part in the monumental task of transcribing and sorting through the mountains of words produced at Cranbrook.

Our sincere thanks also to the man who has patiently nurtured the Teacher Seminar to manhood from its infant beginning eight years ago. The occasion, near the end of the conference, of a long standing ovation honoring the retirement of Dean Harold Bush-Brown as the chairman of the R-17 Steering Committee was a heartwarming interlude, an ineffable moment of affection and gratitude for a job superbly done.

NORMAN DAY, EDITOR

THE ARCHITECT AND THE CITY

by *G. Holmes Perkins*

Dean of the School of Fine Arts, University of Pennsylvania

The essence of the architect's contribution to the city and to society is now and should always be the sincere and undivided dedication to creative design. His ability to invest each structure with space, with qualities which stimulate new and unforeseen responses, places upon him a double burden. He must in a single act serve the present while opening the door to tomorrow. His is the decisive role in creating tomorrow's urban environment. I say this knowing very well that there are many forces which are beyond his control.

There are many areas in which he cannot ever compete with the experts. There are economic decisions to be made from which he, perhaps too often, is excluded; there are political decisions which frustrate him and make his life intolerable; and there are technological developments over which he has little control. Under these circumstances it is hardly surprising that our architectural visions have been so limited, so dependent upon intuition. It is not surprising that we have failed to reflect in our designs the potential richness of urban social life and have relied too much on norms and averages for guidance, rather than on a true and human understanding of the individual.

On the other hand, there has been a steady widening of the architect's social responsibilities and an expansion of his technical competence. There are a few of us who can remember being trained in the classical orders which were the basis for architectural design. Since those days the ideas of Morris, of Wright and of the Bauhaus have entered the picture and are already as much a part of our rich architectural heritage as the earlier theories of Alberti, Palladio and Gaudet. The at-

mosphere and character of architecture is utterly different from what it was two or three decades ago.

The architect of tomorrow will operate in an urban setting. I am not suggesting that he neglect the countryside completely, but he very nearly can. The major urban areas of the United States will probably grow by ninety million persons in the next twenty years accompanied by a total decline in the rural population. This indicates not only a physical impact upon the city but also a tremendous problem of social adjustment as people move from the farm and smaller communities to the larger urban areas.

The architect of tomorrow will operate in a highly competitive society where within the urban areas there is already a marked exodus of the well-to-do from the central portions of the cities to the suburbs. If you could redevelop the areas vacated by these persons this might not be a bad solution, but here you are running hard against the social problems raised by the segregation of the less well-to-do within the city core from those who can afford to escape. Middle income families and the well-to-do whose family backgrounds have provided a certain tradition, sense of control and standards of life have moved to the suburbs.

Tomorrow's architect will be operating in a state of constant and accelerating change. He will be operating in a surplus economy whose productive capacity is no longer a limiting factor in choice. We can no longer excuse ourselves for doing the second rate thing because we could not afford the first rate. It is because we prefer the second rate that we make that decision in a surplus economy.

There is much to be said for Huxley's view when he says, "At present our approach is concerned almost entirely with economics, social security and physical health. This material approach is frankly not enough. However adequately it deals with the foundations of life, it leaves out all its upper stories. Our new view of human destiny insists that emotional, intellectual and spiritual satisfactions must also be taken into account."

In recent times there has been a tendency to recognize Huxley's admonition to us. In recent urban renewal competitions (San Francisco, Washington, DC, and several in Philadelphia), the decisions on several significant ones have not been based on financing or economics or densities. They have been decided upon the basis of architecture interpreted in the largest sense, in the sense that this design is capable beyond all other designs of creating a humane environment for urban living.

Tomorrow's architect will obviously be involved in urban design. His interest and his acts will impinge upon the landscape, on art, on city planning, on engineering; in fact, upon the total urban environment. Yet his training is most inadequate. We have a long way to go before we are prepared to fulfill this expanded role. Our educational facilities are way behind the times.

Let us compare for a moment our own present state of affairs with that of the medical profession. I am not suggesting that there is any close analogy, but there are still basic lessons to be learned. The medical profession met the challenge we are faced with sixty years ago. About 1900 Sir William Osler, helped by Carnegie and Rockefeller grants, set up a new form of medical education. In doing so the doctors recognized that scientific medicine became the objective; specialization, the dominant pattern; and the university medical center, the preferred instrument.

Concern for Total Environment

About 1925 the idea of scientific medicine began to be supplanted by the new concept of comprehensive medicine with its interest in the whole man, in his emotional well-being, in his home and his community environment. This new concept began to modify the narrower concept of scientific medicine. Are we not entering just such a phase in architecture? Are we not equally committed to a concern with man's total physical environment? I would suggest that such widened and deepened responsibilities will force a lengthening of our present architectural curricula and re-emphasize the advantages of a sounder liberal education.

In medicine this was recognized early in the century. In 1904 only four out of the one hundred and sixty medical schools required any college

work before admission. By 1918 this was mandatory in eighty-five out of ninety-five schools. By 1954, three-quarters of all medical students had completed four years of liberal arts before starting their professional courses. What is even more important, by that time they had discovered how to pick their students. In 1954 in the first-year class in the medical schools, the drop-out rate was reduced to less than five per cent. This is a shocking contrast to the human and financial waste which characterizes undergraduate architectural education.

New Role of the Architect

The architect's expanded role will force specialization upon us regardless of how the AIA votes in convention. This specialization will require some re-examination of our concept of the architect. It will require us to recognize that if we are to be a profession there must be significant research backed by the profession and the schools. We will have to bring in engineers, economists and sociologists just as the doctors brought in the biologist to do much of the basic research as a part of the team until he was employed in the hospitals and in the medical schools as a part of the profession.

If the architect is to prepare himself adequately to participate in decision making upon the basis of this new role, he must obviously have some understanding, though not expert, in many areas. This is demanding, for the instruments with which we work are changing. The scale of development is now enormous. Before the war about nine-tenths of our housing was built by operators who built less than ten houses a year. Today the reverse is the case. The big operator is in the saddle, whether in new subdivisions, urban redevelopment, business properties, housing or institutions. Not only is the scale larger but the methods of financing have changed to make this possible. The technology of building and the nature of the contractor have changed. Governmental participation has become vital to the success of almost every project. You cannot be the financier, you cannot be the realtor, you cannot be the government bureaucrat, but you must understand the reasons why these people are acting as they do and you must guide them so that we will have a more humane city tomorrow.

The architect must participate in the programming. I know this bores most architects, but it is in the program process that many decisions are made that you later complain about, where densities are set, where segregation of uses is established. You must understand the design repercussions of the economic, political or social decisions which are proposed and advise as the expert in this area.

Focus for a moment on the response of education to the demands of this new role. I have already made my plea for a new emphasis on a liberal education. Beyond that, one fact is of fundamental importance. The essence of the school is obviously the attitude and quality of its faculty. A creative attitude must prevail in all the parts, in the design of a city to that of a structural system. Under the umbrella of a single faculty dedicated to the design of a total environment, there should be programs in landscape, in structural and mechanical engineering, in art, in planning and in architecture. Each one will contribute its share to the common cause.

In designing the new curricula we must be far more cognizant of the role of history in the making of cities, with an understanding of time as one of your design elements. We must study the relationship of social structure to physical structure. We must have greater attention given to all the forces which mold our cities and our architecture. Systems of movement evoke new forms, the decisions of government design our buildings for us, and investment policies and even myths affect our work.

If we would be masters in our own house, we

must learn to manipulate these forces as well as we now integrate our spaces and our structural systems. We must incorporate within our thinking and within our curricula the idea of research, and an atmosphere of exploration and experimentation must pervade the school; an atmosphere of learning whose prime purpose is the discovery of natural laws of human reactions to space, color and form, technical innovation and the creation of a more humane environment.

Let me say in closing that in spite of all this discussion of a new vision and concept of the architect, basically this is the architect of old. It is the same old challenge, and our response to this challenge is, I believe, most eloquently described by Le Corbusier when he says, "The architect by his arrangement of forms realizes an order which is the pure creation of his spirit. By forms he affects our senses to an acute degree and provokes emotions. By the relationships which he creates, he awakens profound echoes in us. He gives the measure of an order which he feels to be in accord with our world. He determines the various movements of our heart and of our understanding. It is then that we experience the sense of beauty."

TECHNOLOGY AND URBAN FORM

by Aaron Fleisher

Associate Professor, Department of City & Regional Planning, MIT

To realize a synoptic view of technology is hardly a simple matter. One has to anticipate the potentialities of technology, the course of all the other changes that flow independently from technology, then gauge the interaction of both. To separate the influences technology will have on the city is an example of such a compounded problem in prediction.

The city is a large, complex, loose-linked organization. Its equipment is bulky, immobile, costly, and obsolesces at a slow rate. By contrast, the pace

of research has become so quick that the distinction between science and engineering is difficult to maintain. The flows of urban and technological time, therefore, are not commensurate. Whatever the reason for the lag between these two kinds of time, it does exist, and therefore fifty years of urban history is at most equivalent to thirty years of technology. There is a parallel dislocation in value representing the economic gap between technological capability and the usable product.

An inquiry into the manner in which technology

affects urban forms might profitably be pursued by raising two specific questions. Are there any physical limits to growth? Will changes in communications, occupations and transportation favor any particular pattern of density? (By urban form here I mean only the density of population as a function of locus in the city and the time of day.)

Size Limitations

Toward the end of the next fifty-year period a city of fifty million can exist. Such a concentration would be unworkable if either external supply or internal distribution should prove too expensive. The supply and distribution of food and the production of electrical power appear to be adequate for the future though not capable of indefinite extension.

An adequate supply of water will not be so easily assured. The need for water will increase faster than the population, and within the next 50 years new sources other than runoff or ground water will be required. The sea is the most probable source. This will open up vast areas for irrigation and may very well influence the distribution of population within the continent but will not noticeably influence the internal form of the metropolis.

The amount of wastes that will accumulate will be monstrous but by some chemical means they will be manageable. The atmosphere is also used as a sewer. To judge from the intensity of the present concern with this problem and from the current rate of clearing, I would think that the noxious output per person will be cut at least by the amount of the increase in the population. For those areas unfortunate in terms of local geography and climatology, some comfort can be gathered from the prospect that in the future the meteorologist will be able to prescribe the optimum distributions for fixed sources of pollution. The automobile will require a different tactic.

Communications

Most modern cities display a distribution of density of population that has a sharp maximum in one or several small central areas devoted largely to business, and a diffuse minimum, pock-marked with commerce, where people live. People choose to conduct their business in an environment that offers the greatest possible number of personal encounters and to spread their family affairs over as much space as they can afford. I take this to be

a real conviction, not a convenient compromise. Given this fact, how will it be modified by changes in communication?

Let us suppose closed-circuit television to be as common as the telephone is today. The telephone was also a dramatic technological change and provides an enlightening parallel. It is a rather low-fidelity device, having about one one-thousandth of television's band width, but there are still personal encounters it could replace. Instead, the net result seems to have been an occasion to increase density. Having acquired an efficient means for preliminary negotiations and routine instructions, many people, ordinarily on the move, remained fixed. Space was saved and higher densities made workable. Television may have the same effect.

The telephone has contributed to the exodus to the suburbs, but by itself it would have been powerless. A parallel means of transportation has to be available. With similar reservations, television might exert a similar influence. However, I doubt that it can be as effective. The difference the telephone created is very much larger than the added advantage of a television channel.

Occupations

I think that we shall see automation increasing at almost all levels of activity. The ultimate limit of its application is not very important; it is enough that the machine has demonstrated its ability to affect a substantial part of the working population. By the end of the fifty-year period there may be a marked displacement of white- and blue-collar workers. The machines will generate new occupations and increase the number of people in others—but in time, the balance may show a small net loss in jobs. The machines may provide occasions for an increase in density. Many decisions that are being made locally and individually will, because of the advantages conferred by machines, be made centrally and collectively. When management does centralize, it will probably favor the core of a large city, but its reasons for doing so will be neither economically nor technologically compelling. The requirements of the machine itself contribute very little to the locational decision.

The greatest effect the machine may have on cities is an indirect one. The human work load will be substantially decreased. To provide for the new leisure can become a proper part of public policy and therefore a substantial determinant of the form of the metropolis.

Transportation

The complex of American cities—their locations, their functions and their sizes—was determined in part by the transportation facilities of the nineteenth century, the railroads and waterways. A new means of transport that is sufficiently good can modify this complex by altering function and influencing relative rates of growth. The airplane may be one such means. An aircraft that can take off and land vertically and fly three times the speed of sound is not an unreasonable projection. The national economy may then come under the influence of a new scale of time and distance. However, again, this will have little influence on the pattern of the metropolis.

If fifty million people are distributed in a metropolis with the average density of New York City, they will cover an area equivalent to a circle twenty-five miles in radius; the density of Los Angeles would give a radius of sixty miles. Since the outlines of a city are not circular, these distances could easily be doubled. Surface transportation under the best of circumstances will require several hours to get some people to work. To keep travel time within two hours, the average speed would have to be at least doubled. Since we can expect nothing radical by way of new vehicles, this means that each vehicle must have its own right of way and automatic safety controls. These requisites are feasible but expensive.

Alternatively, aircraft engineers believe that in time they can provide a system of mass transit. As with other mass transit systems the critical parameter is the mass. If such a system works at all, we may again see cities growing radically.

A further alternate possibility is the one-car, one-airplane family, if the parking problem can be solved. The traffic problem will be formidable, for

it will require keeping tabs on the origin, location and destination of all flights over the metropolitan area. (Airway channels can be as expensive and as offensive as the highways.)

Technology is not likely to contribute very much to the solution of the general problem of congestion caused by the crowding of people and vehicles into the city. Its reduction is more than a matter of adding capacity, for channels are not passive participants in determining how the traffic will be shared. Therefore, congestion cannot be controlled by simple additions to the network of roads. In this respect, the network of highways resembles a system with destabilizing feedbacks. The largest advances in ameliorating congestion at this scale will probably derive from the elaboration of controls.

It is apparent that any uncompromising solution would violate the principle of the incompressibility of people and things. I doubt whether there is any solution that will not proscribe someone's freedom to travel. Chronic congestion is a characteristic of cities, and I suspect that technology has been used to realize patterns of growth at maximum density and maximum congestion.

I would conclude that the patterns of density within a city appear to be largely independent of technological developments. The significant changes in technology which are foreseeable will affect the distribution of population at the national scale but not to any high degree within the metropolis. The specific chosen application of technological developments has had obvious effects on past changes in the form of the city, but we should remember that technology of itself is amoral and ambivalent. Its application is fundamentally a matter of policy decisions. Technology is now sufficiently versatile to meet most reasonable specifications. We need no longer wait and wonder.

THE PURPOSE OF THE CITY

by John B. Jackson, Editor, Landscape

By contrasting the Baroque, the Romantic and the Contemporary city landscapes, it is possible to approach some understanding of the urban landscape which is evolving around us and the role which every urban landscape plays in our lives. For each landscape, urban or rural, represents a unique way of organizing space and activity in order to achieve a desirable purpose.

The Baroque City Landscape

It is customary to define the Baroque Age as the years between 1550 and 1750 corresponding to the rebirth of Rome the city. In the middle of the sixteenth century, Rome was fast coming to life after generations of neglect and decay. The new cathedral of St Peter was at last being built. The popes took pains to beautify and enlarge the city, and in the older quarters as well as on the surrounding hills splendid palaces, churches, villas and monuments were rising. Noble families came to live in Rome and in their wake came countless artists and architects, painters and sculptors, actors and writers and musicians, and, of course, a vast horde of tourists, adventurers and students.

By the end of the century the population had tripled to become one hundred thousand. Everyone in Europe who wanted to acquire polish, and at the same time enjoy himself, found his way to Rome during the winter season where probably the most entertaining aspect of Rome was Rome itself.

From early in the morning until dark the city resounded with a bewildering assortment of activities, engaged in by people of every class and age and origin: vendors of fruit and cold drinks and sausages, marionette players, beggars, fashionable sightseers, and constant processions of priests, soldiers, visiting celebrities, weddings, funerals and the carriages and sedan chairs of the rich.

Pageantry of this sort must have been fascinat-

ing to watch, but a rich and varied street life, like that of any European city of the period, means that there was actually no other place for these activities. The Baroque city did not provide its citizens with small private or specialized areas. All but the very rich lived in crowded and promiscuous quarters, and even the rich lacked the secluded living rooms, patios and studies our houses possess. When a Roman of the Baroque Age wanted to converse with friends, or when he had business to transact, the street was the best place to go.

The street scene in Rome also constantly reminded the citizen that he lived in a strictly ordered, hierarchical society, a society organized according to rank or class or grade or birth. Much of the Baroque landscape was designed to dramatize this principle. The Baroque parade, like the Baroque public spectacle, was a visible demonstration of social purpose and order: the succession of participants, building up to a climax, was not only a matter of art but of a social hierarchy. A pope's birthday celebration, the funeral of a cardinal, the anniversary of a saint, an important wedding or funeral were very intricate organizations of precedence and rank. Wherever the citizen looked, wherever he went, he was reminded of a permanent order behind an apparent confusion.

In theory this strong sense of a social order means that the city itself should have been divided according to classes, but in the Baroque city there were, strictly speaking, no specialized quarters for the rich or for the poor; they were all together. The Baroque city was looked upon as a society of buildings, and perhaps it was the appearance, the design of the buildings, which indicated their social standing, rather than their location or function.

Many traits of the Baroque Age seem to be coming back to life and are being deliberately

fostered. I myself happen to admire its formality, its vigor, its humanism, but I think we should take a second look at its shortcomings. The emphasis on a hierarchical rather than a functional organization of society was hostile to any easy growth or change.

Secondly, the disregard for private life reflected little or no understanding of the importance of interior existence, speaking psychologically as well as architecturally, with the result that the age which came after it went to the other extreme and emphasized the individual experience, the individual environment, at the expense of the whole city landscape.

The Romantic City Landscape

We are familiar with the usual textbook explanations for the rise of the Romantic city: the beginnings of democracy, the use of capitalism, the dawn of the industrial revolution, the introduction of sentiment and emotion into art and the rediscovery of nature. I myself feel that beneath all these changes was a change in the way men defined themselves. They were disenchanted with their identity as social beings and began to see themselves as more or less unique individuals, each privileged or obliged to make his own adjustment to the surrounding world. People lost interest in traditional man-made public areas and started, very tentatively at first, to create a whole series of small individual worlds for one specific purpose only.

The most obvious instance of an urge to create and control a small private environment is the rise of the suburb with its freestanding house. In the middle of the eighteenth century this became a noticeable movement; and Paris was among the first cities where it occurred. Hitherto that city had been typically Baroque. Then, with comparative suddenness, the well-to-do middle class and the aristocracy decided to desert their palaces and mansions in the crowded downtown section cheek by jowl with tenements, taverns, workshops, stables, lodging houses, and began to build houses in the new western section where the Etoile and the Champs Elysées and the Parc Monceau are now located. The older part of Paris abandoned by the wealthy became a slum, which much of it still is.

The result of the migration to the suburbs was a division of the city for the well-to-do into two distinct parts: a residential part and a business

part; and when railroads and large industrial installations came to Paris the working class experienced the same division. As we all know, these divisions in the city multiplied in the course of the nineteenth century.

A characteristic of the Romantic city was its cult of nature which we have to thank for our parks and public gardens and for the introduction of greenery into our cities. We can also thank that phase of the cult for much of our finest painting and poetry and music, but the cult of nature had another, less fortunate aspect; the nation and the city were looked upon as spontaneous organisms which men were to respect and admire but not seek to control, for nature was working toward her own inscrutable ends.

It is not hard to point out the faults of the Romantic city landscape. The period is still too near to have acquired the charm of antiquity. Because we are now in the midst of seeking a new form for our cities, we are particularly aware of the obstacles presented by our Romantic heritage: slums, decaying downtowns, congested streets, the formlessness and immensity of every contemporary city.

The city landscape we have inherited is far uglier than the one inherited by our Romantic forebears; but we should in fairness observe that today's modern city is also incomparably rich in diversity of experience. Whatever its horrors, it is capable of producing self-awareness and a more intense individual existence.

The Contemporary City Landscape

The beginning of the Contemporary city was sometime immediately after World War II. It is far too early to distinguish the form it will take, but since I happen to be one of that old-fashioned breed that believes there is a meaning to history, I will not hesitate to say that the future will be in many ways a continuation and amplification of the past. Let me mention two characteristics which seem to me to be typical of the Contemporary city landscape.

Certain traits of the Baroque city seem to be reappearing in a twentieth century guise. The most obvious of these is a renewed interest in planning with its heightened awareness of esthetic factors in the city landscape, a coming together of architecture and urbanism and a realization that planning is very much involved with how people work and live and enjoy themselves.

Another aspect of our Contemporary city landscape that resembles the Baroque is a fresh emphasis on the spectacular, the representational. The impact of advertising is by no means confined to the printed word; it not only lines our highways with billboards, it lines our streets with elaborate commercial or promotional architecture institutionalizing commercial firms and humanizing public institutions.

Finally, there is a growing revival of mass pageantry—world's fairs, monster rallies and sporting events. I question the possibility of reviving the Baroque street scene in the USA because the public is no longer the same. For better or for worse, the average European or American has become largely independent of the street. The notion that we can lead any significant part of our lives in public is an agreeable one but unrealistic. This is not to say that public gathering places are not needed, but they must be adapted to our less extrovert society.

The solution as I see it is not a series of pedestrian malls or more parks or sidewalk cafes or shopping centers or any neo-Baroque revival but a totally new kind of public gathering place. We are not a homogeneous group; we do not derive pleasure from people as such, but rather we tend instinctively to form groups of compatible persons. I strongly suspect that the new kind of public gathering place will be highly specialized, enclosed, well-defined areas, excluding by some kind of psychological barrier the enormous heterogeneous public.

There are two aspects of our Romantic tradition

which show few signs of disappearing. The modern city remains divided into many distinct quarters, each with its own type of activity. There are many critics of the urban landscape who deplore this compartmentalization, but it seems to be strongly entrenched in the modern city scheme.

The other is the feeling for the sanctity of the individual and the individual environment expressed in the fact that half of the population of this country now owns its own home.

It remains for the future to reconcile these two very different tendencies: the neo-Baroque desire for public amenities and socially directed design and the Romantic desire for the isolated experience in the isolated environment.

An analogy to the biological theory of differentiated and integrated animal societies suggests at least two of the choices in urban philosophy which confront us now. The virtue of the differentiated society is order and beauty and power; the chief virtue of the integrated society is simply that it produces more and better individuals. It exists not as an end in itself but to improve the conditions of life and the possibilities of self-fulfillment.

There is nothing new in this concept of a society of specialized beings. This has been the one increasing purpose of our history: to grow in self-awareness and to acquire a richer identity. It is the role of the contemporary city to carry the process one step further: to show that it is only within a humane social order that the individual can achieve self-fulfillment, not in Romantic solitude, not in Baroque subjugation to the common will, but through an active relatedness to others.

THE ECOLOGY OF THE CITY

by Ian Mc Harg

Chairman, Dept. of Landscape Architecture, University of Penn.

Cities are probably the most inhumane environments ever made by man for man. It is taking the best efforts of modern medicine and social legislation to ameliorate the abuses which the physical environment imposes upon us.

With all the improvements which have occurred during the last century in the social environment, the physical environment has not proportionally improved but has absolutely retrogressed. We plan with a surfeit of economic and social determinism and not enough other criteria. I would not

diminish them as determinants, but certainly they have to be qualified by others as well. In looking for other determinants of urban form, I have found the views of the natural scientist, particularly the ecologist, most illuminating.

The ecologist is concerned with ecosystems: functioning interacting systems composed of organisms and their environment. The ecologist has developed the conception that we are covered by a web of life, a biosphere, with all life on the planet interacting. One can think of the entire

world as a world-life body in which all organisms, all species, have a role, which is comparable to the cell and to the organ within the human body. The minute one takes a view of this sort, one is immediately proscribed from gouging, hacking and destroying because the conception of the whole world-life body as being interacting somehow induces some restraint in self-mutilation.

Such restraint is supported by the knowledge that all organic systems are by themselves depletive. Any single organic system would simply deplete the resources of the world and be extinguished. Man, of course, is a depletive organic system. In order for organic systems to work, there must be reciprocity. Somebody's waste is that which you consume, that which you dispose of as waste is that which something else consumes. This is called symbiosis.

The ecologist is further concerned with succession, i.e., a development and adaptation in time. The ecologist has the possibility, as an inheritor of the Darwinian-Wallace tradition of evolutionary biology, to see the relationship between process and form in a clearer way than anyone else. Architects used to say, "Form follows function." This was a kind of a manifesto, always illustrated by inorganic systems like utensils and planes and rockets. This was all right as far as it went, but if one notes that this was being proclaimed at a time when Darwin had existed for almost a century, and sciences like morphology and zoology and biology and botany had been well advanced, it was, in retrospect, a kind of infantilism.

If one looks at organic systems, I think one would have to adapt the statement and say, "Form expresses process" or better still, "Process is expressive." Zoology, morphology, botany and biology are all based on the presumption that the adaptation of the species, the role of the species and the location in terms of the environment can be determined from the aspect of the species and its adaptation to the environment.

One of the most beautiful examples is a simple deciduous forest. The distribution of the plants, the shape of the plants, the relative size of the plants, the periodism at which they flower and fruit is vastly expressive. Indeed one could determine almost all the important things about the distribution and flowering periods of the plants by their actual shape. That which tends to be seen as a sort of undifferentiated green has specificity and is an extraordinarily expressive statement of a highly ordered system.

A compressed example where process is expressed very clearly in form is the formation of a

sand dune. The entire process from beginning to mature dune covers only about twenty-five years. When the beach has an inclination of five to ten per cent, wave action will deposit particles of sand. A sand bank, or island, is gradually formed and when it reaches a height of nine or ten feet, marram grass volunteers. The dune is progressively stabilized by a succession of vegetation, sometimes including live oak and pine. The ecologist can identify all the elements of vegetation in terms of the limitations within which they can exist (salinity, brackish water, exposure, etc) the environments to which they have adapted, the association of these plants and also their succession. Here is something which seems to me has absolutely enormous relevance. One can see in the function of all of these variables, a form which is totally expressive.

Examination of a Region

There is one larger process which is less complete than the examination of the dunes; i.e., the examination of a region. Confronted with the necessity of land-use planning for the Delaware River Basin, our study group selected the cycle of water as a device for examination. Besides the cycle of evaporation and precipitation, one can specify places where horizontal movement of the water occurs. The intrinsic functions of the forested upland sponge, the agriculture piedmont, the estuary marsh, the underground aquifer, the aquifer recharge area, the rivers, the streams, the flood plains and the riparian land can be identified, their areas can be demarked. Each is expressive of its particular role or process. One could immediately conclude something about the degree of permissiveness or nonpermissiveness of these particular functions, relative to other functions.

If you take an area like the Delaware River Basin and locate all of these areas, suddenly you find that you have covered something in the nature of fifty or sixty per cent of the whole region and you also find that you have produced something like a negative development map. Before you locate new towns and developments anywhere you like on the basis of some economic determinism, let's add this parameter to your planning! Look and see what intrinsic functions actually occur in this supposedly undifferentiated green space and see the degree to which these intrinsic functions can co-exist with the development which you propose.

I have a sense that if the best common knowledge of biology, ecology and oceanography, which has permeated landscape architects like myself,

had been operative on the Jersey shore, there would have been no catastrophe in March 1962 at all. It was only the gross stupidity of breaching the dunes, destroying the vegetation and building on top of the dunes which produced the catastrophe. In the Delaware River Basin some conception about the demarcation and the intrinsic functions of open space will tell you the degree to which it is permissible to alter the existing balanced environment.

But coming to the city is another problem. I am thoroughly scornful of that which proposes to be city planning and spend the best part of my time indicting that which is supposed to be the highest and best good of civilized man and his fine transformation of nature toward his own ends, but I'm not certain how to do any better. I have only little bits and pieces taken from several scientists which I believe are worthy of our consideration.

Pathologists doing studies with rats in extensive environments have produced some quite astonishing information. They place breeding couples in a superabundant environment which produce big, healthy litters and they're happy, and they eat and they populate and everything is fine. Then, as the population begins to reach half its maximum (there is a maximum determined not by available food and water but by density and social pressure) "pathological togetherness" occurs. A whole lot of subordinate animals emerge which just cower in corners and are bitten by other rats. The size of litters diminishes really quite startlingly. There is cannibalism, intra-uterine resorption, and the birth rate falls down dramatically.

Diminution of Population

Hardly has this been recorded when something else happens. One finds the adult animals start being prey to all sorts of diseases. This is what really gives one pause, because the diseases they get are absolutely identical in kind and in number and distribution to those of twentieth-century urban man. As a result there is such a diminution of the population as to frequently lead to extinction.

Now man, in cities, has devices by which he can ameliorate social pressure, but, nonetheless, I think the correspondence between the kind of diseases and the distribution of diseases in these rats (they're not dying from TB, or pneumonia, or dysentery; they're dying from cancer, lung disease, kidney disease, heart disease and they are prey to neurosis) and twentieth century man is startling. As density increases, stress increases; from that the susceptibility to disease increases; and reproductive capacity falls.

The next bit is atmospheric ionization. All combusive processes produce positive ionization. In normal countryside it tends to be about 70/30 negative/positive and in the cities almost the opposite, 70/30 positive/negative. There is no doubt at all that this positive ionization has physiological and psychological effects. It inhibits the capacity of the organism to reject the carcinogenic elements which combustion also produces among others.

Sensory Overload

Then there's sensory overload. Lynch and Luckashoff showed that there are so many stimuli in the city that most people simply distain them all. Studies at Eastern Psychiatric Hospital in Philadelphia show that many people confronted with sensory overload respond by filtering out this sensory overload to a point of suffering hallucinations from sensory underload. If our physical environment is so anarchic, so disordered, that people have to filter out in order to survive, this is an extraordinary castigation of the form of the city.

Then there are such things as smog, temperature inversion and the carbon dioxide cloud. We may all be increasing our tolerance to these, but honestly, I don't know that there are so many compensating advantages to justify it. Why don't we get rid of carbon monoxide?

The simple idea of South Sea Islanders, that you should plant ten trees when every child is born, makes awfully good sense for people who depend on oxygen. The knowledge that a fountain produces negative ionization is a wonderful bit of knowledge when one realizes we tend to suffer from too much positive ionization. If stress is a basis for susceptibility to disease and the instance of many diseases, then we must seek the form of the city which will reduce stress, with the possibility of maximum tranquility and introspection.

We mustn't subscribe to life-inhibiting processes. By accepting the form of the city and the processes of the city that do exist today, we are, indeed, doing this. I don't think it's the proper fulfillment of our own role that the city can only exist because of the best advances of medicine and social legislation. We must be certain that architecture and landscape architecture and planning don't subscribe to perpetuating and increasing that which is life-inhibiting. We must find a modern city that is not an eighteenth century city with gouges and additions and unacceptable grafts, but truly a modern city.

I suggest that there may be some analogy, some insight and, perhaps even the possibility of finding form from process, through the perceptions of the ecologist.

ARCHITECTURE IN CHANGE

by *Romaldo Giurgola*

Associate Professor, Dept. of Architecture, University of Penn.

The French word *urbanism* means "the general study of the conditions, motivations, and life needs and development of the city."

Urbanism, although not an exact science, is still a discipline whose aim is an architectural synthesis of all those values which represent the urban aggregate in the broadest sense of the word. Thus urbanism is an art.

Urbanism indeed is not a modern art; on the contrary it has guided the formation of civic life for centuries, but the industrial revolution presented new technical problems and created new needs, for which, in the attempt to offer particular answers, the unified vision of the city life has been lost.

Recently a more active interaction between technical culture and politics has developed and, in the specific case of planning, the growth and deepening of historical observation relating and dimensioning the facts in their continuity and complexities. I would like to trace some of the transformations of the human aggregate and the origins of modern urbanism since the industrial revolution.

The early denunciations of material misery caused by the cancerous growth of slums began back in the second half of the eighteenth century. The English state of affairs was only one aspect of a new situation which became generalized in Europe and America, with visible consequences in the structures of the cities and reflected in the new political and economic aspect of the modern state. Today, looking at the spirit of those early denunciations we feel that they were incapable of coordinating and resolving on a common ground of action, the moral problems of Victorian society and the corresponding material ones. Such a split was assured from the start. Architecture and the paraphernalia of esthetic ideas and ideals were on one side while the strictly operative problem dominated by technical dryness formed the

other. Prevalent was the gridiron and the mercantile town.

The very refusal by Owen and Fourier and other theoreticians to consider a coordination of the human rapport within the existing city, hoping for a solution with no limits and compromises for an ideal society outside the city, is an indication of the unwillingness to reach for the proper means of natural continuity. The internal problem remained unchanged: Welwyn Garden City and Lechworth were cultural and literary expressions. However, with the deep alteration of social structure, economic life and cultural pattern, significant changes did take place in the symbolic areas of the city.

Such areas, especially in Europe, generally coincided with the old political and mercantile center in which the new was added to the old according to a process of integration and absorption which almost never led to the total destruction of what existed. Of the many integrations of the old center and the new, the most notable is certainly the great axis of the Louvre, the Tuileries, Place de la Concorde, Champs Elysées and Place de l'Etoile. Recall also the Bulfinch plans for Boston, Philadelphia and New York. Evolutions of this sort, pivoting around the older monumental works, constitute the foundations on which the center of the city becomes transformed (often with a character totally in opposition to the one of the preceding centuries), by the end of the nineteenth century.

However, in the cities of the nineteenth century there was little sensitivity toward controlled spacial relationship which seemed an almost instinctive characteristic of the fifteenth and sixteenth century. In its place came a geometric schematism obedient to a generalizing and positivistic philosophy with a predilection for an open urban form. The large substituted for the great,

and ornamentation took the place of deeper celebrative architectural expressions. The urban center of the nineteenth century was influenced by the uniform sentiment of an anonymous crowd, incapable of recognizing a vital limit in the urban space, ready to impose as a dress uniform the symmetrical schemes and facades repeated with monumental monotony.

With the screening of time, however, we are able today to recognize the sufficiency of means of those realizations; their dignity and monumentality without rhetoric. Nothing has really been able to substitute for that rich density of the nineteenth century architecture in the civic centers. When all the residuals of provincialism have been eliminated a so-called "pure architecture" will not be capable of expressing the power, vigor and stability embodied in the nineteenth century center. They emerge as an indispensable part of our civic life. (The success of Penn Center hangs upon the existence of City Hall, the loss of which would be irreparable; the Government Center of Boston presented a considerable problem because of the sudden arrest of the old structures severed with surgical precision to obtain space for the new buildings.)

Changing Urban Fabric

Between the two wars a huge program of urbanization brought about deep transformations of the urban fabric in Europe and America, highly influenced by architectural functionalism; aspiring to an expression of living in the perfect organization of the different parts, according to needs which were to be the same for all men. The *idea* of the urban environment saw every individualizing expression carefully excluded. The real concern was the creation of an ideal framework for a typical man, a danger from which we are not yet immune. Technology was idealized in order to define a concrete representation of a particular vision of the world and society. Architectural problems prevailed on the urbanistic ones.

This very rigorous analysis of human behavior did not produce a prefabricated, totally industrialized world as was the dream; but multi-stories, the row houses, the duplex belong to a well-defined schedule which eliminated all the preceding definitions of building types. The street received a precise calibration according to the traffic, and the building became free from the limitation of the street.

The concept of the *new city* was determined by a need for something technically and functionally unified. The search was for an expression in just opposition to the plethoric chaos of the existing city, for something that could make a program so that standards could relate dimensions.

Functionalism developed in a revolutionary situation, thus it denied any perceptible significance to the individual facts of history. It has been a fortunate circumstance that functionalism did not bring substantial alteration in the internal development of the city cores, an interruption that would have seriously jeopardized what functionalism did on the general cultural level.

After World War II the idea of the New Towns brought a real revolution to the general principles of modern urbanism and accomplished the structural transformation of the region of London. The policy of the New Town radically changed the character of the English society with the realization of a new class equilibrium, placing the technological organization of labor as a renewed pivot of the nation. It has been the greatest revolution in Europe in the last twenty years.

England's New Towns

Obviously once one lives inside the phenomena, one is bound to exaggerate the importance of marginal mistakes within the general event. Criticism calls attention to the excessive dispersion of the building fabric on an unqualified space with the continuity of the building masses interrupted. As a consequence, a great deal of analytic study of the details of urban furniture was carried on in the vain effort to define a new kind of emotive-psychological relationship between man and environment. The example of some new towns in England offers proof of the inability of our generation to build an urban fabric really new and really expressive of a full civic life. However, the plans for the proposed town of Hook prove that such criticism can be overcome.

The plan of Greater London retains the traditional concentric scheme of the city, traces of which may be found in the thirteenth century. The scheme contains innumerable groups of settlements which are coordinated with the larger form, so that a respect for as much of the existing aggregate as possible is synthesized with the most advanced ideas concerning the great parameters of changing structure. In other words, a revolutionary scheme on a national level is based on a capillary structure capable of evolutionary transformation. The student that looks at the totality of urbanistic activity in England in the last decade cannot fail to recognize that the British are still leaders among the Europeans in the concrete development of planning.

While the plan of London is linked with the total restructuring of England, almost the opposite is taking place in the formation of Greater Paris. The plan does not establish precise limits and bounds, rather it follows expansion by adaptation for the development of the urban aggregate.

Residential sectors, such as Bobigny, comprised of energetic linear structures very high and long are establishing a new urban dimension representing the stronghold and measure and direction of the process of urbanization of the Parisian region. Being conceived on a scale of daring proportion (they are sometimes miles long) they enclose very large open spaces and are able to determine with their presence such a powerful and wonderful structural fact as to be able to coordinate the remanent and future building growth around them.

This strength is not dependent on the size of the buildings but on their configuration, their brutal formal appearance, the loud chromatic scale, and the impact lent by their prefabrication. These elements deeply differentiate these buildings from their European parallel: the celebrated well-groomed Swedish or British example. Such strong ideas, capable of rapid realization, offer valid alternatives to the unchecked growth of the urban fabric and their multiplying activities. Let us not forget the lesson of the strong determined forms—the *cardo* and *decumano* of the Roman towns, the squares of Philadelphia. They are still there, an unequivocal framework for the future of the city.

Developing Industry-Residences

In contrast to the significant events in Paris and London, for Amsterdam the way of development did not substantially change from the direction given by plans elaborated before the war: an optimistic attitude which said that since the plan worked, it would keep on working. The finished product, the wonderful balance between industry-residences which characterizes the new neighborhood, is technically perfect. However, from the point of view of creative value it is an answer far from being positive or satisfactory. The additive growth of autonomous residential units of ten to twenty thousand people each, each subdivided into minor nuclei according to the good rules of classic urbanism, is even less persuasive.

Recent proposals and experiments, such as the Smithson's Hauptstadt Berlin Competition, Aalto's Plan for the Helsinki Central Area, Tange's Tokyo Bay Project, Quaroni's Venezia Mestre Competition and Projects by the Metabolism Group, exhibit a rich variety and new vitality of approach

to contemporary problems of urban configuration. Such vitality is a measure of our concern and of our ability to create expressive form from the content of our societies. My observations lead me to three conclusions: The representation of the city is of an artistic order; there is no one method for the construction of the city; and the interior spaces determine the form of the city.

That the representation of the city is of an artistic order is true today as it never has been. Art has become the simultaneous introduction of all problems, the rational, the practical-functional and the ethical one. The esthetic form is not the bypassing of the utilitarian function but the acquisition of an esthetic value by that same function. Not art at service of function but function that must be sublimated in expressive form. Art then is not only generated by the pure and free poetic imagination but merges in the social, technical and historical realities of life.

If we call content the historic, social and natural experience and form the style, rhythm and measure which lends a space constructive architectural order to the experience, the result is that a new form which will have an authentic esthetic value can be generated only if we go back to the study of the content. *Lebenswelt* is the authentic simplicity which always gets lost and must be found again and again. Our unchanging task then is to seek the relation between the historic-social-economic situation and the city as esthetic construction. The answer implies the most subtle search of all contemporary thought.

Lastly, there are those that espouse movement as the great form maker in our cities, but form continues to emerge from within. This movement, the modulations of our time, resolves itself first through the highways and the air, then in the fractioned rhythm of the civic spaces, and finally in the architecture that wants to be still, a reminder of valid things in life, bigger than ourselves.

It is the experience of the interior space that is the peculiar phenomenon of architecture; all that defines and welds together the social contents, the technical instruments and the expressive values on every level, from poetry to prose, from the beautiful to the ugly. The interior space will be always the locus where all the manifestations of architecture qualify themselves and are applied.

Part II of the Seminar Papers will appear in the December issue of the AIA Journal.

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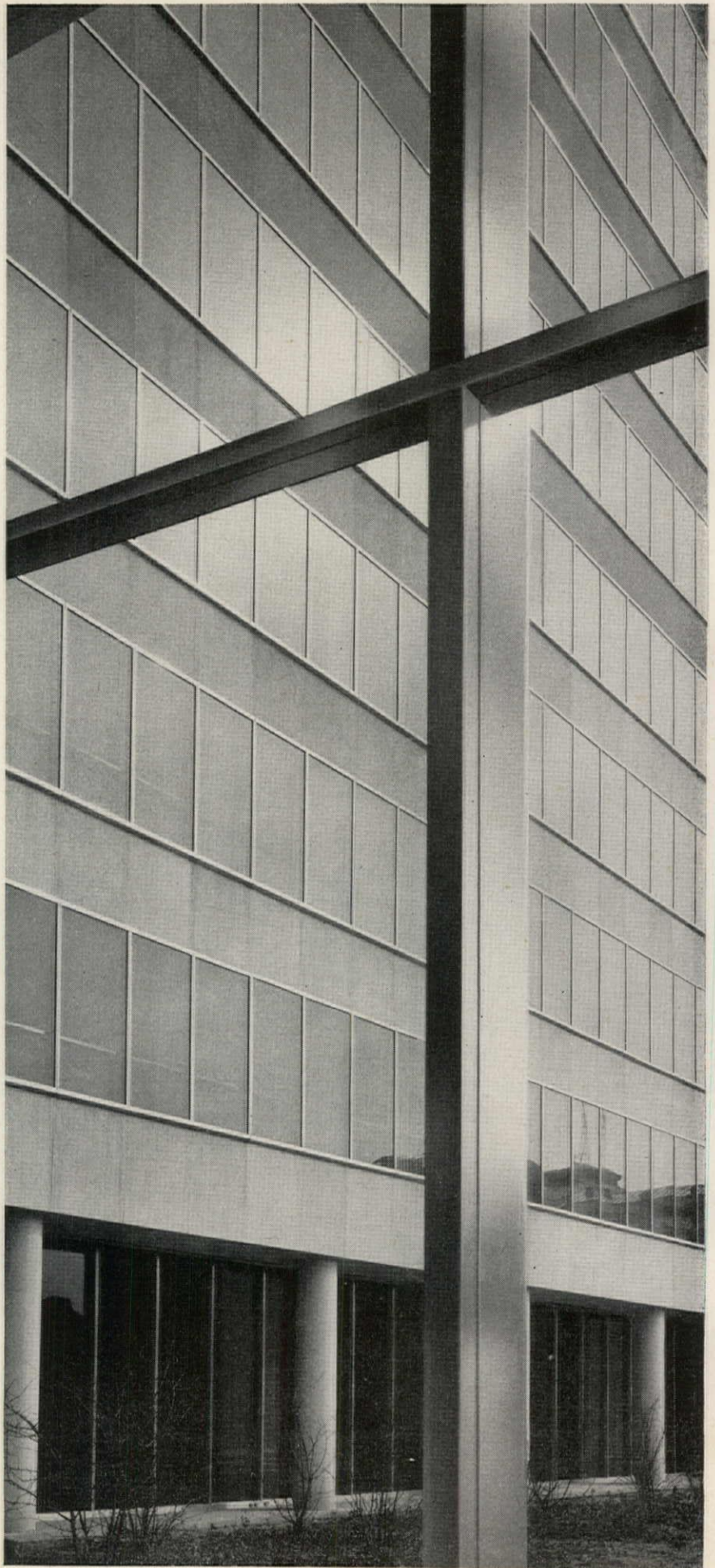
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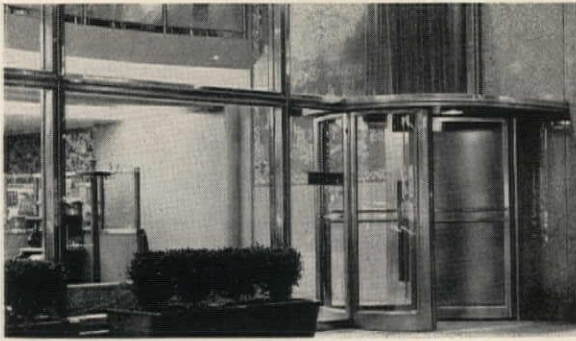
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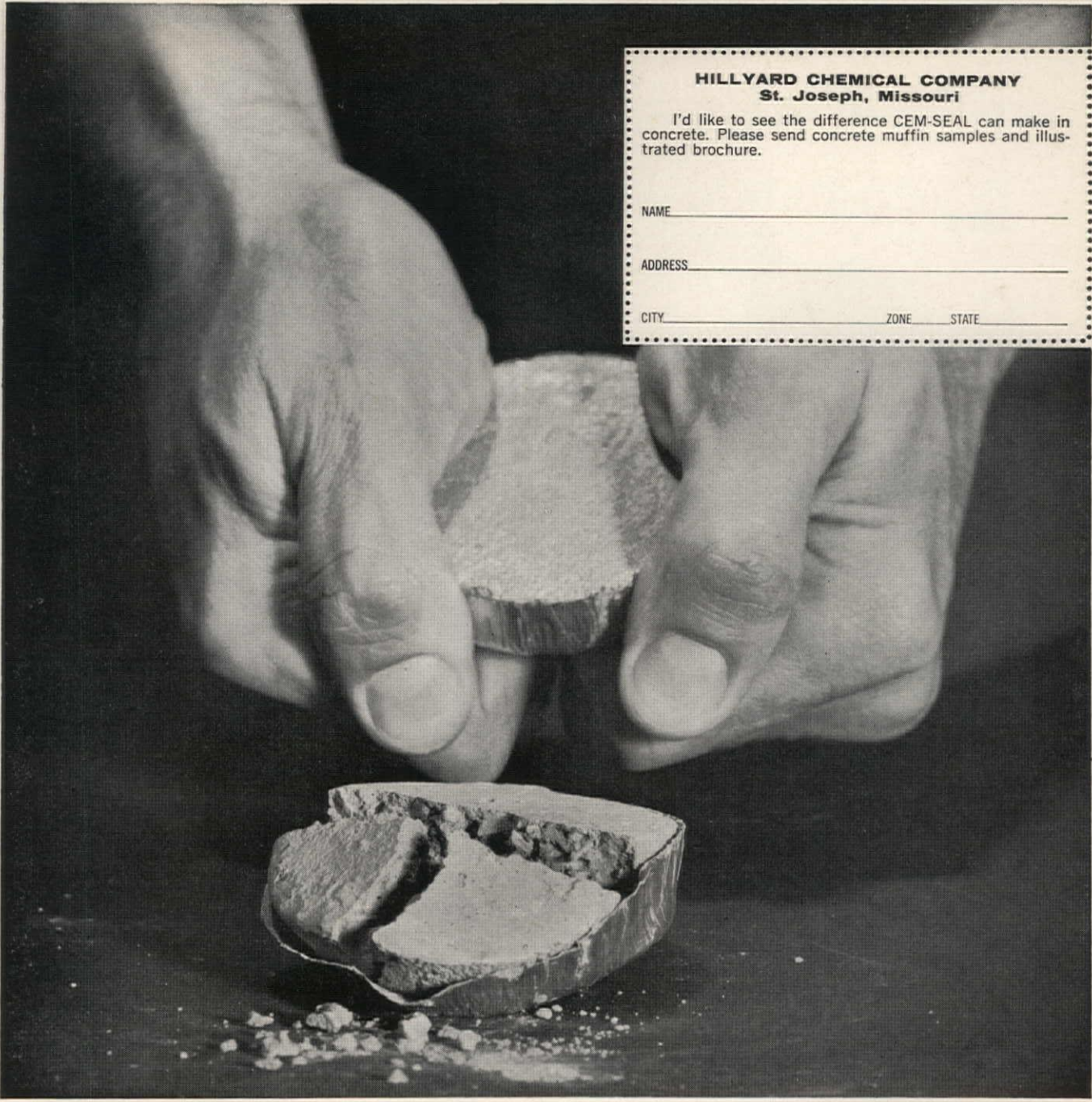
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International Meetings

November: UIA, Sport Constructions, Sao Paulo, Brazil

December 16 to 17: UIA Organization, Paris

1963 Meetings

January 21 to February 1: National Trust Conference for Historic Museum Associates, Woodlawn Plantation, Mount Vernon, Va

January 24 to 26: Society of Architectural Historians, Lord Baltimore Hotel, Baltimore

February 1 to 17: Minnesota Society of Architects' Study Tour of South America (contact Viking Travel, Inc., 1505 First National Bank Building, Minneapolis 2, Minn)

May 6 to 10: AIA National Convention, Miami

June 23 to 28: ASTM 66th Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, NJ

September 29 to October 3: UIA, VII Congress, Havana, Cuba

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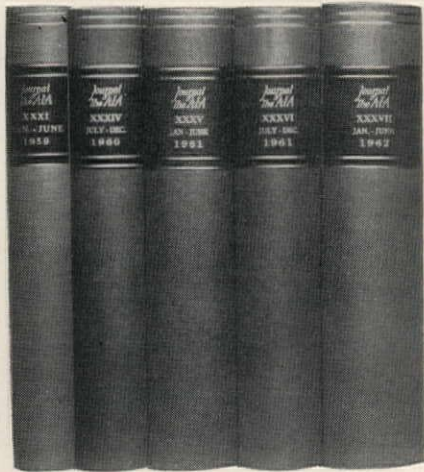
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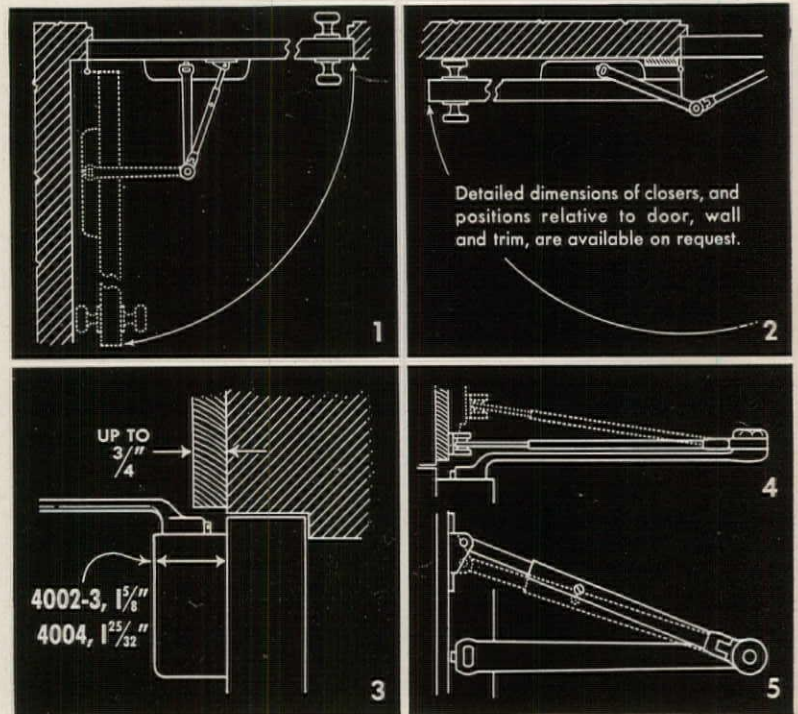
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for the SMOOTHEE® Door Closer Shown on Opposite Page

1. In corners a "Smoothee" takes less space than most doorknobs between door and wall.
2. Degree of door opening possible depends mostly on mounting, type of trim and size of butt used.
3. Arm of "Smoothee" is formed to avoid conflict with almost any conventional trim.
4. Joint in arm and shoe make it easy to vary the height of shoe as needed for beveled trim.
5. Power of closer at latch may be increased or decreased by simply reversing position of shoe.

Complete Catalog on Request—No Obligation
or See Sweet's 1962, Sec. 19e/Lc

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A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd., P. O. Box 100, Port Credit, Ontario

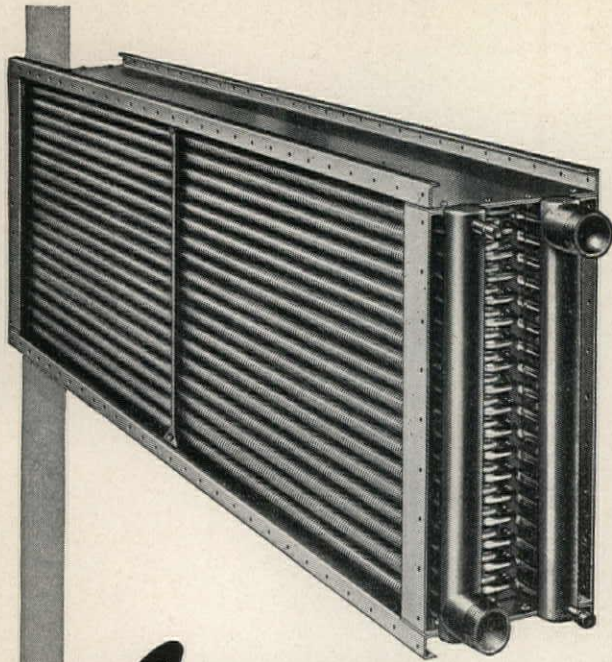


Modern Door Control by *LCN* "SMOOTHEE" Door Closer

NATIONAL OFFICES, AMERICAN BAPTIST CONVENTION
VALLEY FORGE, PENNSYLVANIA

LCN CLOSERS, PRINCETON, ILLINOIS
Application Details on Opposite Page

Vincent G. Kling, F. A. I. A., Architect



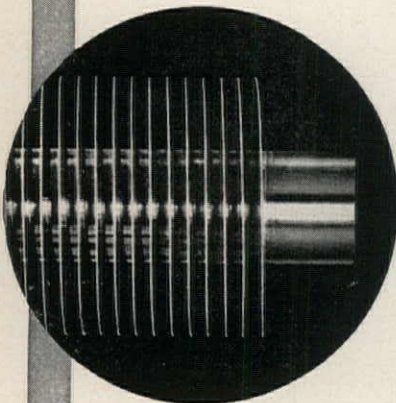
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Allied Arts

Pre-Hispanic Architecture in Mexico

by Wolf Von Eckardt

► The latest addition to the Smithsonian Institution Traveling Exhibition Service's diverse stable is a fascinating show of Mexico's pre-Columbian architecture. The exhibit is entitled "Pre-Hispanic Mexico" and will travel to a number of museums and university galleries around the country under the joint sponsorship of the Organization of American States and the Mexican Government Tourist Department. It is worth watching out for, even though you will probably agree that this painstaking and ambitious undertaking is not an unqualified success.

By means of countless charts and maps, beautiful photographs, (many of them in large, illuminated color transparencies) and huge replicas of sculpture, the exhibit attempts to show the evolution of architecture and its relation to sculpture and painting in Central America from the time the first migrants came from Asia some twenty-five thousand years ago until Cortés and his six hundred Spanish soldiers buried their incredibly creative but exhausted culture at the close of the fifteenth century. What remains of this culture, or rather the various cultures of Mesoamerica, is little more than the powerful, mystifying beauty of the monumental architecture and sculpture. And that, most vividly, is all that remains of my memory of the exhibit. My hoped-for elucidation of the cultures themselves was frustrated by an abundance of scholarship and a dearth of showmanship.

I saw the exhibit in the dingy, cramped lobby of the Smithsonian's Natural History Museum in Washington where it was launched. Yet, even under these unfavorable conditions the life-size Mayan statues and ornaments were simply overwhelming, not only because of their often enormous size alone, but also because of their inherent, haunting magic. I found this quality even in the pieces which are not outright demonic, as many of them are. And I found it far stronger there than in other so-called primitive art and certainly more so than in Egyptian sculpture which some of the figures superficially resemble.

These figures, which are the mainstay of the show, are, I understand, styrofoam casts. But you'd never know they are not of stone unless you'd try to lift them. Some people will probably disdain this device of giving us a faithful impression of the genuine article. I, too, generally prefer one small authentic object to a hall full of plaster-

casts. This, however, is meant to be not so much an art exhibition as an educational display and I, for one, gratefully accept the replicas as a full-scale, three-dimensional extension of the photographic panels.

These panels in combination with the beautifully illustrated charts make the relationship between architecture, sculpture and painting throughout the pre-Columbian ages vivid, indeed. Never, before or after, it seems, were the arts so fully integrated. Even in the earliest temples, structure and decoration appear to be altogether one. And it all used to blaze in vivid colors—or so the archeologists claim. While the mind somehow rebels against their insistence that Greek architecture and sculpture, too, was originally polychrome, color seems a natural and organic feature of Chichén-Itzá, Coatlicue or Teotihuacan. You start to study the charts and to read the inscriptions to learn more about it.

Such study is impeded, however, by the earnest pedantry with which the designers of the exhibition overwhelm us with their classifications and the over-organization of their material. The lengthy legends, furthermore, are all in Spanish and only a few, almost meaningless titles have been rendered into English. It's probably wonderful stuff for an advanced course in Mesoamerican archeology. But the layman who seeks a simple, basic understanding of the beautiful pictures and replicas he sees will find it all confusing and irritating.

This is both a little sad and a little surprising. It is sad because this wonderful, yes, unique exhibit material could so easily also make a wonderful and unique exhibit. It is surprising because this effort was designed by no less than eleven Mexican architects and Mexican architects usually excel at this sort of thing.

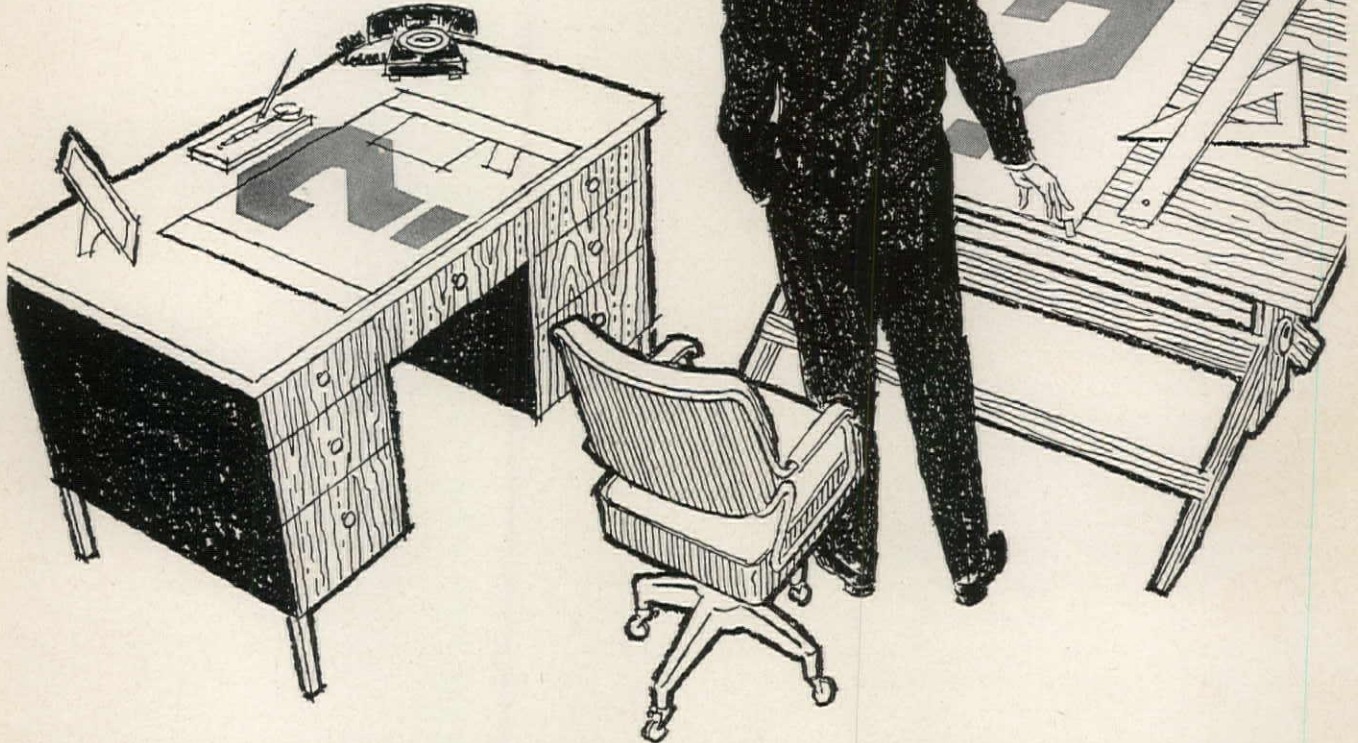
Perhaps these faults are minor compared to the grandeur of the art on view and perhaps some of them can be remedied by a better and more thoughtful display than the Smithsonian afforded this exhibit in Washington.

I am also willing to grant that one of the two purposes of the exhibition, according to its chief designer, architect Piña Dreinhofer, is "to increase the interest of centers of higher learning and education in the United States in one of the most majestic and powerful artistic manifestations of mankind." But even higher education and learning is better advanced by good, straightforward communication and exhibition technique.

There is no doubt, however, that Dreinhofer and his marvellous replicas and photographs succeed admirably in his second purpose. It is "to promote a desire to visit the places and sites where these great masterpieces are located."

I desire *mucho*. ◀

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